Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products

PRODUCT ASSESSMENT REPORT OF A BIOCIDAL PRODUCT FAMILY FOR NATIONAL AUTHORISATION APPLICATIONS

(submitted by the evaluating Competent Authority)

Nonanoic Acid Algaecides

Product type PT2

Nonanoic acid as included in the Union list of approved active substances

Case Number in R4BP: BC-NJ019882-30

Evaluating Competent Authority: Austria

11/01/2023 (Final)

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1 CONCLUSION

Austria was the Competent Authority responsible for evaluation of the biocidal product Nonanoic Acid Algaecides. The dossier submission date 18/09/2015 is to be taken into account for relevance of (new) guidance.

The products contained in the biocidal product family "Nonanoic Acid Algaecides" are liquid formulations which contain 3.1 to 80%(w/w) of the active substance Nonanoic acid. Ammonium hydroxide (25% solution) was identified as substance of concern. It is used during the manufacturing process of the formulations as saponification agent, it is not present in the final product formulations as such.

The assessment considered:

- The conclusions and recommendations of the Assessment Report for the approval of the active substance Nonanoic acid including the "elements to be taken into account by Member States when authorising products"
- The specific provisions from Inclusion Directive for the active substance Nonanoic acid (Reg. (EU) No 1039/2013)

The field of use comprises use as algaecide for use on various surfaces (vertical and horizontal structures) and on roof tiles as well as thatch roof.
Target organisms are different from use to use and comprise: green algae, yellow algae and lichen. Users comprise professionals and/or non-professionals.

Identity and analytical methods were described in sufficient detail to meet the information requirements as laid down in annex III of regulation (EU) no. 528/2012. The physical-chemical properties and respective characteristics of the biocidal product have been evaluated and are deemed acceptable for the appropriate use, storage and transport of the biocidal product.

Based on the authorised use including the general directions of use and any possibly defined risk mitigation measures and provided that there will be no misuse, the following can be concluded:

- Data on the biocidal product have demonstrated sufficient efficacy against the target organisms. No resistance is expected.
- The biocidal product has no immediate or delayed unacceptable effects itself, or as a result of its residues, on the health of humans, including that of vulnerable groups or animals, directly or through drinking water, food, feed, air, or through other indirect effects.
- Also for the environment, it could be demonstrated that the authorised uses are safe for all exposed environmental compartments and the assessment of secondary poisoning has shown that no adverse effects for birds and mammals are to be expected when applying the proposed RMMs.

The product contains no active substances which are candidates for substitution.

It can be concluded that the conditions of article 19 of regulation (EU) no. 528/2012 are fulfilled and that the product family may be authorised.

2 ASSESSMENT REPORT

2.1 Summary of the product assessment

2.1.1 Administrative information

2.1.1.1 Identifier of the product family

Identifier	**Country**
Nonanoic Acid Algaecides	Austria cMS: CH, LU, DE, FR, DK, BE

2.1.1.2 Authorisation holder

Name and address of the authorisation holder	**Name**	W. Neudorff GmbH KG
	Address	An der Mühle 3 31860 Emmerthal Germany
Authorisation number	AT-0013884-BPF	
Date of the authorisation	See authorisation letter	
Expiry date of the authorisation	See authorisation letter	

2.1.1.3 Manufacturer of the products of the family

Name of manufacturer	W. Neudorff GmbH KG
Address of manufacturer	An der Mühle 3 31860 Emmerthal Germany
Location of manufacturing sites	Otto-Brenner-Straße 13-15 21337 Lüneburg Germany

2.1.1.4 Manufacturer of the active substance

Active substance	Nonanoic acid
Name of manufacturer	W. Neudorff GmbH KG (Emery Oleochemicals LLC)
Address of manufacturer	An der Mühle 3 31860 Emmerthal Germany
Location of manufacturing sites	Emery Oleochemicals LLC 4900 Este Ave 45232-1446 Cincinnati, Ohio United States

2.1.2 Product family composition and formulation

NB: the full composition of the product according to Annex III Title 1 is provided in the confidential annex.

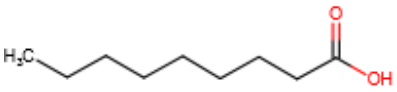
Does the product have the same identity and composition as the product evaluated in connection with the approval for listing of the active substance on the Union list of approved active substances under Regulation No. 528/2012?

Yes ☒ Product NEU 1170 H EC*
No ☐

*Representative product from the active substance approval was named NEU 1170 H which is identical to NEU 1170 H EC.

The other products contained in the family are not the same as the representative product.

2.1.2.1 Identity of the active substance

Main constituent	
ISO name	Nonanoic acid, Pelargonic acid
IUPAC or EC name	Nonanoic acid
EC number	203-931-2
CAS number	112-05-0
Index number in Annex VI of CLP	607-197-00-8
Minimum purity / content	896 g/kg
Structural formula	

2.1.2.2 Candidate for substitution

Not relevant as Nonanoic acid is not a candidate for substitution in accordance with Article 10 of BPR.

2.1.2.3 Qualitative and quantitative information on the composition of the biocidal product family Nonanoic Acid Algaecides

The full composition of the biocidal product family is provided in the confidential annex.

LEVEL 1 - Biocidal product family

Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content %(w/w)**	
					Min	**Max**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	3.1*	80*
Substances of concern						
Ammonium hydroxide 25% solution	Ammonium hydroxide	Saponification agent	1336-21-6	215-647-6	0.00	7.11
Propan-2-ol	Isopropanol	Solvent	67-63-0	200-661-7	0	2

*corresponding to 2.79% (w/w) and 71.68% (w/w) pure a.s.

LEVEL 2 – META SPC 1

Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content %(w/w)**	
					Min	**Max**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	20.94*	20.94*
Substances of concern						
Ammonium hydroxide 25% solution	Ammonium hydroxide	Saponification agent	1336-21-6	215-647-6	7.11	7.11

*corresponding to 18.76% (w/w) pure a.s.

LEVEL 2 – META SPC 2

Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content %(w/w)**	
					Min	**Max**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	3.1*	3.45*
Substances of concern						
Propan-2-ol	Isopropanol	Solvent	67-63-0	200-661-7	0	2

*corresponding to 2.79% (w/w) and 3.09% (w/w) pure a.s.

LEVEL 2 – META SPC 3

Common name	IUPAC name	Function	CAS number	EC number	Content %(w/w)	
					Min	Max
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	80*	80*

*corresponding to 71.68% (w/w) pure a.s.

LEVEL 3 – composition of individual products in meta SPC 1

Trade name(s)	**NEU 1170 H EC** Finalsan Wege- & FugenRein				
Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content % (w/w)**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	20.94*
Ammonium hydroxide 25% solution	Ammonium hydroxide	Saponification agent	1336-21-6	215-647-6	7.11

*corresponding to 18.76% (w/w) pure a.s.

LEVEL 3 – composition of individual products in meta SPC 2

Trade name(s)	**NEU 1170 H AF 31.02 g/L** Finalsan AF Wege- & FugenRein				
Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content (%)**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	3.45*
Substances of concern					
Propan-2-ol	Isopropanol	Solvent	67-63-0	200-661-7	2

*corresponding to 3.09% (w/w) pure a.s.

Trade name(s)	**NEU 1170 H AF 28.0 g/L** Finalsan AF Wege- & FugenRein Neu				
Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content (%)**
Nonanoic acid	Nonanoic acid	Active substance	112-05-0	203-931-2	3.1*
Substances of concern					
Propan-2-ol	Isopropanol	Solvent	67-63-0	200-661-7	2

*corresponding to 2.79% (w/w) pure a.s.

LEVEL 3 – composition of individual products in meta SPC 3

Trade name(s)	**NEU 1370 H** RapidGo				
Common name	**IUPAC name**	**Function**	**CAS number**	**EC number**	**Content (%)**
Nonanoic acid	nonanoic acid	Active substance	112-05-0	203-931-2	80*

*corresponding to 71.68% (w/w) pure a.s.

2.1.2.4 Information on technical equivalence

Is the source of nonanoic acid the same as the one evaluated in connection with the approval for listing of the active substance on the Union list of approved active substances under Regulation (EU) No 528/2012?

Yes ☒
No ☐

2.1.2.5 Information on the substances of concern (SoC)

Ammonium hydroxide is considered as SoC for human health for meta SPC 1. Please see the confidential annex for further information.
Propan-2-ol is considered as SoC for human health for meta SPC 2. Please see the confidential annex for further information.

2.1.2.6 Type of formulation

Meta SPC 1	Emulsifiable concentrate (EC)
Meta SPC 2	Any other liquid (AL)
Meta SPC 3	Emulsifiable concentrate (EC)

2.1.3 Hazard and precautionary statements

Classification and labelling of the products of the family according to Regulation (EC) 1272/2008

META SPC 1

Classification	Eye Irrit. 2, H319	
Labelling	Pictograms	
	GHS 07	
		
Signal word	Warning	
Hazard statements	H319	Causes serious eye irritation.
Precautionary statements	P101	If medical advice is needed, have product container or label at hand.
	P102	Keep out of reach of children.
	P103	Read label before use.
	P264	Wash hands thoroughly after handling.
	P280	Wear eye protection*
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice/attention.
	P501	Dispose of contents/container in accordance with local regulations.

* To be clearly indicated on the label: For professional users only

META SPC 2

Classification	none	
Labelling	none	
Signal word	none	
Hazard statements	none	none
Precautionary statements	P102	Keep out of reach of children.

META SPC 3

Classification	Skin irr. 2, H315 Eye irrit. 2, H319 Aquatic Chronic 3, H412	
Labelling	Pictograms	
	GHS 07	
		
Signal word	Warning	
Hazard statements	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H412	Harmful to aquatic life with long lasting effects.
Precautionary statements	P264	Wash hands thoroughly after handling.
	P273	Avoid release to the environment
	P280	Wear protective gloves/ protective clothing/ eye protection/face protection.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P337 + P313	If eye irritation persists: Get medical advice/attention.
	P362	Take off contaminated clothing and wash before reuse.
	P501	Dispose of contents/container in accordance with local regulations.

2.1.4 Authorised uses

2.1.4.1 Meta SPC 1

2.1.4.1.1 Use # 1 Algae – professional and non-professional users – spraying – outdoor – glass, wood, plastic, metal

2.1.4.1.1.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on various surfaces made of glass, wood, plastic or metal (vertical and horizontal structures) like e.g. glasshouses, plastic tunnels, sports fields, fences or terraces.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 5 mL product and 95 mL water; 5%(w/w) product in water corresponding to 1%(w/w) a.s. Application rate: 100 mL application solution per m^2 corresponding to 0.99 g a.s./m^2 Frequency: 1-2 times per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see chapter 2.1.7.

2.1.4.1.1.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 5 mL product with the dosing cap and mix it with 95 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.1.1.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift. The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.1.1.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.1.1.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.1.1.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.1.2 Use # 2 – Algae and lichen – professional and non-professional users – spraying – outdoor – roof tiles

2.1.4.1.2.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae, Scientific name: *Chlorophyta* spp. Development stage: not applicable Common name: Yellow Algae Scientific name: *Chrysophyceae* Development stage: not applicable Common name: Lichen Scientific name: not specified Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on roof tiles.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 5 mL product and 95 mL water; 5%(w/w) product in water corresponding to 1%(w/w) a.s. Application rate: 100 mL spraying solution/m^2 correspond to 0.99 g a.s./m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see the relevant section (chapter 2.1.7).

2.1.4.1.2.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 5 mL product with the dosing cap and mix it with 95 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.1.2.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift. The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.1.2.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.1.2.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.1.2.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.1.3 Use # 3 – Algae and lichen – professional and non-professional users – spraying – outdoor – thatch roof

2.1.4.1.3.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable Common name: Lichen Scientific name: not specified Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on thatch roof
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 10 mL product with 490 mL water; 2%(w/w) product in water corresponding to 0.4%(w/w) a.s. Applicaton rate: 500 mL spraying solution/m^2 correspond to 1.99 g a.s. /m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see the relevant section. (chapter 2.1.7).

2.1.4.1.3.2 USE-SPECIFIC INSTRUCTIONS FOR USE

500 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 10 mL product with the dosing cap and mix it with 490 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.1.3.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.

The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.1.3.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.1.3.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.1.3.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.1.4 Use # 4 – Algae – professional and non-professional users – spraying – outdoor – pavement and masonry

2.1.4.1.4.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on horizontal and vertical structures made of stone, bitumen, terracotta, slate or tiles like e.g. pavement, terraces, walls, facades, gravestones or flower pots.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 15 mL product and 85 mL water; 15%(w/w) product in water corresponding to 3%(w/w) a.s. Application rate: 100 mL spraying solution/m^2 correspond to 2.98 g a.s. /m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see the relevant section (chapter 2.1.6).

2.1.4.1.4.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 15 mL product with the dosing cap and mix it with 85 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.1.4.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift. The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.1.4.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.1.4.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.1.4.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.1.5 Use # 5 – Algae – professional and non-professional users – watering – outdoor - pavement

2.1.4.1.5.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on horizontal structures made of stone, bitumen, terracotta, slate, tiles or wood like e.g. pavement or terraces.
Application method	Watering with watering can with spout with small holes
Application rates and frequency	Dilution: mix 15 mL product and 185 mL water 7.5%(w/w) product in water corresponding to 1.5%(w/w) a.s. Application rate: 200 mL watering solution/m^2 corresponding to 2.98 g a.s. /m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see the relevant section (chapter 2.1.7).

2.1.4.1.5.2 USE-SPECIFIC INSTRUCTIONS FOR USE

200 mL application solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 15 mL product with the dosing cap and mix it with 185 mL water directly in a commercially available watering can. Use a spout with small holes. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.1.5.3 USE-SPECIFIC RISK MITIGATION MEASURES

2.1.4.1.5.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.1.5.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.1.5.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.2 Meta SPC 2

2.1.4.2.1 Use # 6 – Algae – professional and non-professional users - spraying - outdoor – various surfaces

2.1.4.2.1.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable Common name: Yellow Algae Scientific name: *Chrysophyceae* Development stage: not applicable Common name: Lichen Scientific name: not specified Development stage: not applicable
Field of use	Outdoor **Field of use description:** Ready-to-use algaecide for use on various surfaces made of glass, wood, plastic, metal, stone, bitumen, terracotta or slate, (vertical and horizontal structures) like e.g. pavement, terraces, walls, facades, gravestone, pots, glasshouse, plastic tunnels, sports fields, fences or roof tiles.
Application method	Spraying with hand-held trigger sprayer
Application rates and frequency	Dilution: 0% Application rate: 2.98 g a.s./m² Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional and non-professional users
Pack sizes and packaging material	Please see the relevant section (chapter 2.1.7).

2.1.4.2.1.2 USE-SPECIFIC INSTRUCTIONS FOR USE

Authorisation holder has to indicate the exact use instructions, e.g.: NEU 1170 H AF 31.02 g/L: Use 90 mL product per m² to be treated. NEU 1170 H AF 28.0 g/L: Use 100 mL product per m² to be treated.

[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (use x mL product per m² to be treated") The instructions shall comply with the application rate expressed in g a.s./m².]

2.1.4.2.1.3 USE-SPECIFIC RISK MITIGATION MEASURES

2.1.4.2.1.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.2.1.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.2.1.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.3 Meta SPC 3

2.1.4.3.1 Use # 7 – Algae – professional users – spraying – outdoor – glass, wood, plastic, metal

2.1.4.3.1.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of Use description:** Algaecide for use on various surfaces made of glass, wood, plastic or metal (vertical and horizontal structures) like e.g. glasshouses, plastic tunnels, sports fields, fences or terraces.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 1.3 mL product with 98.7 mL water 1.2%(w/w) product in water corresponding to 0.97%(w/w) a.s. Application rate: 100 mL spraying solution/m^2 corresponding to 0.97 g a.s./m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional users
Pack sizes and packaging material	Please see the relevant section (chapter 2.1.7).

2.1.4.3.1.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 1.3 mL product with the dosing cap and mix it with 98.7 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.3.1.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift. The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.3.1.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.3.1.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.3.1.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.3.2 Use # 8 – Algae and lichen – professional users – spraying – outdoor - roof tiles

2.1.4.3.2.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae, Scientific name: *Chlorophyta* spp. Development stage: not applicable Common name: Yellow Algae Scientific name: *Chrysophyceae* Development stage: not applicable Common name: Lichen Scientific name: not specified Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on roof tiles.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 1.3 mL product with 98.7 mL water; 1.2%(w/w) product in water corresponding to 0.97%(w/w) a.s. Application rate: 100 mL spraying solution/m^2 correspond to 0.97 g a.s. /m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional users
Pack sizes and packaging material	Please see the relevant section. (chapter 2.1.7).

2.1.4.3.2.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 1.3 mL product with the dosing cap and mix it with 98.7 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.3.2.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.

The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.3.2.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.3.2.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.3.2.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.3.3 Use # 9 Algae and lichen – professional users – spraying – outdoor – thatch roof

2.1.4.3.3.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable Common name: Lichen Scientific name: not specified Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on thatch roof
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 2.7 mL product with 497.3 mL water; 0.5%(w/w) product in water corresponding to 0.4%(w/w) a.s. Applicaton rate: 500 mL spraying solution/m^2 corresponding to 2 g a.s./m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional users
Pack sizes and packaging material	Please see the relevant section. (chapter 2.1.7).

2.1.4.3.3.2 USE-SPECIFIC INSTRUCTIONS FOR USE

500 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 2.7 mL product with the dosing cap and mix it with 497.3 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.3.3.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.

The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.3.3.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.3.3.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.3.3.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.3.4 Use # 10 Algae – professional users – spraying – outdoor – pavement and masonry

2.1.4.3.4.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism stage)	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on horizontal and vertical structures made of stone, bitumen, terracotta, slate or tiles like e.g. pavement, terraces, walls, facades, gravestones or flower pots.
Application method	Spraying with low pressure sprayer (commercially available garden sprayer with approx. 3 bar).
Application rates and frequency	Dilution: mix 4 mL product with 96 mL water; 3.7%(w/w) product in water corresponding to 2.98%(w/w) a.s. Application rate: 100 mL spraying solution/m^2 corresponding to 2.98 g a.s. /m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional users
Pack sizes and packaging material	Please see the relevant section. (chapter 2.1.7).

2.1.4.3.4.2 USE-SPECIFIC INSTRUCTIONS FOR USE

100 mL spraying solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 4 mL product with the dosing cap and mix it with 96 mL water directly in the reservoir of a commercially available garden sprayer (approx. 3 bar). Shake before application. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.3.4.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to

other areas by drift.

The equipment to be used for spraying must be a handheld manually operated low pressure (3 bar or below) device.

2.1.4.3.4.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.3.4.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.3.4.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.4.3.5 Use # 11 Algae – professional users - watering – outdoor – pavement

2.1.4.3.5.1 USE DESCRIPTION

Product Type	PT2
Where relevant, an exact description of the authorised use	Algaecide
Target organism	Common name: Green Algae Scientific name: *Chlorophyta* spp. Development stage: not applicable
Field of use	Outdoor **Field of use description:** Algaecide for use on horizontal structures made of stone, bitumen, terracotta, slate, tiles or wood like e.g. pavement, terraces etc.
Application method	Watering with watering can with spout with small holes
Application rates and frequency	Dilution: mix 4 mL product with 196 mL water; 1.86%(w/w) product in water corresponding to 1.48%(w/w) a.s. Application rate: 200 mL watering solution/m^2 corresponding to 2.98 g a.s./m^2. Frequency: 1-2 x per year (Use once. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year.)
Categories of users	Professional users
Pack sizes and packaging material	Please see the relevant section. (chapter 2.1.7).

2.1.4.3.5.2 USE-SPECIFIC INSTRUCTIONS FOR USE

200 mL application solution are needed per m^2 area to be treated. Estimate the area to be treated. Per square metre to be treated, measure 4 mL product with the dosing cap and mix it with 196 mL water directly in a commercially available watering can. Use a spout with small holes. *[Concerning products that will be notified within the BPF, authorisation holder has to indicated the exact use instructions (measure x mL product with the dosing cap and mix it with y mL water…") The instructions shall comply with the application rate expressed in g a.s./m².]*

2.1.4.3.5.3 USE-SPECIFIC RISK MITIGATION MEASURES

N-141, modified: Do not use where release to surface water cannot be prevented.

2.1.4.3.5.4 WHERE SPECIFIC TO THE USE, THE PARTICULARS OF LIKELY DIRECT OR INDIRECT EFFECTS, FIRST AID INSTRUCTIONS AND EMERGENCY MEASURES TO PROTECT THE ENVIRONMENT

2.1.4.3.5.5 WHERE SPECIFIC TO THE USE, THE INSTRUCTIONS FOR SAFE DISPOSAL OF THE PRODUCT AND ITS PACKAGING

2.1.4.3.5.6 WHERE SPECIFIC TO THE USE, THE CONDITIONS OF STORAGE AND SHELF-LIFE OF THE PRODUCT UNDER NORMAL CONDITIONS OF STORAGE

2.1.5 General directions for use

2.1.5.1 Meta SPC 1

2.1.5.1.1 Instructions for use

Comply with the instructions for use.
Mix before use by shaking the closed container.
Application is recommended at temperatures >10°C.
Cover area adjacent to the treated objects with an impermeable cover (e.g. plastic foil, 0.5 m width).
Apply the application solution evenly and make sure that the entire area affected by green cover is well wetted.
Remove and dispose the impermeable cover after treatment.
Allow the product to take effect for at least several days.
Green cover dries out after treatment.
Then, if necessary, brush off the dry green cover.
Do not use above or adjacent to surface waters.
Do not treat in rainy weather or on frozen surfaces.

2.1.5.1.2 Risk mitigation measures

The area adjacent to the treated surface shall be protected by an impermeable cover (width of 0.5 m) during application of the product.
N-131: Do not apply the product in case rain is expected within 24 hrs.
Do not rinse treated surfaces with water after application.
Areas covered by plants, which may have been exposed unintentionally shall be watered extensively in order to avoid any damage to plants.
Spray on dry contaminated surfaces evenly from a distance of about 30 cm until they are completely dampened. Do not apply more fluid than necessary and avoid that droplets runoff from surfaces during application.
Avoid contact with eyes.
Avoid splashes when making a dilution.
N-70, modified: The use of eye protection during handling of the product is mandatory for professional users.
N-315: Keep uninvolved persons, children and pets away from treated surfaces until dried.
Wash hands thoroughly after handling.

Note to the applicant: The product must be placed on the market with special packaging to minimize risk for eye exposure by splashes. Child-proof closure for smaller packages (500 ml and 1 L) that are purchasable by non-professional users is recommended to be applied. Dosing aids (visible filling level and volume scale) shall be integrated into the packaging for non-professional users.

2.1.5.1.3 Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

First aid instructions:
If medical advice is needed, have product container or label at hand.
IF SWALLOWED: Rinse mouth. Give something to drink, if exposed person is able to swallow. Do NOT induce vomiting. Call a POISON CENTRE or a doctor.

IF INHALED: If symptoms occur call a POISON CENTRE or a doctor.
IF ON SKIN: Wash skin with water. If symptoms occur call a POISON CENTRE or a doctor.
IF IN EYES: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing for 5 minutes. Call a POISON CENTRE or a doctor.

Personal precautions:
Forms slippery surfaces with water. Carefully clean up spills, since product forms slippery surfaces with water.

Environmental precautions:
Dilute accidentally spilled residues with plenty of water.

Methods and material for containment and cleaning up:
Take up with absorbent material (e.g. sand, sawdust, general-purpose binder).

2.1.5.1.4 Instructions for safe disposal of the product and its packaging

Product residues, contaminated materials (including absorbent material or impermeable cover) and empty containers must be collected and disposed of in accordance with the national waste disposal legislation and any regional and/or local authority requirements.
N-37: Do not discharge the biocidal product nor the diluted solution of the biocidal product into the sewage system or the environment.

2.1.5.1.5 Conditions of storage and shelf-life of the product under normal conditions of storage

Store product at ambient temperature only in original container.
N-301: Do not store near food, drink and feed.
Protect from frost. Store locked up.
Keep out of reach of children and non-target animals/pets.

Stability during storage: at least 5 years.

2.1.5.2 Meta SPC 2

2.1.5.2.1 Instructions for use

Comply with the instructions for use.
Application is recommended at temperatures >10°C.
100 mL spraying solution are needed per m^2 area to be treated.
Cover area adjacent to the treated objects with a impermeable cover (e.g. plastic foil, 0.5 m width).
Apply the spraying solution evenly from a distance of approximately 30 cm and make sure that the entire area affected by green cover is well wetted.
Remove and dispose the impermeable cover after treatment.
Allow the product to take effect for at least several days.
Green cover dries out after treatment.
Then, if necessary, brush off the dry green cover.
Do not use above or adjacent to surface waters.
Do not treat in rainy weather or on frozen surfaces.

2.1.5.2.2 Risk mitigation measures

The area adjacent to the treated surface shall be protected by an impermeable cover (width of 0.5 m) during application of the product.
N-131: Do not apply the product in case rain is expected within 24 hrs.
N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.
Do not rinse treated surfaces with water after application.
Areas covered by plants, which may have been exposed unintentionally shall be watered extensively in order to avoid any damage to plants.
Spray on dry contaminated surfaces evenly from a distance of about 30 cm until they are completely dampened. Do not apply more fluid than necessary and avoid that droplets runoff from surfaces during application.
N-315: Keep uninvolved persons, children and pets away from treated surfaces until dried.

2.1.5.2.3 Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

First aid instructions:
If medical advice is needed, have product container or label at hand.
IF SWALLOWED: If symptoms occur call a POISON CENTRE or a doctor**.**
IF INHALED: If symptoms occur call a POISON CENTRE or a doctor.
IF ON SKIN: Wash skin with water. If symptoms occur call a POISON CENTRE or a doctor.
IF IN EYES: If symptoms occur rinse with water. Remove contact lenses, if present and easy to do. Call a POISON CENTRE or a doctor.

Personal precautions:
Forms slippery surfaces with water. Carefully clean up spills, since product forms slippery surfaces with water.

Environmental precautions:
Dilute accidentally spilled residues with plenty of water.

Methods and material for containment and cleaning up:
Take up with absorbent material (e.g. sand, sawdust, general-purpose binder).

2.1.5.2.4 Instructions for safe disposal of the product and its packaging

Product residues, contaminated materials (including absorbent material or impermeable cover) and empty containers must be collected and disposed of in accordance with the national waste disposal legislation and any regional and/or local authority requirements.
N-37: Do not discharge the biocidal product nor the diluted solution of the biocidal product into the sewage system or the environment.

2.1.5.2.5 Conditions of storage and shelf-life of the product under normal conditions of storage

Store product at ambient temperature only in original container.
N-301: Do not store near food, drink and feed.

Protect from frost. Keep out of reach of children and non-target animals/pets. Stability during storage: at least 2 years.

2.1.5.3 Meta SPC 3

2.1.5.3.1 Instructions for use

Comply with the instructions for use. Application is recommended at temperatures >10°C. Cover area adjacent to the treated objects with a impermeable cover (e.g. plastic foil, 0.5 m width). Apply the spraying solution evenly and make sure that the entire area affected by green cover is well wetted. Remove and dispose the impermeable cover after treatment. Allow the product to take effect for at least several days. Green cover dries out after treatment. Then, if necessary, brush off the dry green cover. Do not use above or adjacent to surface waters. Do not treat in rainy weather or on frozen surfaces.

2.1.5.3.2 Risk mitigation measures

The area adjacent to the treated surface shall be protected by an impermeable cover (width of 0.5 m) during application of the product. N-131: Do not apply the product in case rain is expected within 24 hrs. Do not rinse treated surfaces with water after application. Areas covered by plants, which may have been exposed unintentionally shall be watered extensively in order to avoid any damage to plants. Spray on dry contaminated surfaces evenly from a distance of about 30 cm until they are completely dampened. Do not apply more fluid than necessary and avoid that droplets runoff from surfaces during application. N-70, modified: The use of a coverall, eye and face protection during handling of the product is mandatory. N-79: Wear protective chemical resistant gloves during product handling phase (glove material to be specified by the authorisation holder within the product information). Avoid contact with skin and eyes. Avoid splashes when making a dilution. N-315: Keep uninvolved persons, children and pets away from treated surfaces until dried. Wash hands thoroughly after handling.

2.1.5.3.3 Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

First aid instructions: **IF SWALLOWED:** Rinse mouth. Give something to drink, if exposed person is able to swallow. Do NOT induce vomiting. Call a POISON CENTRE or a doctor. **IF INHALED:** If symptoms occur call a POISON CENTRE or a doctor.

IF ON SKIN: Take off all contaminated clothing and wash it before reuse. Wash skin with water. If skin irritation occurs: Get medical advice.
IF IN EYES: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing for 5 minutes. Call a POISON CENTRE or a doctor.

Environmental precautions:
Dilute accidentally spilled residues with plenty of water.

Methods and material for containment and cleaning up:
Take up with absorbent material (e.g. sand, sawdust, general-purpose binder).

2.1.5.3.4 Instructions for safe disposal of the product and its packaging

Product residues, contaminated materials (including liquid-binding material or impermeable cover) and empty containers must be collected and disposed of in accordance with the national waste disposal legislation and any regional and/or local authority requirements.
N-37: Do not discharge the biocidal product nor the diluted solution of the biocidal product into the sewage system or the environment.

2.1.5.3.5 Conditions of storage and shelf-life of the product under normal conditions of storage

Store product at ambient temperature only in original container.
N-301: Do not store near food, drink and feed.
Protect from frost.

Stability during storage: at least 2 years.

2.1.6 Other information

The product contains Propan-2-ol, for which an acceptable exposure concentration of 52.6 ppm for professional user in air was agreed and is applicable for the authorised uses.

Inform the registration holder if the treatment is ineffective.

Note to the applicant meta SPC 1: The products should have child-proof closure.

2.1.7 Packaging of the biocidal product

2.1.7.1 Meta SPC 1

Type of packaging	Size/volume of the packaging	Material of the packaging	Type and material of closure(s)	Intended user	Compatibility of the product with the proposed packaging materials (Yes/No)
Dosing bottle Ultima 510 mL	L: 100 mm W: 53 mm H: 233 mm 500 mL	HDPE	Neck diameter: outer 35.3 mm inner 23 mm Closure for Dosing bottles HDPE child proof	professional and non-professional	Yes
Dosing bottle Ultima 1020 mL	L: 121 mm W: 63 mm H: 273 mm 1000 mL	HDPE	Neck diameter: outer 35.3 mm inner 23 mm Closure for Dosing bottles HDPE child proof	professional and non-professional	Yes
Jerrycan: type 5 SK 5 (UN no. UN 3 H 1 / Y1.9 / 200 / D / BAM 6186 PP)	L: 191 mm W: 152 mm H: 290 mm 5 L	HDPE wall thickness: 0.9 - 1.5 mm	Neck diameter: 40 mm Screw cap: No. 50 with tamper evidence Seal: PE foam	professional	Yes
Jerrycan: type 10 SK 4 (UN no. UN 3 H 1 / Y1.6 / 175 / D / BAM 8889 PP)	L: 232 mm W: 192 mm H: 309 mm 10 L	HDPE wall thickness: 1.2 - 1.8 mm	Neck diameter: 40 mm Screw cap: No. 50 with tamper evidence Seal: PE foam	professional	Yes

2.1.7.2 Meta SPC 2

Type of packaging	Size/volume of the packaging	Material of the packaging	Type and material of closure(s)	Intended user	Compatibility of the product with the proposed packaging materials (Yes/No)
500 mL Container with spray cap	180 x 105 x 45 mm 500 mL	HDPE	HDPE trigger sprayer child proof	professional and non-professional	Yes
1L Container with spray cap	230 x 145 x 45 mm 1 L	HDPE	HDPE trigger sprayer child proof	professional and non-professional	Yes
3L Container with spray cap	220 x 230 x 90 mm 3 L	HDPE	HDPE trigger sprayer child proof	professional and non-professional	Yes

2.1.7.3 Meta SPC 3

Type of packaging	Size/volume of the packaging	Material of the packaging	Type and material of closure(s)	Intended user	Compatibility of the product with the proposed packaging materials (Yes/No)
Jerrycan: type 5 SK 5 (UN no. UN 3 H 1 / Y1.9 / 200 / D / BAM 6186 PP)	L: 191 mm W: 152 mm H: 290 mm 5 L	HDPE wall thickness: 0.9-1.5 mm	Neck diameter: 40 mm Screw cap: No. 50 with tamper evidence Seal: PE foam	professional	Yes
Jerrycan: type 10 SK 4 (UN no. UN 3 H 1 / Y1.6 / 175 / D / BAM 8889 PP)	L: 232 mm W: 192 mm H: 309 mm 10 L	HDPE wall thickness: 1.2-1.8 mm	Neck diameter: 40 mm Screw cap: No. 50 with tamper evidence Seal: PE foam	professional	Yes

2.1.8 Documentation

2.1.8.1 Data submitted in relation to product application

A list of studies for the biocidal product can be found in annex 3.1.

2.1.8.2 Access to documentation

No letter of access to any documentation is needed as the applicant W. Neudorff GmbH KG is the sole RP participant and the substance & product supplier.

2.2 Assessment of the biocidal product (family)

2.2.1 Intended uses as applied for by the applicant

Intended use # 1 – NEU 1170 H EC 186.7 g/L Nonanoic acid - Algae – professional and non-professional users – spraying – outdoor – glass, wood, plastic, metal

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sport fields, fences, terraces, etc.)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on glass, wood, plastic, metal (vertical and horizontal structures) on various surfaces like glasshouses, plastic tunnels, sport fields, fences, terraces, etc.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	5 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 9.3 g a.s./L (9.9 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 0.93 g a.s. /m^2 (0.99 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 2 – NEU 1170 H EC 186.7 g/L Nonanoic acid - Roof tiles

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Treatment of roof tiles
Target organism	Algae (Green algae - *Chlorophyta* spp., Yellow algae - *Chrysophyceae*)and lichen
Field of use	Algaecide for use on roof tiles.
Application method	Spraying with low or medium pressure sprayer. Evenly distribution over the surface to be treated.
Application rates and frequency	5 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 9.3 g a.s./L (9.9 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 0.93 g a.s. /m^2 (0.99 g a.s. technical/m^2)*. Maximum 2 applications with 90 - 300 days interval
Categories of users	Professional and general public
Pack sizes and packaging	Please see the relevant section.

material	

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 3 – NEU 1170 H EC 186.7 g/L Nonanoic acid - Algae and lichen – professional and non-professional users – spraying – outdoor – thatch roof

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Treatment of thatch roof
Target organism	Algae (*Chlorophyta* spp.)and lichen
Field of use	Algaecide for use on thatch roof.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	10 mL product/m^2 diluted in water to make up 500 mL spraying solution corresponding to 3.7 g a.s./L (4.0 g a.s. tech./L). 500 mL spraying solution/m^2 correspond to 1.87 g a.s. /m^2 (1.99 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 4 – NEU 1170 H EC 186.7 g/L Nonanoic acid - Algae – professional and non-professional users – spraying – outdoor – pavement

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Spray application for treatment of pavement including terraces (stone, bitumen, terracotta, slate, tiles)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on horizontal structures like pavement, terraces etc.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	15 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 28.0 g a.s./L (29.8 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging	Please see the relevant section.

material	

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 5 – NEU 1170 H EC 186.7 g/L Nonanoic acid - Algae – professional and non-professional users – watering – outdoor - pavement

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Watering application for treatment of pavement including terraces (stone, bitumen, terracotta, slate, tiles, wood)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on horizontal structures like pavement, terraces etc.
Application method	Watering with sprinkling device (watering can). Evenly distribution over the surface to be treated.
Application rates and frequency	15 mL product/m^2 diluted in water to make up 200 mL watering solution corresponding to 14.0 g a.s./L (14.9 g a.s. tech./L). 200 mL watering solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 6 – NEU 1170 H EC 186.7 g/L Nonanoic acid – Algae – professional and non-professional users – spraying – outdoor - masonry

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Spray application for treatment of masonry such as walls, facades, gravestone (stone), pots (terracotta)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on masonry (vertical structures).
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	15 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 28.0 g a.s./L (29.8 g a.s. tech./L). 100 mL watering solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 7 – NEU 1170 H AF 31.02 g/L – Algae – professional and non-professional users – spraying – 31.0 g/L – outdoor – various surfaces

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Glass, wood, plastic, metal, roof tiles, stone, bitumen, terracotta, slate, tiles (surfaces on pavement, terraces, walls, facades, gravestone, pots, glasshouse, plastic tunnel, sport fields, fences, etc.)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on glass, wood, plastic, metal, roof tiles, stone, bitumen, terracotta, slate, tile (surfaces on pavement, terraces, walls, facades, gravestone, pots, glasshouse, plastic tunnel, sport fields, fences, etc.)
Application method	Spraying with hand held trigger sprayer (pump spray). Evenly distribution over the surface to be treated.
Application rates and frequency	Ready to use product at a rate of 90 mL product/m^2 corresponding to 2.79 g a.s. /m^2 (2.97 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 8 – NEU 1170 H AF 28.0 g/L – Algae - professional and non-professional users – spraying – 28.0 g/L - outdoor – various surfaces

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Glass, wood, plastic, metal, roof tiles, stone, bitumen, terracotta, slate, tiles (surfaces on pavement, terraces, walls, facades, gravestone, pots, glasshouse, plastic tunnel, sport fields, fences, etc.)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on glass, wood, plastic, metal, roof tiles, stone, bitumen, terracotta, slate, tile (surfaces on pavement, terraces, walls, facades, gravestone, pots, glasshouse, plastic tunnel, sport fields, fences, etc.)
Application method	Spraying with hand held trigger sprayer. Evenly distribution over the surface to be treated.
Application rates and frequency	Ready to use product at a rate of 100 mL product/m^2 corresponding to 2.80 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional and general public
Pack sizes and packaging	Please see the relevant section.

material	

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 9 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae – professional users – spraying – outdoor – glass, wood, plastic, metal

Product Type(s)	PT2
Where relevant, an exact description of the authorised use	Glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sport fields, fences, terraces, etc.)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on glass, wood, plastic, metal (vertical and horizontal structures) on various surfaces like glasshouses, plastic tunnels, sport fields, fences, terraces, etc.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	1.3 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 9.1 g a.s./L (9.7 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 0.91 g a.s. /m^2 (0.97 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 10 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae and lichen – professional users – spraying – outdoor – roof tiles

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Treatment of roof tiles
Target organism	Algae (Green algae - *Chlorophyta* spp., Yellow algae - *Chrysophyceae*)and lichen
Field of use	Algaecide for use on roof tiles.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	1.3 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 9.1 g a.s./L (9.7 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 0.91 g a.s. /m^2 (0.97 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year

Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 11 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae and lichen – professional users – spraying – outdoor – thatch roof

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Treatment of thatch roof
Target organism	Algae (*Chlorophyta* spp.)and lichen
Field of use	Algaecide for use on thatch roof.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	2.7 mL product/m^2 diluted in water to make up 500 mL spraying solution corresponding to 3.8 g a.s./L (4.0 g a.s. tech./L). 500 mL spraying solution/m^2 correspond to 1.89 g a.s. /m^2 (2.01 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 12 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae – professional users – spraying – outdoor - pavement

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Spray application for treatment of pavement including terraces (stone, bitumen, terracotta, slate, tiles)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on horizontal structures like pavement, terraces etc.
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	4 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 28.0 g a.s./L (29.8 g a.s. tech./L). 100 mL spraying solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year

Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 13 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae – professional users - watering – outdoor - pavement

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Watering application for treatment of pavement including terraces (stone, bitumen, terracotta, slate, tiles, wood)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on horizontal structures like pavement, terraces etc.
Application method	Watering with sprinkling device (watering can). Evenly distribution over the surface to be treated.
Application rates and frequency	4 mL product/m^2 diluted in water to make up 200 mL watering solution corresponding to 14.0 g a.s./L (14.9 g a.s. tech./L). 200 mL watering solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year
Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

Intended use # 14 – NEU 1370 H 699.3 g/L Nonanoic acid - Algae - professional users – spraying – outdoor - masonry

Product Type(s)	PT 2
Where relevant, an exact description of the authorised use	Spray application for treatment of masonry such as walls, facades, gravestone (stone), pots (terracotta)
Target organism	Algae (*Chlorophyta* spp.)
Field of use	Algaecide for use on masonry (vertical structures).
Application method	Spraying with low or medium pressure sprayer (commercially available garden sprayer with approx. 3 bar). Evenly distribution over the surface to be treated.
Application rates and frequency	4 mL product/m^2 diluted in water to make up 100 mL spraying solution corresponding to 28.0 g a.s./L (29.8 g a.s. tech./L). 100 mL watering solution/m^2 correspond to 2.8 g a.s. /m^2 (2.98 g a.s. technical/m^2)*. If re-infestation is detected, the application may be repeated, but do not apply more than two times per year

Categories of users	Professional
Pack sizes and packaging material	Please see the relevant section.

*) Application rate a.s. technical is based on the mean purity of 94 % that was used for calculation of the PNECs by the Competent Authority in the CAR.

2.2.2 Physical, chemical and technical properties

META SPC 1

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Physical state at 20°C and 101.3 kPa	Visual estimation	NEU 1170 H EC, Batch H2/128/1 21.63% NH_4-Salt (= 195.3 g/L Nonanoic acid)	Liquid	Anonymous 2001a
Colour at 20°C and 101.3 kPa	Visual estimation	NEU 1170 H EC, Batch H2/128/1 21.63% NH_4-Salt (= 195.3 g/L Nonanoic acid)	Translucent, pale yellow	Anonymous 2001a
Odour at 20°C and 101.3 kPa	-	-	Characteristic after fatty acids	
Acidity / alkalinity	CIPAC MT75	NEU 1170 H EC, Batch 0339-99 22% NH_4-Salt (= 198.6 g/L Nonanoic acid)	The pH of a 1% dilution = 6.15 (20°C) hence a test on acidity is not necessary.	Anonymous 1999a
Relative density / bulk density	OECD 109	NEU 1170 H EC, Batch 0339-99 22% NH_4-Salt (= 198.6 g/L Nonanoic acid)	0.99 g/cm^3 (20°C)	Anonymous 1999b
Storage stability test – **accelerated storage**	CIPAC MT46	H01-22 (equal to NEU 1170 H EC)	Formulation shows no significant alteration of a. i. content initial: 22.09 ± 0.42%, after 1 month at 54 °C ± 1.5 °C: 22.29 ± 0.72% (determined by gas chromatography)	Anonymous 1997a
	CIPAC MT46	NEU 1170 H EC, Batch PG-3-202 186.7 g/L Nonanoic acid	There was no change in the pH at either dilution rate and emulsion stability did not change significantly after storage for 2 weeks at 54°C ± 1.5 °C. Emulsion stability was better at 16.66% than at 1.66%.	Anonymous 2009a

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Storage stability test – **long term storage at ambient temperature**	EPA 40 CFR 158.90 Guideline 63.7	NEU 1170 H EC, Batch H2/128/1 21.63% NH_4-Salt (= 195.3 g/L Nonanoic acid)	The ammonia soap of fatty acid content remained stable for 2.5 years at room temperature. Content at time 0 = 21.63 ± 0.28% (w/w); at time 2.5 years = 22.98 ± 0.7% (w/w) (determined by GC) The pH of the fresh sample is 8.42; the pH of the stored sample is 8.27. There are no major changes in emulsion characteristics after 2.5 years at ambient temperature.	Anonymous 2001a Anonymous 2009b
	EPA 40 CFR 158.90 Guideline 63.7	NEU 1170 H EC, Batch H2/128/1 21.63% NH_4-Salt (= 195.3 g/L Nonanoic acid)	The content of ammonia soap of fatty acid in NEU 1170 H remained stable for over 5 years at ambient temperature. Initial content: 21.63 ± 0.28% (w/w) Content after 5 years: 21.37 ± 0.91% (w/w) (determined by GC)	Anonymous 2005a
Storage stability test – **low temperature stability test for liquids**	CIPAC MT39.2	H01-22 (equal to NEU 1170 H EC)	Product stable (after 7 days at 0°C antifoam and ice crystals settled to bottom, after 3 hours at room temperature and inversion slightly opaque solution with a few antifoam particles suspended)	Anonymous 1998a
Effects on content of the active substance and technical characteristics of the biocidal product - **light**			Product is bottled in non-transparent canisters that exclude effects of light.	
Effects on content of the active substance and technical characteristics of the biocidal product – **temperature and humidity**			Results of accelerated storage stability test, long term storage at ambient temperature as well as low temperature stability test demonstrate that effects of temperature and humidity can be excluded.	
Effects on content of the active substance and technical characteristics of the biocidal product - **reactivity towards container material**	EPA 40 CFR 158.90 Guideline 63.7	NEU 1170 H EC, Batch H2/128/1 21.63% NH_4-Salt (= 195.3 g/L Nonanoic acid)	After 5 years storage at room temperature the bottle showed no deformation, discoloration or cracking. The cap was tightly attached and there was no sign that the product has migrated out of the bottle.	Anonymous 2005a
Wettability			Not applicable the product	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
			is a liquid formulation.	
Suspensibility, spontaneity and dispersion stability			Not required NEU 1170 H EC is not a suspension concentrate or a water dispersible formulation and does not form a suspension when diluted with water.	
Wet sieve analysis and dry sieve test			Not required NEU 1170 H EC is a liquid emulsion concentrate.	
Emulsifiability, re-emulsifiability and emulsion stability	CIPAC MT36	NEU 1170 H EC, Batch PG-3-202 186.7 g/L Nonanoic acid	Initial (30 sec): Emulsified white, opaque with no froth, oil, cream or precipitate. On standing (30 min): Translucent, 15 mL flocculated material, no froth, oil, or precipitate On standing (2 hrs): Translucent, 10 mL flocculated material, no froth, oil, or precipitate On standing (24 hrs): Translucent, 6 mL flocculated material, no froth, oil, or precipitate. Re-emulsification (24 hrs + 30 sec): Translucent with loosely flocculated material, no froth, oil, or cream. Final emulsion stability (24 hrs + 30 min): Translucent, 10 mL flocculated material, no froth, oil, or precipitate. The product shows some separation over time at 1.66% dilution, but is easily re-mixed to form a homogeneous mixture.	Anonymous 2009c
Disintegration time			Not relevant NEU 1170 H EC is a liquid.	
Particle size distribution, content of dust/fines, attrition, friability			Not relevant NEU 1170 H EC is a liquid.	
Persistent foaming	CIPAC MT47.2	H01-22 (equal to NEU 1170 H EC)	Initial: 30 mL 10 s: 10 mL 1 min 5 mL 3 min 4 mL 12 min 2 mL foam	Anonymous 1997b
	CIPAC MT47.2	NEU 1170 H EC, Batch PG-3-202 186.7 g/L Nonanoic acid	10 s: 12 mL 1 min 9 mL 3 min 7 mL 12 min 5 mL foam	Anonymous 2009d

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Flowability/ Pourability/ Dustability			Not required, NEU 1170 H EC is a liquid formulation and no suspension concentrate, capsule suspension or suspoemulsion.	
Burning rate — smoke generators			Not required, NEU 1170 H EC is no smoke generator	
Burning completeness — smoke generators			Not required, NEU 1170 H EC is no smoke generator	
Composition of smoke — smoke generators			Not required, NEU 1170 H EC is no smoke generator	
Spraying pattern — aerosols			Not required, NEU 1170 H EC is not an aerosol.	
Physical compatibility			Not required, NEU 1170 H EC is not used in combination with other products.	
Chemical compatibility			Not required, NEU 1170 H EC is not used in combination with other products	
Degree of dissolution and dilution stability			Not required, NEU 1170 H EC is a liquid and not used in water soluble bags.	
Surface tension	EEC A.5 OECD 115	NEU 1170 H EC, Batch 3/99 22% NH_4-Salt (= 198.6 g/L Nonanoic acid)	65.9 mN/m at 20°C measured using 1 g/L aqueous solution of the product	Anonymous 1999c
	EEC A.5 OECD 115	NEU 1170 H EC, Batch 701020 187 g/L Nonanoic acid	25.2 mN/m at 20°C measured using undiluted product	Anonymous 2008a
Viscosity	OECD 114	NEU 1170 H EC, Batch 0339-99 22% NH_4-Salt (= 198.6 g/L Nonanoic acid)	11-16 mPas at 20°C 12-13 mPas at 40°C	Anonymous 2000a

Conclusion on the physical, chemical and technical properties of the product

The physical-chemical properties and respective characteristics of the biocidal products have been evaluated and are deemed acceptable for the appropriate use, storage and transport of the biocidal product.
The data on storage stability indicate that the product can be stored for at least 5 years without deviation from its specification.

META SPC 2

The products NEU 1170 H AF 31.02 g/L and 28.0 g/L only slightly differ in the active substance content which is compensated by an increase of the water content. Also the results of the accelerated storage test showed identical results for colour, odour, pH value, density emulsifiability for the 28.0 g/L compared to the available information for the 31.02 g/L product. Furthermore, it should be considered that the 28.0 g/L content lies within the tolerance limits of ± 10 % i.e. 27.9 to 34.1 g/L for products containing 25 to 100 g/L. Therefore, all other information on PC properties available for the 31.02 g/L product may be used also for the 28.0 g/L product and no further testing is considered necessary.

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Physical state at 20°C and 101.3 kPa	Visual estimation	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	Slightly viscous liquid	Anonymous 2011a
	Visual estimation	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	Liquid	Anonymous 2015a
Colour at 20°C and 101.3 kPa	Visual estimation	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	Turbid, flocculent, colourless	Anonymous 2011a
	Visual estimation	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	Slightly cloudy, colourless	Anonymous 2015a
Odour at 20°C and 101.3 kPa	Smelling	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	Characteristic musty odour	Anonymous 2011a
	Smelling	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	Characteristic soapy	Anonymous 2015a
Acidity / alkalinity	CIPAC MT75	NEU 1170 H AF, 3.67% a.i.	The pH of a 1% dilution = 6.03 (20°C).	Anonymous 2000b
	CIPAC MT75	NEU 1170 H RTU, Batch H01/177, H01/103 3.68% NH_4-Salt (= 33.02 g/L Nonanoic acid)	The pH of the neat formulation = 7.60 ± 0.20	Anonymous 2002a
	CIPAC MT75.3	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	The pH of the neat formulation = 7.47 hence a test on acidity is not necessary.	Anonymous 2011a
	---	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	The pH of the neat formulation = 7.34	Anonymous 2015a

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Relative density / bulk density	OECD 109	NEU 1170 H AF, 3.67% a.i.	1.00 g/cm^3 (20°C)	Anonymous 2000c
	---	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	0.995 g/cm^3 (20°C)	Anonymous 2015a
Storage stability test – **accelerated storage**	CIPAC MT46	H01 RTU (equal to NEU 1170 H AF)	Formulation shows no significant alteration of a. i. content initial: 3.55 ± 0.14%, after 1 month at 54 °C ± 1.5 °C: 3.53 ± 0.14% (determined by gas chromatography)	Anonymous 1996a
	CIPAC MT46.3 GIFAP Mono-graph 17	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	There was no change in the content of Nonanoic acid. Before storage: 3.46% (w/w) After storage for 8 weeks at 40°C ± 2 °C: 3.43% (w/w) (determined by HPLC) There were no changes in the appearance, pH, persistent foaming and emulsion stability. After storage for 8 weeks at 40°C, the emulsion was incomplete and visually found to be turbid and inhomogeneous. NEU 1170 H AF is stable for 8 weeks at 40°C.	Anonymous 2011a
	---	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	There was a slight decrease (-0.13% absolute, -4.6% relative) in the content of Nonanoic acid. Before storage: 2.82% (w/w) After storage for 2 weeks at 54°C ± 2 °C: 2.69% (w/w) (determined by HPLC-UV) There were no changes in the appearance, pH, density, and emulsion stability. NEU 1170 H AF is stable for 2 weeks at 54°C.	Anonymous 2015a
Storage stability test – **long term storage at ambient temperature**	EPA 40 CFR 158.90 Guideline 63.7	NEU 1170 H RTU, Batch H01/177, H01/103 3.68% NH_4-Salt (= 33.02 g/L Nonanoic acid); (equal to NEU 1170 H AF)	The ammonia soap of fatty acid content remained stable for over 2 years at room temperature. Content at time 0 = 3.73 ± 0.14% (w/w); at time 25 months = 3.64 ± 0.11% (w/w) (determined by GC) The pH of the fresh sample is 7.60 ± 0.20; the pH of	Anonymous 2002a Anonymous 2009e

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
			the stored sample is 7.83. There were no major changes in foaming after 2 years at ambient temperature. There were no major changes in emulsion characteristics after 6 years at ambient temperature.	
Storage stability test – **low temperature stability test for liquids**	CIPAC MT39.2	H01 RTU (equal to NEU 1170 H AF)	Product stable (after 48 hours at 0°C some antifoam solution visible throughout as droplets)	Anonymous 1997c
Effects on content of the active substance and technical characteristics of the biocidal product - **light**			Product is bottled in non-transparent containers (ready-to-use-trigger sprayer) that exclude effects of light on the active substance.	
Effects on content of the active substance and technical characteristics of the biocidal product – **temperature and humidity**			Results of accelerated storage stability test, long term storage at ambient temperature as well as low temperature stability test demonstrate that effects of temperature and humidity can be excluded.	
Effects on content of the active substance and technical characteristics of the biocidal product - **reactivity towards container material**	EPA 40 CFR 158.90 Guideline 63.7	NEU 1170 H RTU, Batch H01/177, H01/103 3.68 % NH_4-Salt (= 33.02 g/L Nonanoic acid)	After 2 years storage at ambient temperature in plastic bottles the content of active ingredient as well as the technical characteristics were stable.	Anonymous 2002a
	Visual estimation	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	After storage of 8 weeks at 40°C the containers (ready-to-use-trigger sprayer) shut tightly and there was no visible damage or deterioration of the container. There was also no clogging of the trigger sprayer, no change in spray pattern and discharge rate.	Anonymous 2011a
	Visual estimation	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	The packages were in sound condition before and after the storage for 2 weeks at 54°C, sealed and without any leakages.	Anonymous 2015a
Wettability			Not applicable the product is a liquid formulation.	
Suspensibility, spontaneity and dispersion stability			Not required NEU 1170 H AF is a ready to use product and not a suspension concentrate or	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
			a water dispersible formulation.	
Wet sieve analysis and dry sieve test			Not required NEU 1170 H AF is a liquid formulation.	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Emulsifiability, re-emulsifiability and emulsion stability	CIPAC MT36	NEU 1170 H RTU, Batch H01/177, H01/103 3.68% NH_4-Salt (= 33.02 g/L Nonanoic acid)	Initial: Homogenous, translucent, colourless. On standing (30 min, 2 hrs, 24 hrs): Homogenous, translucent, colourless. Re-emulsification (24 hrs): Homogenous, translucent, colourless. Final emulsion stability: Homogenous, translucent, colourless.	Anonymous 2002a
	CIPAC MT36.3	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	Initial: Emulsion complete; clear and homogenous; no sediment, oil and top creaming. Minor foam of about 1 mL at the top of the emulsion. On standing (30 min, 2 hrs, 24 hrs): Emulsion complete; clear and homogenous; no foam, sediment, oil and top creaming. On standing (24 hrs + 30 sec): Emulsion complete; clear and homogenous; no sediment, oil and top creaming. Minor foam of about 1 mL at the top of the emulsion. Final emulsion stability (24 hrs + 30 min): Emulsion complete; clear and homogenous; no foam, sediment, oil and top creaming.	Anonymous 2011a
	CIPAC MT36.3	NEU 1170 H AF, Batch # 151806 28.1 g/L Nonanoic acid	In all time stages (0 h, 0.5h, and 2h after initial test) there was no separation of cream or oil to observe.	Anonymous 2015a
Disintegration time			Not relevant NEU 1170 H AF is a liquid.	
Particle size distribution, content of dust/fines, attrition, friability			Not relevant NEU 1170 H AF is a liquid.	
Persistent foaming	CIPAC MT47.2	NEU 1170 H RTU, Batch H01/177, H01/103 3.68% NH_4-Salt (= 33.02 g/L Nonanoic acid) (equal to NEU 1170 H AF)	Initial: 6.0 mL 10 s: 3.0 mL 1 min 0.5 mL 3 min 0 mL 12 min 0 mL foam	Anonymous 2002a
	CIPAC MT47.2	NEU 1170 H AF 31.02 g/L, Batch 064 310 31.63 g/L Nonanoic	10 s: 31 mL 1 min 30 mL 3 min 25 mL 12 min 13 mL foam	Anonymous 2011a

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
		acid		
Flowability/ Pourability/ Dustability	CIPAC MT148	NEU 1170 H RTU, Batch H01/177, H01/103 3.68% NH_4-Salt (= 33.02 g/L Nonanoic acid)	Residue 0.61% (rinsed residue 0.31%)	Anonymous 2002a
	FAO 8.11.4.3 Note 9	NEU 1170 H AF, Batch 064 310 31.63 g/L Nonanoic acid	The test item was applied accurate to 1% and 0.4% filling volume before and after storage.	Anonymous 2011a
Burning rate — smoke generators			Not required, NEU 1170 H AF is no smoke generator	
Burning completeness — smoke generators			Not required, NEU 1170 H AF is no smoke generator	
Composition of smoke — smoke generators			Not required, NEU 1170 H AF is no smoke generator	
Spraying pattern — aerosols	PSD Handbook 4.17 FAO 8.11.4.3 Note 9	NEU 1170 H AF 31.02 g/L, Batch 064 310 31.63 g/L Nonanoic acid	Spray diameter: 16.5 cm and 17.2 cm (before and after storage for 8 weeks at 40°C.) Discharge rate: 0.8 g/stroke and 0.7 g/stroke before and after storage for 8 weeks at 40°C. No clogging of the nozzle before and after storage for 8 weeks at 40°C.	Anonymous 2011a
Physical compatibility			Not required, NEU 1170 H AF is a ready to use product.	
Chemical compatibility			Not required, NEU 1170 H AF is a ready to use product.	
Degree of dissolution and dilution stability			Not required, NEU 1170 H AF is a ready to use product.	
Surface tension	EEC A.5 OECD 115	NEU 1170 H AF, 3.67% a.i.	72.2 mN/m at 20°C measured using 1 g/L aqueous solution of the product	Anonymous 2000d
Viscosity	OECD 114	NEU 1170 H AF, 3.67% a.i.	7 mPas at 20°C <6.5 mPas at 40°C	Anonymous 2000e

Conclusion on the physical, chemical and technical properties of the product

The physical-chemical properties and respective characteristics of the biocidal products have been evaluated and are deemed acceptable for the appropriate use, storage and transport of the biocidal product.
The data on storage stability indicate that the products can be stored at least for 2 years without deviation from their specification.

META SPC 3

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Physical state at 20°C and 101.3 kPa	Visual estimation	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	Liquid	Anonymous 2015b
Colour at 20°C and 101.3 kPa	Visual estimation	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	Light yellow	Anonymous 2015b
Odour at 20°C and 101.3 kPa			Characteristic after fatty acids	
Acidity / alkalinity	CIPAC MT75	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	The pH of a 1% dilution = 3.88 (20°C) a test on acidity is not considered necessary.	Anonymous 2015b
	CIPAC MT75 CIPAC MT191	NEU 1370 H, Batch 468315 75.4% (708.0 g/L Nonanoic acid	The pH of the undiluted product = 3.3. Acidity = 23.84%.	Anonymous 2019c
Relative density / bulk density	CIPAC MT3	NEU 1370 H, Batch 153004 697 g/L Nonanoic acid	0.937 g/cm^3 (20°C)	Anonymous 2019c
Storage stability test – **accelerated storage**	CIPAC MT46.3	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	There is no significant change in the a. i. content. Initial: 724.8 ± 7.1 g/L, after 14 days at 54°C ± 0.6 °C: 708.9 ± 10.5 g/L. (determinded by HPLC) Additionally, the pH, foaming, dilution stability and physical appearance of the substance has not changed significantly.	Anonymous 2015b
Storage stability test – **long term storage at ambient temperature**	CIPAC MT 36.3, CIPC MT 39, CIPAC MT 47.2, CIPAC MT 75.3, CIPAC MT 148, CIPAC MT 191, CIPAC MT 192, MT A.3, A.5	NEU 1370 H, Batch 468315 75%	The results indicate that the active substance in the test item is stable under the conditions of the storage test (20 °C ± 2 °C) for at least 24 months.	Anonymous 2019c

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Storage stability test – **low temperature stability test for liquids**	CIPAC MT39.3	NEU 1370 H, Batch 468315 75.4% (708.0 g/L Nonanoic acid	After acclimatization the product showed no change compared to the appearance observed before storage for 1 week at 0°C.	Anonymous 2019c
Effects on content of the active substance and technical characteristics of the biocidal product - **light**			Product is bottled in non-transparent canisters that exclude effects of light.	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Effects on content of the active substance and technical characteristics of the biocidal product – **temperature and humidity**			Results of accelerated storage stability test, test demonstrates that effects of temperature and humidity can be excluded.	
Effects on content of the active substance and technical characteristics of the biocidal product - **reactivity towards container material**			Metal barrels coated with lacquer on the inside have been used since many years for Nonanoic acid without having negative influence on the contained product. The diluted products NEU 1170 H EC and NEU 1170 H AF were stored up to 5 years at room temperature in plastic bottles (HDPE) without deformation, discoloration or cracking. After heat stability testing for 2 weeks at 54°C the bottles (HDPE with polyethylene lined caps) display no cracking or deformation (ref ANONYMOUS 2015B).	
Wettability			Not applicable the product is a liquid formulation.	
Suspensibility, spontaneity and dispersion stability			Not required NEU 1370 H is not a suspension concentrate or a water dispersible formulation and does not form a suspension when diluted with water.	
Wet sieve analysis and dry sieve test			Not required NEU 1370 H is a liquid emulsion concentrate.	
Emulsifiability, re-emulsifiability and emulsion stability	CIPAC MT36	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	Dilution rate 4 mL/100 mL: Initial (30 sec): 3 mL cream/oil, no froth. 30 min: 4 mL cream, 3 mL froth. 2 hours: 5 mL cream, 3 mL froth. 24 hours: 6 mL cream, no froth. Re-emulsification (24 hrs + 30 sec): No cream, 5 mL froth. 24 hours + 30 min: 6 mL cream, 3 mL froth. Bulk solution is opaque, white at all readings.	Anonymous 2015b

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
			Dilution rate 1.3 mL/100 mL: Initial (30 sec): No cream, 4 mL froth. 30 min: 2 mL cream, 2 mL froth. 2 hours: 2 mL cream, 2 mL froth. 24 hours: 2 mL cream, no froth. Re-emulsification (24 hrs + 30 sec): 4 mL cream, no froth. 24 hours + 30 min: 2 mL cream, 2 mL froth. Bulk solution is opaque, white at all readings.	
Disintegration time			Not relevant NEU 1370 H is a liquid.	
Particle size distribution, content of dust/fines, attrition, friability			Not relevant NEU 1370 H is a liquid.	
Persistent foaming	CIPAC MT47	NEU 1370 H, Batch DB9-32-1 724.8 g/L Nonanoic acid	10 s: 16 mL 1 min 10 mL 3 min 8 mL 12 min 6 mL foam	Anonymous 2015b
Flowability/ Pourability/ Dustability	CIPAC MT148	NEU 1370 H, Batch 468315 75.4% (708.0 g/L Nonanoic acid	Pourability = 0.75%	Anonymous 2019c
Burning rate — smoke generators			Not required, NEU 1370 H is no smoke generator	
Burning completeness — smoke generators			Not required, NEU 1370 H is no smoke generator	
Composition of smoke — smoke generators			Not required, NEU 1370 H is no smoke generator	
Spraying pattern — aerosols			Not required, NEU 1370 H is not an aerosol.	
Physical compatibility			Not required, NEU 1370 H is not used in combination with other products.	
Chemical compatibility			Not required, NEU 1370 H is not used in combination with other products	
Degree of dissolution and dilution stability			Not required, NEU 1370 H is a liquid and not used in water soluble bags.	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Surface tension			The surface tension of a 1 g/L aqueous solution of NEU 1170 H EC was 65.9 mN/m at 20°C. NEU 1370 will be used at a maximum concentration of 0.4 mL/L hence a surface tension between 66 mN/m and 73 mN/m (water at 20°C) may be expected for the diluted product.	
	EEC A.5 OECD 115	NEU 1370 H, Batch 153004	27.7 mN/m at 20°C measured using undiluted product	Anonymous 2015c
Viscosity	CIPAC MT192	NEU 1370 H, Batch DSA28-75-1, DB9-32-1, DB9-11-1 699.4 g/L Nonanoic acid	18-37 mPas at 20°C at various shear rates. product is a non-Newtonian liquid	Anonymous 2015d
	CIPAC MT192	NEU 1370 H, Batch 468315 75.4% (708.0 g/L Nonanoic acid	24.2 mPas	Anonymous 2019c

Conclusion on the physical, chemical and technical properties of the product

The physical-chemical properties and respective characteristics of the biocidal products have been evaluated and are deemed acceptable for the appropriate use, storage and transport of the biocidal product.
The data on heat stability and storage stability indicate that the product can be stored at least for 2 years without deviation from its specification.

2.2.3 Physical hazards and respective characteristics

META SPC 1

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Explosives			Not required, NEU 1170 H EC is a water based formulation that contains no ingredients with explosive properties. Explosive properties are associated with the presence of certain chemical groups in a molecule which can react to produce very rapid increases in temperature and/or pressure. No chemical groups relating to these characteristics are included in the formulations of all products of the biocidal product family . No chemicals containing C-C unsaturation (e.g. acetylenes, acetylides, 1, 2-dienes); C-Metal, N-Metal (e.g. Grignard reagents, organo-lithium compounds); Contiguous nitrogen atoms (e.g. azides, aliphatic azo compounds, diazonium salts, hydrazines, sulphonylhydrazides); Contiguous oxygen atoms (e.g. peroxides, ozonides); N-O (e.g. hydroxyl amines, nitrates, nitro compounds, nitroso compounds, N-oxides, 1,2-oxazoles); N-halogen (e.g. chloramines, fluoroamines); O-halogen (e.g. chlorates, perchlorates, iodosyl compounds) are included in the biocidal product family	
Flammable gases			Not required, NEU 1170 H EC is not a flammable gas.	
Flammable aerosols			Not required, NEU 1170 H EC is not a flammable aerosol.	

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Oxidising gases			Not required, NEU 1170 H EC is not an oxidising gas	
Gases under pressure			Not required, NEU 1170 H EC is not a gas under pressure.	
Flammable liquids	ISO 13736	NEU 1170 H EC, 186.7 g/L Nonanoic acid	No flash point was detected in the range of -10 to 100°C	Anonymous 2020a
Flammable solids			Not required, NEU 1170 H EC is a liquid.	
Self-reactive substances and mixtures			Not required, as NEU 1170 H EC is a water based formulation that contains no ingredients associated with self-reactive properties.	
Pyrophoric liquids			Not applicable as NEU 1170 H EC is not a pyrophoric liquid.	
Pyrophoric solids			Not required, NEU 1170 H EC is a liquid.	
Self-heating substances and mixtures			Not applicable as the phenomenon of self-heating applies only to solids. NEU 1170 H EC is a liquid and therefore shows a too small surface for being self-heating.	
Substances and mixtures which in contact with water emit flammable gases			Not applicable. NEU 1170 H EC is to be diluted with water for application and will not emit flammable gases in contact with water.	
Oxidising liquids			Not applicable, NEU 1170 H EC does not contain oxidising ingredients as it contains no fluorine or chlorine and the contained oxygen is bonded only to carbon, hydrogen or silicon.	
Oxidising solids			Not required, NEU 1170 H EC is a liquid.	
Organic peroxides			Not applicable, NEU 1170 H EC does not contain organic peroxides.	
Corrosive to metals	UN C.1	NEU 1170 H (EC) 187.0 g/L Nonanoic Acid	The product has no corrosive properties to metals: no mass loss and no intrusion was observed.	Anonymous 2019a
Auto-ignition temperatures of products (liquids and gases)	EEC A.15	NEU 1170 H EC, 22% NH4-Salt (= 198.6 g/L Nonanoic acid)	Auto-ignition temperature ≥320°C	Anonymous 1998b

Property	Guideline and Method	Purity of the test substance (%, w/w)	Results	Reference
Relative self-ignition temperature for solids			Not required, NEU 1170 H EC is a liquid.	
Dust explosion hazard			Not required, NEU 1170 H EC is a liquid.	

Conclusion on the physical hazards and respective characteristics of the product
Considering the available information on the physical and chemical properties of meta SPC 1, no classification is required.

META SPC 2

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
Explosives			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are water based formulations that contain no ingredients with explosive properties. Explosive properties are associated with the presence of certain chemical groups in a molecule which can react to produce very rapid increases in temperature and/or pressure. No chemical groups relating to these characteristics are included in the formulations of all products of the biocidal product family . No chemicals containing C-C unsaturation (e.g. acetylenes, acetylides, 1, 2-dienes); C-Metal, N-Metal (e.g. Grignard reagents, organo-lithium compounds); Contiguous nitrogen atoms (e.g. azides, aliphatic azo compounds, diazonium salts, hydrazines, sulphonylhydrazides); Contiguous oxygen atoms (e.g. peroxides, ozonides); N-O (e.g. hydroxyl amines, nitrates, nitro compounds, nitroso compounds, N-oxides, 1,2-oxazoles); N-halogen (e.g. chloramines, fluoroamines); O-halogen	

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
			(e.g. chlorates, perchlorates, iodosyl compounds) are included in the biocidal product family	
Flammable gases			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are not flammable gas.	
Flammable aerosols			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are not flammable aerosols.	
Oxidising gases			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are not oxidising gas.	
Gases under pressure			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are not gas under pressure.	
Flammable liquids	ISO 13736	NEU 1170 H AF 31.02 g/L	The flash point was found to be 69.0°C	Anonymous 2020a
		NEU 1170 H AF 28.0 g/L	The flash point was found to be 71.5°C	
Flammable solids			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.	
Self-reactive substances and mixtures			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are a water based formulations that contain no ingredients associated with self-reactive properties..	
Pyrophoric liquids			Not applicable as NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are not pyrophoric liquids.	
Pyrophoric solids			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.	
Self-heating substances and mixtures			Not applicable as the phenomenon of self-heating applies only to solids. NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquids and therefore show a too small surface for being self-heating	
Substances and mixtures which in			Not applicable. NEU 1170 H AF 31.02 g/L and NEU	

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
contact with water emit flammable gases			1170 H AF 28.0 g/L are water based products and will not emit flammable gases in contact with water.	
Oxidising liquids			Not applicable, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L products do not contain oxidising ingredients as they contain no fluorine or chlorine and the contained oxygen is bonded only to carbon, hydrogen or silicon.	
Oxidising solids			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.	
Organic peroxides			Not applicable, Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.do not contain organic peroxides.	
Corrosive to metals	UN C.1	NEU 1170 H AF (31.86 g/L Nonanoic acid)	The product has no corrosive properties to metal: no intrusion was observed. Mass loss: 0.76% (fully immersed); 0.68% (half immersed); 0.08% (gas phase)	Anonymous 2019b
Auto-ignition temperatures of products (liquids and gases)			The self-ignition temperature for Nonanoic acid was found to be 220°C (see CAR). Most of the other ingredients of NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L have a flash point >100°C. One flammable ingredient is present in low concentration. Given the products are mostly aqueous, the estimated flash-point is above 200°C.	
Relative self-ignition temperature for solids			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.	
Dust explosion hazard			Not required, NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L are liquid.	

Conclusion on the physical hazards and respective characteristics of the product
Considering the available information on the physical and chemical properties of the products in meta SPC2, no classification is required.

META SPC 3 (NEU 1370 H)

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
Explosives			Not required, NEU 1370 H mainly contains Nonanoic acid which based on its structure is not considered explosive. Also the other ingredients have no explosive properties. So NEU 1370 H may also be considered as not explosive. Explosive properties are associated with the presence of certain chemical groups in a molecule which can react to produce very rapid increases in temperature and/or pressure. No chemical groups relating to these characteristics are included in the formulations of all products of the biocidal product family . No chemicals containing C-C unsaturation (e.g. acetylenes, acetylides, 1, 2-dienes); C-Metal, N-Metal (e.g. Grignard reagents, organo-lithium compounds); Contiguous nitrogen atoms (e.g. azides, aliphatic azo compounds, diazonium salts, hydrazines, sulphonylhydrazides); Contiguous oxygen atoms (e.g. peroxides, ozonides); N-O (e.g. hydroxyl amines, nitrates, nitro compounds, nitroso compounds, N-oxides, 1, 2-oxazoles); N-halogen (e.g. chloramines, fluoroamines); O-halogen (e.g. chlorates, perchlorates, iodosyl compounds) are included in the biocidal product family	

Flammable gases			Not required, NEU 1370 H is not a flammable gas.	
Flammable aerosols			Not required, NEU 1370 H is not a flammable aerosol.	
Oxidising gases			Not required, NEU 1370 H is not an oxidising gas	
Gases under pressure			Not required, NEU 1370 H is not a gas under pressure.	
Flammable liquids	ISO 13736	NEU 1370 H 70-75% Nonanoic acid	No flash point was detected in the range of 10 to 100°C.	Anonymous 2020a
Flammable solids			Not required, NEU 1370 H is a liquid.	
Self-reactive substances and mixtures			Not required, NEU 1370 H mainly contains Nonanoic acid which based on its structure is not considered self-reactive. Also the other ingredients have no self-reactive properties..	
Pyrophoric liquids			Not applicable as NEU 1370 H is not a pyrophoric liquid.	
Pyrophoric solids			Not required, NEU 1370 H is a liquid.	
Self-heating substances and mixtures			Not applicable as the phenomenon of self-heating applies only to solids. NEU 1370 H is a liquid and therefore shows a too small surface for being self-heating.	
Substances and mixtures which in contact with water emit flammable gases			Not applicable. NEU 1370 H is to be diluted with water for application and will not emit flammable gases in contact with water.	

Oxidising liquids			Not applicable, NEU 1370 H does not contain oxidising ingredients as it contains no fluorine or chlorine and the contained oxygen is bonded only to carbon or hydrogen.	
Oxidising solids			Not required, NEU 1370 H is a liquid.	
Organic peroxides			Not applicable, NEU 1370 H does not contain organic peroxides.	
Corrosive to metals	UN C.1	NEU 1370 H (699.4 g/L Noanoic acid)	The product has no corrosive properties to metals: no mass loss and no intrusion was observed.	Anonymous 2019d
Auto-ignition temperatures of products (liquids and gases)			The self-ignition temperature for Nonanoic acid was found to be 220°C (see CAR). The other ingredients of NEU 1370 H have a flash point >100°C. So an auto ignition temperature within the range of 220°C can be expected for NEU 1370 H.	
Relative self-ignition temperature for solids			Not required, NEU 1370 H is a liquid.	
Dust explosion hazard			Not required, NEU 1370 H is a liquid.	

Conclusion on the physical hazards and respective characteristics of the product
Considering the available information on the physical and chemical properties of meta SPC 3, no classification is required.

2.2.4 Methods for detection and identification

META SPC 1 & 2

A sample of NEU 1170 H EC is treated with sulphuric acid (1%) at 50°C in methanol. It is extracted with hexane, centrifuged and the hexane layer analysed using GC/FID, using heptanoic acid as the internal standard. Nonanoic acid and other fatty acids present are determined. The analytical method is based on an already published method of the US EPA for the determination of the named active substance.

GC parameters	
Column	Carbowax, 20 m x 0.25 mm
Carrier gas	Helium, 100 kPa
Detector	FID
Temperature program	80°C to 160°C with 8°C/min (2 minutes hold), up to 220°C with 20°C/min (5 minutes hold)
Injection	1 µL, split injection (split flow 150 mL/min)
Retention time	Nonanoic acid: approx. 3.5 min

Validation of the method was performed as part of the stability studies and is presented as follows.

For analysis of NEU 1170 H EC and NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L a diluted sample is centrifuged with sulphuric acid and the internal standard in petroleum ether. The layers are allowed to separate and the petroleum ether layer removed. The extraction is repeated with further amounts of petroleum ether, the extracts combined and evaporated to dryness. The resulting sample is methylated with 1 % sulphuric acid in methanol and extracted with hexane. The hexane layer is removed and analysed using GLC/FID, using heptanoic acid as the internal standard.

META SPC 1

The retention time of the sample solution matched that of a standard solution of Nonanoic acid. There were no interferences at the retention time of Nonanoic acid in the blank sample.
To verify the analytical procedure, the method accuracy was determined by analysing a sample that was prepared to contain 21.88% ammoniated soap of fatty acids. Three sub-samples were extracted and each injected twice. Linearity was confirmed by the injections of four standard solutions of Nonanoic acid in water in the range 17.62-22.03%. The repeatability of the method was determined by repeat analysis of the same sample. Three separate sub-samples were taken and injected twice. The relative standard deviation was determined to be a low % RSD of 4.1. The method has been successfully validated for the determination of Nonanoic acid in NEU 1170 H EC. The method demonstrates adequate accuracy, repeatability and precision at this level.

META SPC 2

The retention time of the sample solution matched that of a standard solution of Nonanoic acid. There were no interferences at the retention time of Nonanoic acid in the blank sample. To verify the analytical procedure, the method accuracy was determined by analysing a sample that was prepared to contain 3.68% soap. Four sub-samples were extracted and each injected twice. Linearity was confirmed by the injections of five standard solutions of Nonanoic acid in water. The repeatability of the method was

determined by repeat analysis of the same sample. Four separate sub-samples were taken and injected twice. The relative standard deviation was determined to be 2.2%. The method has been successfully validated for the determination of Nonanoic acid in NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L. The method demonstrates adequate accuracy, repeatability and precision at this level.

META SPC 3

Nonanoic acid in NEU 1370 H can be determined using HPLC with UV detection at 254 nm. For analysis to 0.5 g of sample 320 g of water are added. 25% KOH solution is used to adjust the pH to about 10.8 ±0.4. This solution is allowed to stir for 2 hours and pH is adjusted again if needed. 0.5 g of this solution is then added to 1 mL of a 3 mM solution of 18-crown and 1 mL of a 3 mM solution of 4-bromophenacyl bromide. The solution is mixed and then heated in the oven for six hours at 80°C. After heating the solution is cooled to room temperature, mixed, filtered and run on the HPLC. 5 µL of sample are injected at a flow rate of 0.5 mL/min. Analytic standard of Nonanoic acid converted to a soap was used as reference standard.

HPLC parameters	
Column	Phenomenex Spherclone 5 µm ODS(2) 150x4.6mm
Column temperature	ambient
Eluent	Water/Acetonitrile for a total run time of 48 minutes
Gradient	Bigradient Initial: 70% acetonitrile/water 4.00 min: 70% acetonitrile/water 12.00 min: 75% acetonitrile/water 20.00 min: 75% acetonitrile/water 28.00 min: 70% acetonitrile/water 48.00 min: 70% acetonitrile/water
Detection	UV @ 254 nm
Injection	5 µL (flow 0.5 mL/min)
Pressure	approx. 2000 psi 150 kg/cm^2
Retention time	Derivatised Nonanoic acid: 22 min

Validation of the method was performed as part of the heat stability study and is presented as follows.

There were no peaks at the retention time of Nonanoic acid in the blank sample. The response of the detector to Nonanoic acid in the concentration range of interest (13.4 - 68.3 ppm) appears to be linear and the correlation is 0.9996 (r2 is 0.992). The method accuracy and precision was determined by analysing a sample that was prepared to contain 699.4 g/L Nonanoic acid. Three sub-samples were extracted and analysed.

LOQ value:
A further study is presented for a formulation which is similar to NEU 1170 H EC called NEU 1270H. Instead of the ammonium salt of nonanoic acid the potassium salt is used in this formulation. The study is a validation of the analytical method of GC determination of nonanoic acid in the formulation. This GLP study Mo4854 contains several fortification levels to determine the recovery. Often, the lowest concentration for which the analytical

method has been validated is set to LOQ. For nonanoic acid according to LOQ = 0.3490 mg / mL (n = 3, mean recovery = 100.1%, RSD = 0.2%).
(Reference Anonymous 2014a)
The refMS accepts the presented bridging argumentation.

Analytical methods for the analysis of the product as such including the active substance, impurities and residues									
Analyte (type of analyte e.g. active substance)	**Analytical method**	**Fortification range / Number of measurements**	**Linearity**	**Specificity**	**Recovery rate (%)**			**Limit of quantification (LOQ) or other limits**	**Reference**
					Range	Mean	RSD		
Nonanoic acid	GC/FID	NEU 1170 H22% (w/w) Ammonium salts of fatty acids = 198,6 g Nonanoic acid 2 measurements	nd	Yes	nd	nd	nd	nd	Anonymous 2000b
Nonanoic acid (NEU 1170 H EC)	GC/FID	Linearity: 17.62-22.03% (159.1 to 198.9 g/L) 4 measurements Recovery: 21.8% NH_4-salt 6 measurements	y = 0.1593x + 0.0138 r = 0.9985	Yes (no interferences)	97.0 - 100.0	98.9	1.06	nd	Anonymous 2005a Anonymous 2009b
Nonanoic acid (NEU 1170 H AF)	GC/FID	Linearity: 0.77-3.8% (6.9 to 34.8 g/L) 5 measurements Recovery: 3.68% NH_4-salt 8 measurements	y = 0.9576x - 0.4048 r = 0.9985	Yes (no interferences)	94.8 - 99.7	96.7	1.45	nd	Anonymous 2002a Anonymous 2009e
Nonanoic acid (NEU 1370 H)	HPLC/UV (254 nm); Phenomenex Spherclone 5um ODS(2) 150x4.6mm	Linearity: 13.4-68.3 ppm (12.6 to 640.0 g/L) 8 measurements Recovery: 699.4 g/L Nonanoic acid 3 measurements	y = 7281.5x - 69951 r = 0.9996	Yes (no interferences)	102.3 - 104.8	103.6	0.98	nd	Anonymous 2015b

nd – not determined in the course of the study, validation was reported in AIII-5-1_02, AIII-5-1_03 and AIIIB-5-1_01, AIIIB-5-1_02 for NEU 1170 H EC and NEU 1170 H AF, respectively.

Information and if necessary analytical methods for monitoring purposes of the relevant components of the biocidal product and/or residues thereof, for the compartments soil, air, water and animal and human body fluids and tissues are covered by the information provided for the EU evaluation of the active substance Nonanoic acid. No further analytical methods are considered necessary and therefore, reference is made to the Competent Authority Report of the Rapporteur Member State (RMS) Austria.

Analytical methods for monitoring purposes including recovery rates and the limit of quantification and detection for the active substance, and for residues thereof, in/on food of plant and animal origin or feeding stuffs and other products where relevant are not necessary as neither the active substance nor the material treated with it will come into contact with food- producing animals, food of plant and animal origin or feeding stuffs.

Substances of Concern determination

Several products of the family contain a substance of concern, the saponification agent ammonium hydroxide (CAS No. 1336-21-6). Please refer to the point "2.1.2.5 Information on the substance(s) of concern" of this document and see the detailed compositions of the products in the confidential annex "3.6 Confidential Annex" of this document.

However, as already described, during the production process the aqueous solution of ammonia (25%(w/w)) reacts in an equimolar ratio with nonanoic acid to give rise to the water soluble ammonium pelargonate. The reaction detailed is an equilibrium and no other source of ammonium hydroxide (CAS No. 1336-21-6) is present in the products composition, therefore it is not expected to be formed during the storage of the final products. Moreover, stability results showed no variation of appearance (precipitation) or pH after storage procedures which confirms that no variation of the equilibrium described before occurs.
In conclusion, the content of this substance of concern contained in several products of the family can only decrease or remain stable during the storage of the products. As the risk assessment has been performed taking into account the maximum contents of this substance of concern in the products of the family, and that they cannot be formed during storage once the products have been formulated, it is not necessary to monitor the evolution of the content of ammonium hydroxide in the products during the storage stability studies.

Moreover, the document "Technical Agreements for Biocides - Analytical Methods and Physicochemical Properties (APCP) (Version 2.0, February 2020)" agrees with this proposed waiving as it recommends that:

- analytical methods are not required for SoC that cannot be formed during storage and their concentration remains unchanged
- and explanations should be provided in cases where the formation of SoC is not expected during storage.

Therefore, no method has been developed and validated for the determination of this substance of concern in the products of the family."

Conclusion on the methods for detection and identification of the product
The presented methods are suitable and sensitive enough for the determination of Nonanoic acid in the products of the Nonanoic acid algaecides family.

2.2.5 Efficacy against target organisms

2.2.5.1 Function and field of use

The PT2-product comprises 3 meta SPCs, which include different solutions, applied by spraying or watering depending on the respective Use, with varying concentrations of the active substance. It is intended to inhibit spreading/growth of green/yellow film of algae on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones)). Lichen are inhibited on roof tiles. Algae and lichen can create a slippery film on mentioned surfaces.

Intended categories of users and dilution steps are detailed in the tables in section 2.1.4 (Authoirsed Use).

2.2.5.2 Organisms to be controlled and products, organisms or objects to be protected

Target organisms are algal species (Green algae, Yellow algae) and lichen. The PT02 biocidal products are to be applied outdoors and intended for remedial treatment of various surfaces (vertical and/or horizontal structures), depending on the relevant meta SPC. For further details please refer to the sections 2.1.4 – Authorised Uses and 2.2.5.5 – Efficacy Data.

2.2.5.3 Effects on target organisms, including unacceptable suffering

The product inhibits spreading and growth of green/yellow film of algal and lichen origin.

2.2.5.4 Mode of action, including time delay

The product inhibits spreading/growth of green/yellow film of algal and lichen origin and is intended to control an excessive development of algae on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades, pots (terracotta) or gravestones (stones)).
The specific mode of action against algae is not known. However, as the active substance is also used as herbicide it is known that the active substance quickly penetrates into the plant tissue and disrupts normal cell membrane permeability. This causes a destruction of photosynthesis mechanisms and other membrane bound physiological processes.
Hence the mode of action against algae is assumed to rely on similar mechanisms.
During efficacy testing it was proven that the biocidal product is capable to inhibit algal green film development on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades, pots (terracotta) or gravestones (stones)).

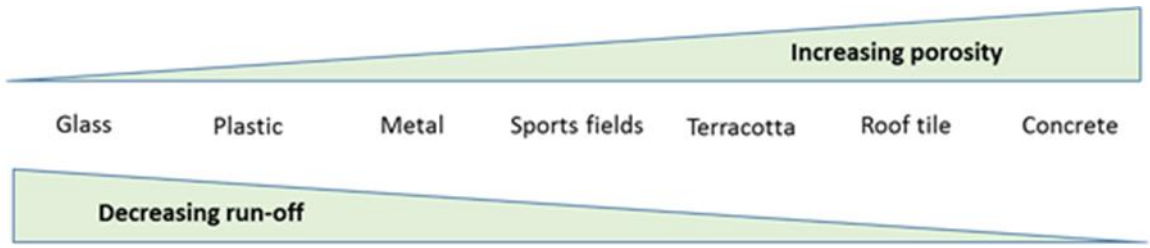
2.2.5.5 Efficacy data

In total 14 efficacy trials carried out on different surfaces with the main test product NEU 1170 H EC are presented.

For the use of NEU 1170 H EC at 5.0 mL/100 mL/m^2 as an algaecide on glass, wood, plastic, metal (vertical and horizontal structures) on various surfaces like glasshouses, plastic tunnels, sports fields, fences, terraces, etc. 6 trials are presented (Anonymus 2013, Anonymus 2014b, Anonymus 2015f, Anonymus 2015g, Anonymus 2015h, Anonymus 2015i).
For the use of NEU 1170 H EC at 5.0 mL/100 mL/m^2 as an algaecide on roof tiles 2 trials are presented (Anonymus 2014c, Anonymus 2015j).
For the use of NEU 1170 H EC at 10.0 mL/500 mL/m^2 as an algaecide on thatch roof 3 trials are presented (Anonymus 2014d).
For the use of NEU 1170 H EC at 15.0 mL/100 mL/m^2 as an algaecide on horizontal structures like pavements and terraces etc. two trials are presented for the application by spraying and one trial at 15.0 mL/200 mL/m^2 is presented for the application by watering (Anonymus 2015e, Anonymus 2015k).
For the use of NEU 1170 H EC at 15.0 mL/100 mL/m^2 as an algaecide for use on masonry (vertical structures) one trial is presented (Anonymus 2015f).

Bridging strategy:
In three trials - additionally to the main product NEU 1170 H EC - the ready-to-use product NEU 1170 H AF was tested to confirm the comparability of efficacy results achieved by both products.
All three trials (Anonymus 2015e, Anonymus 2015f, Anonymus 2014c) were carried out with the "new" AF formulation containing 28 g/L active substance using 100 mL/m^2.
For the "old" NEU 1170 H AF product containing 31 g/L active substance a dose rate of 90 mL product/m^2 is proposed. The dose rate was lowered for the "old" AF product to keep the amount of active substance used per application on the same level for both AF products. The co-formulants are identical only the water content is changed.

In general, both porous and non-porous surfaces must be tested if claimed to be in-line with the efficacy assessment of other product types. In the present case three surfaces (concrete, terracotta, roof tiles) were chosen for the use of NEU 1170 H EC due to the porosity of the materials. Although porous surfaces cannot be indicated as worst case for non-porous surfaces from the first, the following justification is presented for read-across: The same if not better efficacy is to be expected when the product is used on smoother surfaces. The following graph highlights the correlation of porosity and run-off of water.



These assumptions are based on in-use experience with the respective surfaces gained in both crop protection applications and biocide efficacy trials, the observatiosn and results of

numerous trials underline the hypothesis that in this case green film grows faster and more invasive on porous material. Therefore, if smooth surfaces are to be treated, lower application rates are suggested for the NEU 1170 H EC formulation. This is further underlined by the respective results using the main product NEU 1170 H EC on glass surfaces (Anonymus 2013).

In two trials - additionally to the main product NEU 1170 H EC - the product NEU 1370 H was tested to confirm the comparability of efficacy results achieved by both products. Due to the comparable results and the use of an application rate leading to roughly the same concentrations of active substance to be applied a bridging for use 9 thatched roof was accepted.

Rationale for choice of efficacy thresholds:

Currently no harmonized thresholds for the efficacy of PT2 algaecidal products have been agreed on. Following the currently available guidance when assessing the efficacy of such products and choosing efficacy criteria, the intended use of the products should be taken into account. The removal of algae and lichens is desired to remove slippery (and thus dangerous) layers of microorganisms from surfaces. The target organisms are not pathogenic or dangerous for human health. In these applications field tests have been submitted to demonstrate the efficacy of the biocidal product family with the intended claims. The prevention of slippery surfaces is regarded as protective claim, for which the refMS deemed a threshold of 90% as sufficient. Remark regarding terracotta: The highest reduction of algae coverage was 87.4% and was achieved 30 days after application. Based on the efficacy demonstrated on porous and non-porous surfaces in the other efficacy studies, it can be assumed that the algiaecidal effect on terracotta is sufficiently demonstrated for the product family even though the observed reduction is slightly less than 90%.

Statement concerning the efficacy data presented in the table ("Experimental data on the efficacy of the biocidal product against target organism(s)") below:

The efficacy is only demonstrated in relation to the negative controls in the respective studies and not regarding the positive controls (REF). For further information, please refer to the passage concerning the reference products.

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC (NEU 1170 H AF, 28g/L a.s.)	Green algae, *Chlorophyta* spp.	Pavement	EPPO PP 1/152 (3)	Field trial to assess the efficacy of NEU 1170 H applied at three rates – as spray at 5 mL, 10 mL and 15 mL/100 mL/m^2 and NEU 1170 H _AF at 100 mL/m^2 on pavement. The trial also included a reference product (REF 1) and an untreated control for comparative purposes. Trial design RCB with 4 replicates, Plots (containing an average of >21 % algae coverage per treatment) were sprayed once at the commencement of the trial. Assessments were carried out at 0, 1, 7, 30, 60, 90, 120, 150, 180 and 210 days post treatment and % of algae ground coverage was assessed. To take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	The test results showed a high level of efficacy for NEU 1170 H as spray at the target rate of 15 mL/100 mL/m^2 and NEU 1170 H AF at 100 mL/m^2 throughout the whole trial duration. The results were comparable to those of the reference product. No long term negative effects were seen during the trial period - therefore the products can be considered to be safe for use on concrete paving/patio slabs. RESULTS DAY 150 Untreated 25.80% ground cover, NEU 1170 H EC (15 mL/100 mL/m2) 90.90% control, NEU 1170 H AF 100.0 % control, REF 1 100.0 % control	Anonymus 2015e
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls,	NEU 1170 H EC (NEU 1170 H AF)	Green algae, *Chlorophyta* spp.	Terracotta pots	EPPO PP 1/152 (3)	A field trial was conducted to assess the efficacy of NEU 1170 H applied as spray at 5 mL, 10 mL, 15 mL/100 mL/m^2 and NEU 1170 H_AF applied at 100 mL/m^2 on terracotta pots. The trial also included a reference product (REF 1) as well as an untreated control for comparative purposes. Trial design RCB with 3 replicates. The trial site comprised of a shaded garden in Cardiff, UK – terracotta pots (containing 25% algae coverage) were sprayed once at the commencement of the trial. Assessments were	The test results showed a high level of efficacy for NEU 1170 H as spray at the target rate of 15 mL/100 mL/m^2 and NEU 1170 H AF at 100 mL/m^2 throughout the whole trial duration. The results were comparable to those of the standard product REF 1. No long term negative effects were seen during the trial period - therefore the products can be considered to be safe for use on terracotta pots. RESULTS DAY 30 Untreated 38.30% ground cover,	Anonymus 2015f

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
	facades), pots (terracotta) or gravestones (stones))					carried out at 0, 1, 7, 30, 60, 90, 120, 150, 180, and 210 days post treatment and % of algae coverage on the pots was assessed. To take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	NEU 1170 H EC (15 mL/100 mL/m^2) 87.48% control RESULTS DAY 150 Untreated 40.00 % ground cover, NEU 1170 H EC (15 mL/100 mL/m^2) 79.64% control, NEU 1170 H AF 81.08% control, REF 1 94.63% control	
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)	Glass wall	EPPO PP 1/152 (4), PP 1/181 (4)	The trial was carried out to evaluate the efficacy of NEU 1170 H as spray treatment at 2.5 mL/100 mL/m^2 and 5 mL/100 mL/m^2 against Green algae on glass surface compared to the standard REF 2. Trial design RCB with 4 replicates. The trial was placed on vertical glass panes on a greenhouse which had not been in use for the last 5 years, and no maintenance had been conducted on the glass panes. Application A was carried out on the 12th of September 2013 when the target pest was growing actively on the glass surface. The trial was assessed five times at 1, 8, 40, 82 and 98 DAA for ground cover (GROUND) of and efficacy against the general target of Green algae. An even distribution of algae cover in the trial ranging from 55% to 76.3% ground cover was observed at application.	At the first assessment 1 day after application A (DA-A) an excellent efficacy against Green algae both in the form of CONTRO and GROUND was seen for both dose rates of NEU 1170 H which was significantly higher efficacy than for the reference product REF2 20 L/ha. At the assessments done at 8, 40, 82 and 98 DAA excellent efficacy was seen for all treatments and this effect lasted throughout the trial period. No negative effects or changes were seen after application on the trial surface during the trial period and the test products can therefore be considered safe to use on a glass surface. RESULTS DAY 98 Untreated 78.00% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.0% control, REF 2 96.24% control	Anonymus 2013

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)	Wood patio	EPPO PP 1/152 (4) PP 1/181 (4)	The trial was carried out to evaluate the efficacy of NEU 1170 H as spray treatment at 2.5 mL/100 mL/m^2 and 5 mL/100 mL/m^2 against Green algae on wood surface compared to the standard REF 2. The trial was placed on a horizontal wood patio which had not been treated with any product in recent times. Application A was carried out on the 12th of September 2013 when the target pest was growing actively on the wood surface. Treatments 2 to 5 and treatment 10 was applied using pressurized equipment and a lance, while treatments 6-9 was applied using a watering can with a boom rose. There have not been any problems during the mixing or spraying with any of the products. Trial design RCB with 4 replicates. The trial was assessed five times at 1, 8, 40, 82 and 98 DAA for ground cover of and efficacy against the general target of Green algae. An even distribution of algae cover in the trial ranging from 57.5% to 73.8% ground cover was observed at application.	NEU 1170 H applied at the target dose rate of 5 mL/100 mL/m^2 showed excellent efficacy against Green algae when applied with lance on a higher or comparable level to that of the reference product. Product efficacy was still high at the end of the trial. No negative effects or changes were seen after application on the trial surface during the trial period and the test products can therefore be considered safe to use on a wood surface. RESULTS DAY 82 Untreated 38.8% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.0% control, REF 2 57.20% control	Anonymus 2014b

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC (NEU 1170 H AF)	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*) Yellow algae: *Chrysophyceae* *Lichen*	Roof tiles	EPPO PP 1/152 (4) PP 1/181 (4)	The trial was carried out to evaluate the efficacy of NEU 1170 H as spray at 3 and 5 mL/100 mL/m^2 and NEU 1170 H AF 100 mL/m^2 against Green algae, Yellow algae and lichen on tile roof surface compared to the standard REF 2. The trial was placed on a roof surface (tiles were concrete), which had not been treated with any chemicals to control the biological film in recent times. Trial design RCB with 4 replicates. Application A was carried out on the 3rd of April 2014 when the target pest was growing actively on the roof tile surface. The trial was assessed five times at 1, 20, 39, 63 and 98 days after application (DAA) for ground cover of and efficacy against the general target of Green algae, Yellow algae and lichen. An even distribution of Green algae, Yellow algae and lichen cover in the trial at 10%, 3% and 10% ground cover respectively was observed at application.	At all assessments a high to excellent efficacy against Green algae and lichen was seen for the 5 mL/100 mL/m^2 target dose rate of NEU 1170 H and for the target dose rate of NEU 1170 H AF (100 mL/m^2) which was significantly higher than for the reference product REF2 20 L/ha. At the assessments done at 1, 20, 39, 63 and 98 DAA high to excellent efficacy was seen for all treatments and this effect lasted throughout the trial period. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on a roof surface (cast concrete tiles). RESULTS DAY 98 Green algae Untreated 17.5% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.0% control, NEU 1170 H AF 100.0% control, REF 2 38.29% control, Yellow algae Untreated 11.3% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.0% control, NEU 1170 H AF 100.0 % control, REF 2 57.52% control, Lichen Untreated 17.5% ground cover,	Anonymus 2014c

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
							NEU 1170 H_EC (5 mL/100 mL/m^2) 95.30% control, NEU 1170 H_AF 91.43% control, REF 2 40.0% control	
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)Lichen,	Roof thatched	EPPO PP 1/152 (3) PP 1/181 (3)	A field trial was carried out to evaluate the efficacy of NEU 1170 H (AlgeFri N ProFF) when applied as spray at 2.5, 5 and 10 mL/500 mL/m^2 against algal species on thatched roof surfaces. Trial design RCB with 4 replicates. Application A was carried out on the 25th of October 2013 when the target pest was growing actively on the thatched roof surface. The trial was assessed six times at 1, 3, 10, 39, 61, 104 and 192 DAA, for change in straw material colour, for cover of and efficacy against the general target of Green algae and assessments on lichen were also carried out. At approx. 90 days after application straw samples was removed from the roof. After a short period of storage these samples were assessed for any signs of damage caused by the test product by a professional thatcher. The tested roof surface was **6-7 years old** and an even distribution of algae and lichen cover were observed within the trial area. Target cover ranged from 40 - 70% Green algae cover, and 10 - 25% lichen cover at application.	The target rate of 10 mL/500 mL/m^2 of NEU 1170 H (AlgeFri N ProFF) showed high efficacy against Green algae and lichen on the tested roof at all assessment timings. A clear dose response was seen in the trial, and a slightly higher efficacy was observed for the target dose rate of NEU 1170 H. No negative effects or changes were seen after application on the trial surface during the trial period or on the tested thatch samples taken from the roof and therefore the test products can be considered safe to use on thatched roof surface. RESULTS DAY 39 Untreated 65.00% (Green Algae), 10% (Lichen) ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 100.00% (Green Algae and Lichen) control RESULTS DAY 61 Green algae Untreated 65.00% ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 86.5% control, RESULTS DAY 192 Lichen Untreated 5.80% ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 83.62% control	Anonymus 2014d

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*) Lichen,	Roof thatched	EPPO PP 1/152 (3), PP 1/181 (3)	A field trial was carried out to evaluate the efficacy of NEU 1170 H (AlgeFri N ProFF) when applied as spray at 2.5, 5 and 10 mL/500 mL/m2 against algal species on thatched roof surfaces. Trial design RCB with 4 replicates. Application A was carried out on the 25th of October 2013 when the target pest was growing actively on the thatched roof surface. The trial was assessed six times at 1, 3, 10, 39, 61, 104 and 192 DAA, for change in straw material colour, for cover of and efficacy against the general target of Green algae and assessments on lichen were also carried out. The tested roof surface was more than **10 years old** and an even distribution of algae and lichen cover were observed within the trial area. Target cover ranged from 40-70% Green algae cover and 10-25% lichen cover at application.	The target rate of 10 mL/500 mL/m^2 of NEU 1170 H (AlgeFri N ProFF) showed high efficacy against Green algae and lichen on the tested roof at all assessment timings. A clear dose response was seen in the trial, and a slightly higher efficacy was observed for the target dose rate of the test product. No negative effects or changes were seen after application on the trial surface during the trial period or on the tested thatch samples taken from the roof and therefore the test products can be considered safe to use on thatched roof surface. RESULTS DAY 39 Untreated 55.00% (Green Algae), 15% (Lichen) ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 100.00% (Green Algae and Lichen) control RESULTS DAY 104 Green algae Untreated 42.5% ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 86.24% control, Lichen Untreated 17.5% ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 100.00% control	Anonymus 2014d

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)	Roof thatched	EPPO PP 1/152 (3), PP 1/181 (3)	A field trial was carried out to evaluate the efficacy of NEU 1170 H (AlgeFri N ProFF) when applied as spray at 2.5, 5 and 10 mL/500 mL/m^2 against algal species on thatched roof surfaces. Trial design RCB with 4 replicates. Application A was carried out on the 25th of October 2013 when the target pest was growing actively on the thatched roof surface. The trial was assessed six times at 1, 3, 10, 39, 61, 104 and 192 DAA, for change in straw material colour, for cover of and efficacy against the general target of Green algae. At approximately 90 days after application straw samples was removed from the roof. After a short period of storage these samples were assessed for any signs of damage caused by the test product by a professional thatcher. The tested roof surface was **1-2 years old** and an even distribution of algae cover was observed within the trial area. Target cover ranged from 40-70% Green algae cover at application.	The target rate of 10 mL/500 mL/m^2 of NEU 1170 H (AlgeFri N ProFF) showed high efficacy against Green algae on the roof at all assessment timings. A clear dose response was seen in the trial, and a slightly higher efficacy was observed for the target dose rate of the test product. No negative effects or changes were seen after application on the trial surface during the trial period or on the tested thatch samples taken from the roof and therefore the test products can be considered safe to use on thatched roof surface in this trial. RESULTS DAY 192 Green algae Untreated 27.5% ground cover, NEU 1170 H EC (10 mL/500 mL/m^2) 63.64% control	Anonymus 2014d

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae (*Chlorophyta* spp.)	Wood fence	EPPO PP 1/152 (3) PP 1/181 (3)	The aim of the study was to evaluate the efficacy of two application rates of NEU 1170 H (at 5 mL and 10 mL/100 mL/m^2) on wooden boards. Trial design RCB with 4 replicates. The trial included an untreated control for comparative purposes. The test was conducted according to the principles of Good Experimental Practice (GEP). The test was conducted on naturally occurring Green algae (Chlorophyta spp.) found on wooden boards of a compost bin. One board was considered as one plot. The treatments were completely randomized on the garbage/compost bin. The coverage (%) with Green algae was assessed prior the treatment and 7, 14, 21, 31, 58, 107, 176 and 252 days after the application. Differences of the algae coverage were statistical analysed. For that a Tukey-Test (α =0.05) was performed and to take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	Both application rates of NEU 1170 H provided significant control and very good control of algae on wooden boards over a period of 36 weeks. No significant differences were found between the treatments. NEU 1170 H applied with a rate of 5 mL/100 mL/m^2 is sufficient to control algae on wooden material. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on wood. RESULTS DAY 252 Untreated 95.0% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.0% control	Anonymus 2015f

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae (*Chlorophyta* spp.)	Plastic tunnel	EPPO PP 1/152 (3), PP 1/181 (3)	The aim of the study was to evaluate the efficacy of two application rates of NEU 1170 H (at 5 mL and 10 mL/100 mL/m^2) against Green algae (*Chlorophyta* spp.) on a plastic tunnel. Trial design RCB with 4 replicates. The trial included an untreated control for comparative purposes. The test was conducted according to the principles of Good Experimental Practice (GEP). The test was conducted on naturally occurring Green algae (*Chlorophyta* spp.) found on the plastic foil of a greenhouse tunnel. The plots were placed in a full randomized design in the lower part of the tunnel. The treatments were applied with a handheld trigger sprayer once. The coverage (%) with Green algae was assessed prior the treatment and 5, 16, 43, 92, 161 and 273 days after the application. Differences of the algae coverage were statistical analysed. For that a Tukey-Test was performed and to take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	Both application rates of NEU 1170 H provided significant and very good control of algae on a plastic tunnel over a period of 39 weeks. NEU 1170 H applied with a rate of 5 mL/100 mL/m^2 is sufficient to control algae on a plastic tunnel. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on a plastic foil. RESULTS DAY 273 Untreated 82.5% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 90.34% control	Anonymus 2015g

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae (*Chlorophyta* spp.)	Plastic tunnel	EPPO PP 1/152 (3) PP 1/181 (3)	The aim of the study was to evaluate the efficacy of NEU 1170 H (at 5 mL and 10 mL/100 mL/m^2) against Green algae (Chlorophyta spp.) on plastic tunnel under winter conditions. Trial design RCB with 4 replicates. The trial included an untreated control and a competitive product. The test was conducted according to the principles of Good Experimental Practice (GEP). The test was conducted on naturally occurring Green algae (Chlorophyta spp.) found on the plastic foil of a greenhouse tunnel. The plots were placed in a full randomized design in the lower part of the tunnel. The treatments were applied with a handheld trigger sprayer once. The coverage (%) with Green algae was assessed prior the treatment and 14, 49, 84, 98 and 154 days after the application. Differences of the algae coverage were statistical analysed. For that a Tukey-Test was performed and to take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	Both application rates of NEU 1170 H provided significant and very good control of algae on a plastic tunnel under cool winter conditions over a period of 22 weeks. The efficacy of the NEU 1170 H treatments was not significant different from the reference product REF 3 NEU 1170 H applied with a rate of 5 mL/100 mL/m^2 is sufficient to control algae on a plastic tunnel. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on a plastic foil. RESULTS DAY 154 Untreated 90.00% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 83.80% control, REF 3 94.44% control RESULTS DAY 98 (threshold value >90% efficacy): Untreated 87.50% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 94.44% control, REF 3 94.29% control	Anonymus 2015h

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC	Green algae (*Chlorophyta* ssp.)	Aluminium fence	EPPO PP 1/152 (3), PP 1/181 (3)	The aim of the study was to evaluate the efficacy of NEU 1170 H (at 5 mL/100 mL/m^2) against Green algae (Chlorophyta spp.) on an aluminium fence. Trial design RCB with 5 replicates. The trial included an untreated control for comparative purposes. The test was conducted according to the principles of Good Experimental Practice (GEP). The test was conducted on naturally occurring Green algae (Chlorophyta spp.) found on aluminium bars of a fence. The lower 50 cm of one side of the bars was considered as one plot. The treatments were completely randomized on the fence. The treatments were applied with a handheld trigger sprayer once. The coverage (%) with Green algae was assessed prior the treatment and 4, 12, 26, 40, 106 and 298 days after the application. Differences of the algae coverage were statistical analysed. For that a Tukey-Test was performed and to take the initial population on the test matrix into account, efficacy was calculated according to the Henderson&Tilton method.	The application of NEU 1170 H provided significant control and very good control of algae on aluminium boards over a period of 36 weeks. No significant differences were found between the treatments of NEU 1170 H and the reference REF 2. NEU 1170 H applied with a rate of 5 mL/m^2 is sufficient to control algae on aluminium surfaces. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on aluminium. RESULTS DAY 298 Untreated 60.00% ground cover, NEU 1170 H EC (at 5 mL/100 mL/m^2) 87.49% control, REF 2 95.47% control RESULTS DAY 106 (threshold value >90% efficacy): Untreated 60.00% ground cover, NEU 1170 H EC (at 5 mL/100 mL/m^2) 94.53% control, REF 2 100% control	Anonymus 2015i

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC (NEU 1370 H)	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)Lichen	Roof tiles	EPPO PP 1/152 (3), PP 1/181 (4)	A field trial was carried out to evaluate the efficacy of NEU 1170 H (at 3.0 mL and 5.0 mL/100 mL/m^2) and NEU 1370 H (at 1.3mL/100 mL/m^2) when applied post emergence of pest against algae and lichen species on roof tiles compared to the standard REF 2. The trial was placed in Denmark. Trial design RCB with 4 replicates. The trial was placed on a roof surface (tiles were concrete); all replicates were placed in one line at the bottom of the roof on the eastern side of the roof. The algae and lichen cover was very homogenous with a ground cover of 80% and 4% respectively. The roof has not been treated with any chemicals to control the biological film in recent times. Application A was carried out on the 8th of May 2015 when the target pest was growing actively on the roof tile surface. The trial was assessed five times at 0, 1, 12, 33, 62 and 88 days after application (DAA) for ground cover of the general target of Green algae and lichen.	NEU 1170 H and NEU 1370 H showed excellent efficacy against Green algae and lichen on a higher level than that of the reference product throughout the whole assessment period. No significant dose response was seen in the trial. There was no difference in product performance between NEU 1170 H and NEU 1370 H or between different water volumes. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on a roof surface (cast concrete tiles). RESULTS DAY 88 Green algae Untreated 77.5% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.00% control, NEU 1370 H 100.00% control, REF 2 16.13% control, Lichen Untreated 7.0% ground cover, NEU 1170 H EC (5 mL/100 mL/m^2) 100.00% control, NEU 1370 H 100.00 % control, REF 2 42.86% control	Anonymus 2015j

Experimental data on the efficacy of the biocidal product against target organism(s)								
Function	**Field of use envisaged**	**Test substance**	**Test organism(s)**	**Test Surface**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
PT2	Algaecide- for use on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.), roof tiles, thatch roof, pavement spraying and watering (stone, bitumen, terracotta, slate, tiles, wood) and masonry (walls, facades), pots (terracotta) or gravestones (stones))	NEU 1170 H EC (NEU 1370 H)	Green algae: *Chaetophoraceae* (genus *Pleurococcus*), *Prasiolaceae* (species *Desmococcus olivaceus*), *Chlorellaceae* (genus *Apatococcus*), *Prasiolaceae* (species *Stichococcus bacillaris Nageli*)	Wood patio	EPPO PP 1/152 (3), PP 1/181 (4)	The trial was carried out to evaluate the efficacy of NEU 1170 H (at 10 and 15 mL/100 mL/m2 for spraying and 10 and 15 mL/200 mL/m^2 for sprinkling) and NEU 1370 H (at 4mL/100 mL/m^2) when applied post emergence of pest against algae species on a wood surface compared to the standard REF 2. The trial was placed in Denmark. Trial design RCB with 4 replicates. The application was carried out on the 12th of May 2015 when the target pest was growing actively on the wood surface. Treatments 2 to 4 and treatment 7 was applied using pressurized equipment and a lance, while treatments 5-6 and 8 was applied using a watering can with a boom rose. The trial was assessed five times at 1, 8, 28, 56 and 87 DAA for ground cover of the general target of Green algae.	NEU 1170 H and NEU 1370 H showed excellent efficacy against Green algae on a higher level than that of the reference product. There was no difference in product performance between NEU 1170 H and NEU 1370 H. No negative effects were seen on the trial surface during the trial period and the test products can therefore be considered safe to use on a wood surface. SPRAYING RESULTS DAY 87 Untreated 82.5% ground cover, NEU 1170 H EC (15 mL/100 mL/m^2) 96.97% control, NEU 1370 H 100.0% control, REF 2 15.00% control SPRINKLING RESULTS DAY 87 Untreated 82.5% ground cover, NEU 1170 H EC (15 mL/200 mL/m^2) 96.97% control, NEU 1370 H 100.0% control, REF 2 24.24% control	Anonymus 2015k

Conclusion on the efficacy of the product
Data from 14 efficacy field trials are presented to support the label claims of the products within three meta SPCs. Furthermore, bridging trials were carried out. In five out of these fourteen efficacy trials two additional products have been tested: 3 bridging trials for the ready to use products of META SPC 2 (NEU 1170 H AF 28 and 31.02 g/L) and 2 bridging trials for the product of META SPC 3 (NEU 1370 H) are presented to confirm the comparability of the efficacy results between the different products. On the basis of the presented data it is concluded that the products within the family are efficacious in the context of the intended uses.

Guidelines:
In general, it has to be stated that the Guidelines on efficacy testing of PT2, which are listed in different official Guidance documents are not suitable to demonstrate efficacy of an algaecide for outdoor use. (E.g. CEN-standard test methods, OECD-test guidelines) The trials presented in this dossier were carried out under GEP and EPPO guidelines on efficacy testing were followed.

Reference Products:
The positive controls (reference products) are only tested for comparison to fulfil the requirements of the EPPO standards. However, the efficacy is always proved with reference to the negative controls (untreated samples) and not regarding the positive controls.
The reference products, which were used for comparison with META SPC 1 (NEU 1170 H EC), are presented below. All benchmarking products were used as recommended by the supplier in the efficacy trials.
In three trials on thatch roof, no reference product could be tested as no product was authorised at the time of trial realisation. Furthermore, in two trials (Anonymus 2015f and Anonymus 2015g) presented for Use 1, no reference products were tested, as these trials were originally intended as dose range finding tests. However, an untreated control for these trials is presented as comparison and very high levels of efficacy were achieved throughout the trial period (over 90% efficacy from day 7 after application until day 288 after application).

Overview of Reference Products used in efficacy trials including their respective concentrations:

Reference Number for Doc	Reference product	Active ingredient	Concentration of a.i.	Code Number for Dossier
AIII-6-7_01	Mangers Fungicidal Wash	Benzalkonium Chloride	50.0 g/L	REF 1
AIII-6-7_02	Mangers Fungicidal Wash	Benzalkonium Chloride	50.0 g/L	REF 1
AIII-6-7_03	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2
AIII-6-7_04	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2
AIII-6-7_05	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2
AIII-6-7_09	Terrasse Rens Bayer Denmark	Benzalkonium Chloride	500 g/L	REF 3
AIII-6-7_10	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2
AIII-6-7_11	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2
AIII-6-7_12	Rodalon 5%	Benzalkonium Chloride	50.0 g/L	REF 2

All tests on efficacy have been conducted under the regime of GEP and according EPPO: PP 1/152 (3) and PP 1/181 (4). Therefore, it is assured that reference products have to be used as recommended or registered.

Efficacy Calculations
For use 1 on glass, wood, plastic, metal (surfaces on glasshouse, plastic tunnel, sports fields, fences, terraces, etc.) efficacy data from 6 trials (Anonymus 2013, Anonymus 2014b, Anonymus 2015f, Anonymus 2015g, Anonymus 2015h, Anonymus 2015i) on various surfaces are presented. The trials were carried out between 2013 and 2015 in Denmark and Germany. The test product NEU 1170 H EC was used at the target dose rate of 5.0 mL/100 mL/m^2.
The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population of algae on the tested matrices into account. In four trials a reference product was used for comparison.

	Untreated	**NEU 1170 H EC**			**Various standards**		
		5.0 mL/100 mL/m^2			**At registered rate**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 1 (n=2)	68.75	1.90	97.27	2.73	28.15	57.11	6.46
Day 4-8 (n=5)	74.60	1.38	97.86	2.98	12.13	79.95	18.71
Day 92-107 (n=6)	78.00	3.60	94.73	7.28	10.63	84.35	21.74
Day 252-298 (n=3)	79.17	4.63	92.61	5.35	2.40	95.47	0.00

*S.D.: Standard deviation, only refers to the calculated mean % efficacy, results for Day 1 of low statistical significance (less than three data points used for calculation)

References: Day 1: Anonymus 2013, Anonymus 2014b; Day 4-8: Anonymus 2013, Anonymus 2014b, Anonymus 2015f, Anonymus 2015g, Anonymus 2015i; Day 92-107: Anonymus 2013, Anonymus 2014b, Anonymus 2015f, Anonymus 2015g, Anonymus 2015h, Anonymus 2015i; Day 252-298: Anonymus 2015f, Anonymus 2015g, Anonymus 2015i

The results show a consistently high efficacy for the test product NEU 1170 H EC at 5.0 mL/100 mL/m^2 throughout the trial period against algae. Efficacy was slightly better than the performance of the reference. In three trials the algae appeared to have started re-growing at the end of the trial, however, the product efficacy was still high. According to the results, a slight decrease in efficacy should be expected after 82 days on wood surface (Anonymus 2014b), a after 98 days on plastic at winter conditions (Anonymus 2015h) and after 106 days on aluminium (Anonymus 2015i).
The presented range of days was chosen to compare the individual values assessed roughly around the same time (DAA=Days after application).

Below, results for each trial and matrix for use 1 are presented:

Trial Identification		Untreated control		Test product			Reference product			Target	Matrix
Trial	DAA			NEU 1170 H EC 5 mL/100 mL/m²			Reference Product SPRAY at registered rate				
		% Ground cover	statistics	% Ground cover	statistics	% Control	% Ground cover	statistics	% Control		
Anonymus 2013	0	76.30		68.80			65.00			Green algae	Glass wall
	98	78.00	a	0.00	b	100.00	2.50	b	96.24	Green algae	Glass wall
Anonymus 2014b	0	68.80		73.80			72.50			Green algae	Wood patio
	82	38.80	a	0.00	b	100.00	17.50	ab	57.20	Green algae	Wood patio
	98	62.50	a	13.80	bc	79.42	35.00	b	46.86	Green algae	Wood patio
Anonymus 2015f	0	85.00		72.50						Green algae	Wood fence
	252	95.00	a	0.00	b	100.00				Green algae	Wood fence
Anonymus 2015g	0	85.00		80.00						Green algae	Plastic tunnel
	273	82.50	a	7.50	b	90.34				Green algae	Plastic tunnel
Anonymus 2015h	0	87.50		90.00			87.50			Green algae	Plastic tunnel
	98	87.50	a	5.00	b	94.44	5.00	b	94.29	Green algae	Plastic tunnel
	154	90.00	a	15.00	ab	83.80	5.00	b	94.44	Green algae	Plastic tunnel
Anonymus 2015i	0	68.00		58.00			60.00			Green algae	Aluminium fence
	106	60.00	a	2.80	b	94.53	0.00	b	100.00	Green algae	Aluminium fence
	298	60.00	a	6.40	b	87.49	2.40	b	95.47	Green algae	Aluminium fence

% Control calculated with Henderson & Tilton formula to consider initial population at trial start
DAA= Days after application

For use 2 on roof tiles efficacy data from two trials (n=2) (Anonymus 2014c, Anonymus 2015j) carried out in Denmark in 2014 and 2015 are presented. The test product at the target dose rate of 5 mL/100 mL/m^2 was used against Green algae, Yellow algae and lichen. The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population of algae on the tested matrix into account.

Target: Green algae							
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**			**REF 2 at 2mL/100 mL/m²**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 1 (n=2)	39.50	1.25	85.27	14.73	33.75	27.58	16.87
Day 12-20 (n=2)	50.00	0.00	100.00	0.00	21.90	70.53	22.04
Day 88-98 (n=2)	47.50	0.00	100.00	0.00	37.90	27.21	11.08

*S.D.: Standard deviation, only refers to the calculated mean % efficacy, results for Day 1, Day 12-20, Day 88-98 of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2014c, Anonymus 2015j

Target: Yellow algae					
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**		**REF 2 at 2mL/100 mL/m²**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	5.50	0.30	94.16	1.30	76.36
Day 98 (n=1)	11.30	0.00	100.00	6.30	57.52

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2014c

Target: Lichen							
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**			**REF 2 at 2mL/100 mL/m²**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 1 (n=2)	5.05	1.15	82.62	17.38	3.50	5.53	3.57
Day 12-20 (n=2)	7.75	0.50	94.59	5.41	2.65	54.82	4.82
Day 88-98 (n=2)	12.25	0.40	97.65	2.35	5.15	41.43	1.43

*S.D.: Standard deviation, only refers to the calculated mean % efficacy, results for Day 1, Day 12-20, Day 88-98 of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2014c, Anonymus 2015j

The results show a consistently high efficacy for the test product NEU 1170 H EC at 5.0 mL/100 mL/m^2 throughout the trial period against Green algae, Yellow algae and lichen. Efficacy against algae and lichen was significantly higher than for the reference product.

The presented range of days was chosen to compare the individual values assessed roughly around the same time (DAA=Days after application).

Below, results for each trial and matrix are presented:

Trial Identifi-cation		Untreated control		Test product									Reference product			Target	Matrix
Trial	DAA			NEU 1170 H EC 5 mL/100 mL/m²			NEU 1370 H 1.3 mL/100 mL/m²			NEU 1170 H AF 100 mL/100 mL/m²			at registered rate				
		% Ground cover	stat.	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control		
Anonymus 2014c	0	8.80		8.30						8.80			8.80			Green algae	Roof tiles
	98	17.50	a	0.00	c	100.00				0.00	c	100.00	10.80	b	38.29	Green algae	Roof tiles
Anonymus 2014c	0	3.00		2.80						3.00			3.00			Yellow algae	Roof tiles
	98	11.30	a	0.00	c	100.00				0.00	c	100.00	4.80	b	57.52	Yellow algae	Roof tiles
Anonymus 2014c	0	7.50		7.30						7.50			4.50			Lichen	Roof tiles
	98	17.50	a	0.80	b	95.30				1.50	b	91.43	6.30	b	40.00	Lichen	Roof tiles
Anonymus 2015j	0	80.00		80.00			80.00						80.00			Green algae	Roof tiles
	88	77.50	a	0.00	c	100.00	0.00	c	100.00				65.00	b	16.13	Green algae	Roof tiles
Anonymus 2015j	0	3.70		3.70			3.70						3.70			Lichen	Roof tiles
	88	7.00	a	0.00	c	100.00	0.00	c	100.00				4.00	b	42.86	Lichen	Roof tiles

% Control calculated with Henderson & Tilton formula to consider initial population at trial start
DAA=Days after application

For use 3 on thatch roof efficacy data from three trials (Anonymus 2014d) carried out in Denmark in 2013 and 2014 are presented. The test product at the target dose rate of 10 mL/500 mL/m^2 was used against Green algae and lichen. The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population on the test matrix into account. No reference product could be used as no other product against algae and lichen on thatch roof is authorised in Denmark.

Target: Green algae				
	Untreated	**NEU 1170 H EC 10.0 mL/500 mL/m^2**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 10 (n=3)	57.10	2.83	87.31	13.77
Day 39 (n=3)	17.90	13.50	84.87	21.39
Day 61 (n=3)	57.50	13.10	77.57	16.94
Day 104 (n=3)	58.33	18.80	66.48	17.28
Day 192 (n=3)	34.17	11.00	62.98	9.83

Ref.: Anonymus 2014d

Target: Lichen				
	Untreated	**NEU 1170 H EC 10.0 mL/500 mL/m^2**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 10 (n=2)	8.45	2.10	55.61	25.46
Day 39 (n=2)	12.50	0.00	100.00	0.00
Day 61 (n=2)	13.90	0.75	86.17	13.83
Day 104 (n=2)	23.00	3.15	93.12	6.88
Day 192 (n=2)	7.90	2.15	70.44	13.19

*S.D. standard deviation, only refers to the calculated mean % efficacy, results for lichen of low statistical significance (less than three data points used for calculation)

Ref.: Anonymus 2014d, trials 1 and 2

The results show a good and consistently high efficacy for the test product NEU 1170 H EC at 10.0 mL/500 mL/m^2 throughout the trial period against algae and lichen.
It has to be pointed out, that algae and lichen cause severe damage to thatch roofs, leading to a much shorter lifespan of thatched roofs (10 - 15 years shorter) if not removed. In Denmark, the nonanoic acid based product against algae and lichen presented above is the only authorised biocide for the use on thatch roof.
The product NEU 1170 H EC shows good efficacy against algae and lichen under field conditions while not having any detrimental effects on the thatch material.

The presented trials are open field studies and the product is tested under actual use conditions. In an open biological system, efficacy results are often influenced by external factors (e.g. weather conditions, texture of the thatch roof), which cannot be eliminated. Therefore, it is possible that the expected results (in this case the dose response) might not be achieved in every single trial presented. Nevertheless a tendency for better efficacy of the 10 mL/m^2 is observed for all 3 roofs although not significantly different.

However, the product is authorized in Denmark with the full recommended dose rate of 100 L/ha for several years on thatch roof and experience shows that, to reach consistent and sufficient efficacy, it is necessary to adhere to an application rate of 100 L/ha.

Thus, the eCA agrees that under presented conditions the variance of efficacy is acceptable for thatched roofs. The study has sufficiently to demonstrated the efficacy of

the product at the intended application rate on 2 out of three thatched roofs tested until DAA 104 for the aesthetic claim for algae. For lichen the results of all three tested roofs were sufficient until DAA 104.

Below, results for each trial and matrix are presented:

Trial identification		Untreated control									
Trial	DAA			NEU 1170 H EC 10 mL/500 mL/m²			Reference WATER SPRAY			Target	Matrix
		% Ground cover	stat.	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control		
Anonymus 2014d	0	62.50		41.30			65.00			Green algae	Roof thatched
	61	65.00	a	5.80	c	86.50	73.80	a	-9.17	Green algae	Roof thatched
	104	67.50	a	13.80	d	69.06	70.00	a	0.28	Green algae	Roof thatched
Anonymus 2014d	0	13.30		7.00			9.30			Lichen	Roof thatched
	104	3.50	a	0.00	a	100.00	3.50	a	-43.01	Lichen	Roof thatched
	192	5.80	a	0.50	a	83.62	6.30	a	-55.34	Lichen	Roof thatched
Anonymus 2014d	0	65.00		70.00			68.80			Green algae	Roof thatched
	61	42.50	a	3.50	d	92.35	42.50	a	5.52	Green algae	Roof thatched
	104	42.50	a	6.30	c	86.24	42.50	a	5.52	Green algae	Roof thatched
Anonymus 2014d	0	22.50		20.00			21.30			Lichen	Roof thatched
	104	17.50	a	0.00	b	100.00	17.50	a	-5.63	Lichen	Roof thatched
Anonymus 2014d	0	40.00		40.00			40.00			Green algae	Roof thatched
	61	65.00	a	30.00	e	53.85	60.00	b	7.69	Green algae	Roof thatched
	104	65.00	a	36.30	c	44.15	60.00	a	7.69	Green algae	Roof thatched

DAA = Days after application

For use 4 on pavement application by spraying (stone, bitumen, terracotta, slate, tiles, wood) two trials (Anonymus 2015e, Anonymus 2015k) carried out in Denmark and the United Kingdom in 2015 are presented. NEU 1170 H EC was used at the target dose rate of 15.0 mL/100 mL/m^2 and was applied by spraying against Green algae. The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population on the test matrices into account.

Target: Green algae-Spray Application							
	Untreated	**NEU 1170 H EC 15.0 mL/100 mL/m^2**			**Various standards at registered rates**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.***	**Mean % ground cover**	**Mean % efficacy**	**S.D.***
Day 1 (n=2)	64.38	8.75	68.20	31.80	46.25	43.85	28.85
Day 7-8 (n=2)	62.53	0.63	97.75	2.25	38.13	58.81	36.69
Day 28-30 (n=2)	63.75	1.00	96.20	3.80	38.53	60.40	36.70
Day 56-60 (n=2)	63.75	0.88	96.65	3.35	41.25	58.75	41.25
Day 84-90 (n=2)	55.38	1.50	94.45	5.55	33.75	59.09	40.91

*S.D. standard deviation, only refers to the calculated mean % efficacy, results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2015e, Anonymus 2015k

The results show efficacy for the test product NEU 1170 H EC at 15.0 mL/100 mL/m^2 throughout the trial period against Green algae on both, wood patio and pavement. For the spray application, efficacy was significantly higher compared to the two reference products. The presented range of days was chosen to compare the individual values assessed roughly around the same time (DAA=Days after application).

Below, results for each trial and matrix are presented:

Trial identification		Untreated control											Reference product			Target	Matrix
Trial	DAA			NEU 1170 H EC 15 mL/100 mL/m²			NEU 1370 H 4 mL/100 mL/m²			NEU 1170 H AF 100 mL/100 mL/m²			at registered rate				
		% Ground cover	stat.	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control	% Ground cover	stat.	% Control		
Anonymus 2015e	0	28.75		27.50						23.75			27.50			Green algae	Pave-ment
	150	25.80	a	2.30	cd	90.90				0.00	d	100.00	0.00	d	100.00	Green algae	Pave-ment
Anonymus 2015k	0	100.00		100.00			100.00						100.00			Green algae	Wood patio
	84	82.50	a	0.00	b	100.00	0.00	b	100.00				67.50	a	18.18	Green algae	Wood patio

DAA = Days after application

For use 4 on masonry (walls, facades, pots (terracotta) or gravestones (stones)) 1 trial (Anonymus 2015f) carried out in the United Kingdom in 2015. NEU 1170 H EC was used at the target dose rate of 15.0 mL/100 mL/m^2 against Green algae. The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population on the test matrix into account.

Target: Green algae					
	Untreated	**NEU 1170 H EC 15 mL/100 mL/m^2**		**REF 1 - Sprinkling At 20 mL/100 mL/m^2**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	48.30	38.80	11.55	40.00	11.11
Day 7 (n=1)	48.30	13.30	69.28	7.70	82.89
Day 30 (n=1)	38.30	4.30	87.48	2.30	93.55
Day 120 (n=1)	42.30	6.30	83.39	2.00	94.63
Day 210 (n=1)	37.70	10.70	68.34	16.30	53.59

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2015f

The results show a good efficacy for the test product NEU 1170 H EC at 15.0 mL/100 mL/m^2 throughout the trial period against Green algae. Efficacy was on a similar level compared to the reference product.
The use on terracotta pots is presented as worst case scenario for the application of NEU 1170 H EC on vertical masonry structures, as the surface of terracotta is very smooth, which makes it more difficult for the product to adhere itself to the surface and increases the risk of run-off. The same, if not better efficacy is to be expected, if the product is used on less smooth surfaces (walls, facades, stone).

For use 5 on pavement application by watering (stone, bitumen, terracotta, slate, tiles, wood) one trial (Anonymus 2015k) carried out in the United Kingdom in 2015 is presented. NEU 1170 H EC was used at the target dose rate of 15.0 mL/200 mL/m^2 and was applied by watering against Green algae on a wood patio. The % ground cover of algae was assessed and efficacy was calculated using the Henderson & Tilton method to take the initial population on the test matrix into account.

Target: Green algae - Watering Application					
	Untreated	**NEU 1170 H EC 15.0 mL/200 mL/m^2**		**REF 2 At 2 mL/100 mL/m^2**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	100.00	25.00	75.00	72.50	27.50
Day 8 (n=1)	96.30	0.00	100.00	68.80	28.56
Day 84 (n=1)	82.50	2.50	97	62.50	24.24

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2015k

The results show a good and consistently high efficacy for the test product NEU 1170 H EC at 15.0 mL/200 mL/m^2 throughout the trial period against Green algae. Efficacy was significantly higher compared to the reference product.

Results for spraying presented above show a comparable efficacy of NEU 1170 H EC on both matrices, pavement and wood patio respectively. Therefore, it can be assumed, that similar results are to be expected, when NEU 1170 H EC is applied by watering on a pavement. Furthermore, the use on wood is presented as a worst case scenario for application of NEU 1170 H EC by watering using a water can on horizontal structures, as it is more difficult to achieve a consistent distribution and sufficient wettability on an uneven wooden ground compared to stone, bitumen, terracotta, slate and tiles.

META SPC 2 (Use #6) Bridging studies for NEU 1170 H AF 28 and 32.02 g/L nonanoic acid

In three trials (Anonymus 2015e, Anonymus 2015f, Anonymus 2014c5) the ready to use formulations NEU 1170 H AF 28 and 32.02 g/L nonanoic acid META SPC 2 was additionally tested to confirm the comparability of efficacy results between the META SPC 1 (NEU 1170 H EC) and the ready to use formulation.

Target: Green algae							
	Untreated	**NEU 1170 H EC 15.0 mL/100 mL/m²**			**NEU 1170 H AF 28.0 g/L At 100 mL/m²**		
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**S.D.**	**Mean % ground cover**	**Mean % efficacy**	**S.D.**
Day 1 (n=2)	38.53	27.90	23.96	12.41	24.38	25.36	16.74
Day 7 (n=2)	38.53	7.28	82.37	13.09	7.85	79.50	20.50
Day 120 (n=2)	34.30	4.55	86.13	2.74	3.00	91.06	8.94
Day 210 (n=2)	31.75	7.85	74.04	5.70	4.00	86.62	13.38

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2015e, Anonymus 2015f

Target: Green algae					
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**		**NEU 1170 H AF 28.0 g/L At 100 mL/m²**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	9.00	2.50	72.2	0.30	97.2
Day 98 (n=1)	17.50	0.00	100.00	0.00	100.00

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2014c

Target: Yellow algae					
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**		**NEU 1170 H AF 28.0 g/L At 100 mL/m²**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	5.50	0.30	95.5	0.30	95.5
Day 98 (n=1)	11.30	0.00	100.00	0.00	100.00

results of low statistical significance (less than three data points used for calculation)

Ref: Anonymus 2014c

Target: Lichen					
	Untreated	NEU 1170 H EC 5.0 mL/100 mL/m²		NEU 1170 H AF At 100 mL/m²	
Days after application	Mean % ground cover	Mean % ground cover	Mean % efficacy	Mean % ground cover	Mean % efficacy
Day 1 (n=1)	6.80	2.30	66.7	2.00	70.4
Day 98 (n=1)	17.50	0.80	95.7	1.50	91.4

results of low statistical significance (less than three data points used for calculation)
Ref: Anonymus 2014c

The data presented from 3 trials confirm the comparability of efficacy results between the product NEU 1170 H EC and the ready-to use products NEU 1170 H AF 28 and 32.02 g/L Nonanoic acid.
Therefore, it can be concluded that similar levels of efficacy for the intended uses of NEU 1170 H EC META SPC 1, for which efficacy data is presented within this dossier, are to be expected for the products of META SPC 2 (NEU 1170 H AF 28 and 32.02 g/L Nonanoic acid) when used as recommended.

META SPC 3 (Uses #7-11) Bridging studies for NEU 1370 H

In two trials (Anonymus 2015j, Anonymus 2015k) the formulation NEU 1370 H was additionally tested to confirm the comparability of efficacy results between the NEU 1170 H EC and the NEU 1370 H formulation.

Target: Green algae					
	Untreated	NEU 1170 H EC 15.0 mL/100 mL/m²		NEU 1370 H At 4mL/100 mL/m²	
Days after application	Mean % ground cover	Mean % ground cover	Mean % efficacy	Mean % ground cover	Mean % efficacy
Day 1 (n=1)	100.00	25.00	75.00	1.30	98.70
Day 12 (n=1)	96.30	0.00	100.00	0.00	100.00
Day 84 (n=1)	82.50	2.50	96.97	0.00	100.00

results of low statistical significance (less than three data points used for calculation)
Ref: Anonymus 2015k

Target: Green algae					
	Untreated	NEU 1170 H EC 5.0 mL/100 mL/m²		NEU 1370 H At 1.3mL/100 mL/m²	
Days after application	Mean % ground cover	Mean % ground cover	Mean % efficacy	Mean % ground cover	Mean % efficacy
Day 1 (n=1)	70.00	0.00	100.00	0.00	100.00
Day 12 (n=1)	82.50	0.00	100.00	0.00	100.00
Day 88 (n=1)	77.50	0.00	100.00	0.00	100.00

results of low statistical significance (less than three data points used for calculation)
Ref: Anonymus 2015j

Target: Lichen					
	Untreated	**NEU 1170 H EC 5.0 mL/100 mL/m²**		**NEU 1370 H At 1.3mL/100 mL/m²**	
Days after application	**Mean % ground cover**	**Mean % ground cover**	**Mean % efficacy**	**Mean % ground cover**	**Mean % efficacy**
Day 1 (n=1)	3.30	0.00	100.00	0.00	100.00
Day 12 (n=1)	6.00	0.00	100.00	0.00	100.00
Day 88 (n=1)	7.00	0.00	100.00	0.00	100.00

results of low statistical significance (less than three data points used for calculation)
Ref: Anonymus 2015j

The data presented from 2 trials confirm the comparability of efficacy results between the product NEU 1170 H EC and the product NEU 1370 H.
Therefore, it can be concluded that similar levels of efficacy for the intended uses of NEU 1170 H EC, for which efficacy data is presented within this dossier, are to be expected for the product NEU 1370 H when used as recommended.

Influence of Co-formulants:

Co-formulants will not influence efficacy, this is supported by the bridging studies for NEU 1170 H EC and NEU 1170 H AF (three trials (Anonymus 2015e, Anonymus 2015f, Anonymus 2014c)) and for NEU 1170 H EC and NEU 1370 (two trials (Anonymus 2015j, Anonymus 2015k)).

ADDITIONAL INFORMATION:
Currently no harmonized thresholds for the efficacy of PT 2 algaecidal products have been agreed on. Following the currently available guidance when assessing the efficacy of such products and choosing efficacy criteria, the intended use of the products should be taken into account. The removal of algae and lichens is desired to remove discolouration from surfaces or to remove slippery (and thus dangerous) layers of microorganisms from surfaces. The target organisms are neither pathogenic nor dangerous for human health. In these applications field tests have been submitted to demonstrate the efficacy of the biocidal product family with the intended claims. The prevention of discoloration may be regarded as aesthetical claim and the prevention of slippery surfaces as protective claim. The refMS deemed a threshold of 90% for the protective claims and 75% for the aesthetical claims as sufficient.

2.2.5.6 Occurrence of resistance and resistance management

Based on the assumed mode of action the development of resistance is not very likely.

2.2.5.7 Known limitations

No limitations on efficacy, including observations on undesirable or unintended side effects are known when used as recommended.

Nevertheless, in the AR (Austria, 2013) for the active substance the following limitations are stated: "Not for use on wooden structures, as this would be considered as use in product type 8."

However, an algae and green growth remover is considered a biocidal product which belongs to product type 2.

In contrast, biocidal products which belong to product type 8 are used for the preservation of wood, from and including the saw-mill stage, or wood products by the control of wood-destroying or wood-disfiguring organisms, including insects. A cleaning product does not fall under product type 8.

2.2.5.8 Evaluation of the label claims

14 field trials are presented to support the label claim of product NEU 1170 H EC in mSPC 1. For the products NEU 1170 H AF (28 and 31.02 g/L) in mSPC 2 and NEU 1370 H in mSPC 3, bridging trails are presented to confirm the comparability of the efficacy between the products.

The following label claims are proposed for the product:

- Removes Algae from various surfaces (e.g. wood, glass, plastic, metal, pavement, terracotta, masonry) outdoors.
- Removes Algae and lichen from roof tiles and thatch roofs.
- Consequently removes discolouration from surfaces and leads to prevention of slippery surfaces.
- Can be effective already after 24 hours.
- Prevents new formation of green coat in the long-term.

Thus, the efficacy data presented within this dossier fully support the label claims of NEU 1170 H EC, NEU 1170 H AF and NEU 1370 H.

2.2.5.9 Relevant information if the product is intended to be authorised for use with other biocidal product(s)

The use with other (biocidal) products is not recommended.

2.2.6 Risk assessment for human health

The formulations in the Biocidal Product Family (BPF) are divided in 3 meta SPCs, the product in meta SPC 1 was already evaluated under the EU Review for the active substance nonanoic acid.
The products of meta SPC 2 (NEU 1170 H AF 31.02 g/L and NEU 1170 H AF 28.0 g/L) are the ready to use products and contain a lower content of the active substance. Meta SPC 3 (NEU 1370 H) has the highest content of the active substance. No new data/information on human health for the product NEU 1170 H EC, which was the representative product for the EU evaluation of nonanoic acid, have been generated. Please see also the CAR for the active substance and the representative product NEU 1170 H EC (Austria 2013).
Based on the AR of nonanoic acid no adverse systemic effects are apparent from the toxicological data up to high doses for the active substance, but irritant properties occurred (Austria, 2013). No classification is warranted for meta SPC 2 (for local effects). According to the results in animal studies performed with the undiluted concentrate meta SPC 1 and 3 are classified as eye irritant and eye and skin irritant, respectively. Consequently the risk characterisation focuses only on local effects of meta SPC 1 and 3. Data allowing reliable quantitative estimates for local irritation thresholds of nonanoic acid or the biocidal products within the BPF are absent, and therefore a qualitative assessment is provided.

2.2.6.1 Assessment of effects on Human Health

Skin Irritation

Meta SPC 1
The skin irritation potential of NEU 1170 H was tested in male albino rabbits. The animals were exposed for 4 hours to 0.5 mL of the undiluted product. No mortality and no symptoms of systematic toxicity were observed. Five of six rabbits showed moderate to severe erythema and the formation of eschar and/or scabs in the treated skin areas. One rabbit showed a severe erythema with following formation of eschar on 100% of the treated area. Oedema could not be observed in any of the animals. All signs of skin reaction had disappeared within 12 days.

Summary table of animal studies on skin corrosion /irritation				
Method, Guideline, GLP status, Reliability	**Species, Strain, Sex, No/group**	**Test substance, Dose levels, Duration of exposure**	**Results** *Average score (24, 48, 72h)/ observations and time point of onset, reversibility; other adverse local / systemic effects, histopathological findings*	**Reference**
OECD No. 404 GLP 1	Albino rabbit, 6 males	NEU 1170 H 0.5 mL/animal 4 hours	**Male 61:** Eyrthema/Oedema: 0 **Male 62:** Eyrthema:0.7, Oedema: 0 **Male 63:** Eyrthema:1.7, but on days 7,8,9: score 4 and eschar formation on whole treated area Oedema: 0 **Male 64:** Eyrthema:2.2, Oedema: 0 **Male 65:** Eyrthema:1.7, Oedema: 0 **Male 66:** Eyrthema:1, Oedema: 0 Also eschar and scale formation; all effects reversible after 12 days	AIII-8-1_01 Austria, 2013

Some human data on skin corrosion/irritation were available for the EU evaluation of nonanoic acid. The following assessment was made by the Rapporteur member state:

"It is acknowledged that human data suggest that skin irritation can occur following exposure to ≤20% nonanoic acid (see Doc. II-A, Chapter 3.3. Austria, 2013) and this may be relevant information for the classification and labelling proposal of the product NEU 1170 H. However it is considered that NEU 1170 H is the ammonium salt of nonanoic acid with a pH of 6.15 (20°C, 1% dilution) and extrapolation from the acid to the salt at different pH contains additional uncertainty" (Austria, 2013). Please see confidential annex for co-formulants of NEU 1170 H.

Conclusion used in Risk Assessment – Skin corrosion and irritation	
Meta SPC 1	
Value/conclusion	Not irritating to skin.
Justification for the value/conclusion	Animal 63 showed grade 4 erythema and eschar formation on the whole treated skin area on days 7, 8 and 9. Therefore the criteria (3) from table 3.2.2. in the CLP regulation might apply: "pronounced variability of response among animals with very definite positive effects related to chemical exposure in a single animal". However the effects were reversible till day 13, when new epithelium formed (CLP regulation Annex 1, paragraph 3.2.2.1.2.4). Furthermore in total 2 from 6 animals showed scores above 2 and the requirement for "pronounced variability" it is not strictly defined in the CLP regulation. Therefore no classification was already agreed in the CAR for the identical representative product of nonanoic acid, i.e. NEU 1170 H.
Classification of the product according to CLP	**No classification.**
Meta SPC 2	
Value/conclusion	Not irritating to skin.
Justification	Please see confidential annex section 3.6.3 for detailed information.
Classification of the product according to CLP	**No classification.**
Meta SPC 3	
Value/conclusion	Irritating to skin.
Justification	No experimental data for skin corrosion/irritation are available for meta SPC 3. The active substance present in BPF meta SPC 3 trigger classification as skin irritant category 2. No other co-formulant is classified for this hazard endpoint (cf. confidential annex section 3.6.3).
Classification of the product according to CLP	**Skin Irritation category 2, H315 – Causes skin irritation.**

Eye irritation

No in vitro studies on eye irritation were conducted as an animal study on eye irritation for meta SPC 1 was available.

NEU 1170 H was tested according to OECD Guideline 405 on its eye irritation potential.

After administration of the test substance all 3 rabbits developed hyperaemic blood vessels in the right eye from administration up to 8 days after treatment. All three animals showed cornea opacity scores ≥1, two animals showed conjunctiva redness score of ≥2 and all three animals showed a conjunctiva chemosis score ≥2. Exsudation after instillation of the test item was observed in the eyes of all animals up to day 2 (2 rabbits) respectively day 3 (1 rabbit). Ocular lesions of the iris were not noted. All effects were completely reversible by day 9, and in the untreated left eye no reaction occurred. The scores and the reversibility observed support classification for eye irritation category 2.

Summary table of animal studies on serious eye damage and eye irritation				
Method, Guideline, GLP status, Reliability	**Species, Strain, Sex, No/group**	**Test substance, Dose levels, Duration of exposure**	**Results** *Average score (24, 48, 72h)/ observations and time point of onset, reversibility*	**Reference**
OECD No. 405 GLP 1	Albino rabbit, 3 females	NEU 1170 H 0.1 mL/animal 24 hours	**animal 1:** Cornea: 1.3 Iris:0 Conjunctiva redness:2 Conjunctiva chem:3 **animal 2:** Cornea: 1 Iris:0 Conjunctiva redness:1 Conjunctiva chem:2 **animal 3:** Cornea: 1 Iris:0 Conjunctiva redness:2 Conjunctiva chem:3 reversible after 9 days	AIII-8-2_01 Austria, 2013

Conclusion used in Risk Assessment – Eye irritation	
Meta SPC 1	
Value/conclusion	Irritating to eyes
Justification for the value/conclusion	At least 2 out of 3 animals show • cornea opacity ≥1 and/or • iritis ≥1 and/or • conjunctiva redness score of ≥2 and/or conjunctiva chemosis score ≥2
Classification of the product according to CLP	Eye Irritation category 2; H319 – Causes serious eye irritation.
Meta SPC 2	
Value/conclusion	No serious eye damaye/eye irritation.
Justification for the value/conclusion	No experimental data for eye irritation are available for products in meta SPC 2. Please see confidential annex section 3.6.3 for detailed information.
Classification of the product according to CLP	No classification.
Meta SPC 3	
Value/conclusion	Irritating to eyes
Justification for the value/conclusion	No experimental data for eye damage and eye irritation are available for meta SPC 3. Meta SPC 3 (NEU 1370 H) contains 80% techn. nonanoic acid, which has a harmonized classification for Eye Irrit. 2.
Classification of the product according to CLP	Eye Irritation category 2; H319 – Causes serious eye irritation.

Respiratory tract irritation

With respect to respiratory tract irritation the CAR (Austria, 2013) stated the following: "Considering the strong skin and eye irritation properties of nonanoic acid also respiratory irritation hazard has to be assumed. However the only available quantitative information for effects via inhalation stems from acute inhalation studies and is summarized in Chapter 3.2. The available data are not sufficient for classification for respiratory irritation (STOT – single exposure, category 3) since the European CLP regulation 1272/2008 supports respective classification only when largely based on human respiratory data."

Furthermore, in the study on acute inhalation toxicity with the product NEU 1170 H EC (see *Acute toxicity by inhalation* below) after four-hour inhalation no acute toxicological symptoms were observed over a 14-day observation period. The post-mortem findings after euthanasia did not show any macroscopic changes (but no histopathology reported). However, clinical signs such as food refusal (day 1 and 2) or apathy (slight to severe symptoms (on day 1) in several animals were reported. The seen effects could be indicators for local irritation but another mode of action could also be the reason for these symptoms.

Conclusion used in Risk Assessment – Respiratory tract irritation	
Meta SPC 1, 2 and 3	
Value/conclusion	No classification.
Justification for the value/conclusion	Please see confidential annex section 3.6.3 for detailed information.
Classification of the product according to CLP	No classification.

Skin sensitization

In a Maximisation test according to Magnusson and Kligman 30 female guinea pigs were used to study the sensitising properties of NEU 1170 H EC. The study was inadvertently started with a first group of 5 control and 10 experimental animals. At a later stage, a second group of 5 control and 10 experimental animals were similarly treated. The test substance (1% in water) was intradermally injected and 7 days later test animals were epidermally exposed to a 20% test substance concentration. Two weeks after the epidermal application test animals were challenged with a 10% test substance concentration and the vehicle. Since skin reactions were observed in both experimental and control animals, a second challenge was performed one week later. The animals were then treated with a 5% and a 2% test substance concentration. The skin reactions, as observed in the first group of animals, were considered to be non-specific signs of irritation. Confirmed by the second challenge of the first group and the results of the second group, there was no evidence that the test substance causes hypersensitivity in the guinea pig. The positive control alpha-hexylcinnamic aldehyde (10%) induced positive reactions in 6 from 10 animals after 24 and 48 hours. Based on these results, NEU 1170 H EC has not to be classified as a dermal sensitizer.

Summary table of animal studies on skin sensitisation				
Method, Guideline, GLP status, Reliability	**Species, Strain, Sex, No/group**	**Test substance, Dose levels, duration of exposure Route of exposure** *(topical/intradermal, if relevant)*	**Results** *(EC3-value or amount of sensitised animals at induction dose); evidence for local or systemic toxicity (time course of onset)*	**Reference**
EEC B.6, OECD No. 406 GLP 1	Albino guinea pig, Himalayan Strain (SPF) 20 females (experimental group) 10 females (control group)	NEU 1170 H EC 22% NH_4 salt of nonanoic acid (= 198.6 g/L nonanoic acid) Vehicle: water 1% intradermal injection. After7d: 20% 48h epidermal. After 21d: 10% 24h epidermal. After 28d: 5% and 2% 24 h epidermal	48h after challenge: Negative control group: 0/10 Test substance group: 0/20	AIII-8-3_01 Austria, 2013

No human data on skin sensitisation are available for the products with the BPF.

Conclusion used in Risk Assessment – Skin sensitisation	
Meta SPC 1, 2 and 3	
Value/conclusion	Not skin sensitizing

Justification for the value/conclusion	Negative GPMT with the product representative for meta SPC 1 available. Please see confidential annex section 3.6.3 for detailed information on meta SPC 2 and 3.
Classification of the product according to CLP	No classification necessary

Respiratory sensitization (ADS)

Nonanoic acid as well as NEU 1170 H EC are no skin sensitisers. None of the formulants contained in the products is classified as dermal sensitiser. Assessment of respiratory sensitization relies largely on human data, no specific standard test guideline is available. No data are available to estimate the hazard for repiratory sensitisation. However it is assumed that the main toxicological mechanism of action is irritation by direct membrane destruction and there are no metabolites of concern.

Conclusion used in Risk Assessment – Respiratory sensitisation	
Meta SPC 1, 2 and 3	
Value/conclusion	No classification
Justification for the value/conclusion	No data and no concern available for respiratory sensitization
Classification of the product according to CLP	No classification is necessary.

Acute toxicity

Acute toxicity by oral route

When rats received a single oral dose of 5000 mg NEU 1170 H/kg bw ("old formulation") by gavage no mortalities, no macroscopic pathological effects, no body weight loss and no treatment-related clinical signs of toxicity were observed.

Summary table of animal studies on acute oral toxicity					
Method Guideline GLP status, Reliability	**Species, Strain, Sex, No/group**	**Test substance Dose levels Type of administration**	**Signs of toxicity**	**Value LD50**	**Reference**
EEC B.1 OECD No. 401 GLP 1	Wistar rat, Crl:(WI) BR (outbred, SPF Quality), 5 males and 5 females / dose group	NEU 1170 H 36.8% NH_4 salt of nonanoic acid (= approx. 330 g/L nonanoic acid) 5000 mg/kg bw gavage	none	>5000 mg/kg bw	AIII-8-5-1_01 Austria, 2013

Conclusion used in Risk Assessment – Acute oral toxicity	
Meta SPC 1, 2 and 3	
Value	LC50 >5000 mg/kg bw/d; No classification for acute toxicity, oral
Justification for the selected value	Study available with the product representative for meta SPC 1.

	Please see confidential annex section 3.6.3 for detailed information on meta SPC 2 and 3.
Classification of the products accord. CLP	No classification necessary.

Acute toxicity by inhalation

In the acute inhalation toxicity study with NEU 1170 H (Reference AIII-8-5-2_01) the maximum achievable concentration of the formulation was 1.66 mg/L air. No mortality occurred. Clinical signs of apathy in several animals (grade 1 to 3) were reported on day 1. In this study an old NEU 1170 H formulation was used containing 36.8% of nonanoic acid ammonium salt in contrast to the current NEU 1170 H formulation that contains 22% of nonanoic acid ammonium salt.

Summary table of animal studies on acute inhalation toxicity						
Method, Guideline, GLP status Reliability	**Species, Strain, Sex, No/group**	**Test item, form and particle size (MMAD) Actual and nominal concentration**	**Signs of toxicity**	**LC50**	**Remarks**	**Reference**
OECD No. 403 GLP 1	Sprague-Dawley Rat, 5 males and 5 females per group	NEU 1170 H 36.8% NH_4 salt of nonanoic acid (= approx. 330 g/L nonanoic acid) Aerosol from liquid, 2.27 – 2.68 µm; 95% of particles <3 µm Actual: 1.66 mg/L; Nominal: 20 mg/L head-nose 4 h	No macroscopic pathological effects observed, clinical signs were food refusal at day 1 (grade 3 from 3) and day 2 (grade up to 2) and apathy at day 1 and 2 (grades up to 3).	> 1.66 mg/L >2.8 mg/L	36.8% formulation calc. for a 22% formulation No histo-pathology available.	AIII-8-5-2_01 Austria, 2013

Conclusion used in Risk Assessment – Acute inhalation toxicity	
Meta SPC 1, 2 and 3	
Value	Not acutely toxic by inhalation
Justification for the selected value	A study is available with a similar formulation for meta SPC 1. Please see confidential annex section 3.6.3 for detailed information on meta SPC 2 and 3.
Classification of the product according to CLP	No classification necessary

Acute toxicity by dermal route

After dermal application of 5000 mg NEU 1170 H/kg bw for a period of 24 hours one male was found dead on day 2. Increased activity was noted in three females immediately after dosing and red staining of the snout or periorbital region among several animals between days 1 and 3. General or focal erythema, necrosis and scales on the back and scabs on the flank or back were noted among the majority of animals. Several animals had recovered from the symptoms between days 9 and 13. However, focal erythema on the back persisted in three females at termination and focal erythema, scales and scabs on the back in one male at termination. Nevertheless, no systemic toxicity occurred and the dermal LD_{50} was found to be >5000 mg/kg bw.

Summary table of animal studies on acute dermal toxicity					
Method, Guideline, GLP status Reliability	**Species strain, Sex, o/group**	**Test substance Dose levels, Surface area**	**Signs of toxicity**	**LD50**	**Reference**
EEC B.3 OECD No. 402 GLP 1	Wistar rat, Crl:(WI) BR (outbred, SPF Quality), 5 males and 5 females per dose group	NEU 1170 H 36.8% NH_4 salt of nonanoic acid (= approx. 330 g/L nonanoic acid) applied undiluted 5000 mg/kg bw 24 hour 10% of total body surface (5x5 cm and 3.5x5 cm)	Increased activity immediately after dosing and red staining of the snout or periorbital region between days 1 and 3. General or focal erythema, necrosis, scales on the back and scabs on the flank or back. Within 15 days: Erythema not reversible in 4/10 animals. Necrosis reversible in all animals Scabs and/or scales not reversible in 1/10 animals.	>5000 mg/kg bw	AIII-8-5-3_01 Austria, 2013

No human data on acute dermal toxicity are available.

Conclusion used in Risk Assessment – Acute dermal toxicity	
Meta SPC 1, 2 and 3	
Value	No classification
Justification for the selected value	A study is available with a similar formulation for meta SPC 1. Please see confidential annex section 3.6.3 for detailed information on meta SPC 2 and 3.
Classification of the product according to CLP	No classification for acute systemic toxicity via the dermal route necessary

Information on dermal absorption

No test on dermal absorption was conducted with the formulated product or with the active substance. The physical–chemical properties, like the log P_{ow} of 3.52, the molecular weight of 158.2 g/mol and the water solubility of 203 g/L support the assumption of a high dermal absorption rate. Therefore the default values according to EFSA (2017) may be assumed for the risk assessment for systemic effects, i.e. 25% dermal absorption for the concentrate (EC formulation) and for the in-use or application dilutions 75%. However the toxicity of the active substance and the product is dominated by the local effects, therefore the focus of risk assessment will be on local effects.

Conclusion used in Risk Assessment – Dermal absorption	
Substance	nonanoic acid
Value(s)	Concentrate: 25% Dilutions: 70%
Justification for the selected value(s)	Default values from EFSA guidance 2017

Available toxicological data relating to non active substance(s) (i.e. substance(s) of concern)

Please see confidential annex.

Available toxicological data relating to a mixture

not available

2.2.6.2 Exposure assessment

For nonanoic acid, no adverse systemic effects are apparent from the toxicological data available. Nevertheless, meta SPC 1 and meta SPC 3 products are classified for irritant effects. Therefore, the following exposure assessment focuses on local exposure only. In the absence of data allowing reliable quantitative estimates for local irritation thresholds, a qualitative exposure assessment is provided instead. Descriptions of the expected exposure scenarios and relevant parameters are provided below. Meta SPC 2 is not classified for any local effects, therefore no exposure assessment has been performed.

Identification of main paths of human exposure towards active substance(s) and substances of concern from its use in biocidal product

Summary table: relevant paths of human exposure							
Exposure path	**Primary (direct) exposure**			**Secondary (indirect) exposure**			
	Industrial use*	**Professional use**	**Non-professional use**	**Industrial use**	**Professional use**	**General public**	**Via food**
Inhalation	n.a.*	yes	yes	n.a.	n.a.	n.a.	n.a.
Dermal	n.a.*	yes	yes	n.a.	yes	yes**	n.a.
Oral	n.a.*	yes	yes	n.a.	n.a.	yes**	n.a.

* The biocidal product is not used industrially, therefore, the given exposure pathways are not applicable. The active substance is manufactured outside the EU. Production and formulation are expected to lead potentially to inhalation exposure only.

** Accidental dermal contact of infants with treated surfaces and mouthing of hands that came into contact with these surfaces were estimated as reasonable worst case.

List of scenarios

The following scenarios are considered to be relevant case by case depending on the selected product and use pattern. More information on use and exposure is provided in the following sections.

Considered sceanrios:

Scenario number	Scenario	Primary or secondary exposure Description of scenario
1.	Mixing and loading	Primary exposure Dilution of the b.p. with water Dermal/inhalation exposure to b.p and treatment solution
2.	Low pressure spraying	Primary exposure Spraying treatment solution using spray pressures from 1 to 3 bars Dermal/inhalation exposure to treatment solution
3.	Pouring with watering can	Primary exposure Pouring the treatment solution using a watering can Dermal/inhalation exposure to treatment solution

4.	Cleaning of equipment	Primary exposure Cleaning of the pouring or spraying equipment after application Dermal/inhalation exposure treatment solution
5.	Child walking through wet b.p.	Secondary exposure A treated area is walked upon bare feet by toddlers Dermal exposure to treatment solution
6.	Infant touching treated area	Secondary exposure, An infant re-enters the treated area. Hand-to-mouth transfer of the b.p. by infants after contact to treated area Dermal/oral exposure to treatment solution

Route of exposure

Inhalation exposure:
Nonanoic acid exhibits a medium volatility to air as pure substance and from aqueous solutions (vapour pressure of pure substance: 0.9 Pa (20°C), Henry's Law constant: 0.33 Pa x m^3/mol (20°C); see CAR).
These values apply for Meta SPC 3, where the active substance is applied in acidic form.
In Meta SPC 1, where Nonanoic acid is present to some degree as dissociated ammonium salt gaseous releases of the active substance from the biocidal product solution are expected to be significantly lower. As dissociated salt, Nonanoic acid is less releasable to air due to the high water affinity of ionic compounds for the water phase.
Besides gaseous release, inhalation of formed aerosols during spraying of the products is another potential source of inhalation exposure. All treatments are done outdoors so secondary inhalation exposure may be considered to be not relevant leading to probably lower concentrations in air than the application itself.

Dermal exposure:
Nonanoic acid used as algaecide is applied via low pressure and pouring with water can. Hence possibilities for primary exposure are during "mixing and loading" and during application. In addition, the mixing and loading step includes potentially stirring or shaking the liquids based on the pattern of use for the type of product. After application users and adult non-users are not likely to come into contact with still wet or dried surfaces. However, re-entry to areas with wet surfaces gives some potential for dermal exposure via skin contact. Secondary exposure especially for children cannot be excluded fully.

Oral exposure:
After application (secondary exposure) oral exposure for adults is not considered relevant. However, although extremely unlikely, an exposure scenario that might be possible is the re-entry of infants to areas with wet surfaces and mouthing of hands that came into contact with them.

Industrial exposure

No industrial uses are foreseen for the Nonanoic acid algaecides hence industrial exposure will not occur.

Professional exposure and non-professional exposure

The products are intended to control an excessive development of algae and lichen (roof tiles and thatch roof only) on many different surfaces such as walls, facades, glasshouses, roofs, paths, terraces, fences, garden pottery or gravestones. The matrices that may be treated are either horizontal or vertical structures and include glass, wood, plastic, metal, tiles, stone, bitumen, slate and terracotta.

Scenario

As Nonanoic acid reveals only local and no systemic effects, a qualitative exposure assessment is provided: The following key points are considered to be representative for describing the applications covered:

Overview table of relevant parameters for exposure scenarios:

	Unit	meta SPC 1	meta SPC 3
Nonanoic acid concentration in b.p.	[%(w/w)]	20.94	80
B.p./Nonanoic concentatration in treatment solution according to the authorized use (cf. section 2.1.4)	[%(w/w)]	2%(w/w) product in water corresponding to 0.4%(w/w) a.s. 5%(w/w) product in water corresponding to 1%(w/w) a.s. 7.5%(w/w) product in water corresponding to 1.5%(w/w) a.s. 15%(w/w) product in water corresponding to 3%(w/w) a.s.	0.5%(w/w) product in water corresponding to 0.4%(w/w) a.s. 1.2%(w/w) product in water corresponding to 0.97%(w/w) a.s. 1.86%(w/w) product in water corresponding to 1.48%(w/w) a.s. 3.7%(w/w) product in water corresponding to 2.98%(w/w) a.s.
Users	--	prof./non-prof.	prof.
Application method	--	Low pressure sprayer (~ 3bar), pouring with watering can	Low pressure sprayer (~ 3bar), pouring watering can
Relevant scenarios (see table above)	--	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6

Relevant parameters of scenarios

Data source for exposure estimation: Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure: Methods and models to assess exposure to biocidal products in different product types: version 4. The models of the recommendation are mentionend as ES (exposure scenario) in contradiction to the scenarios of the b.p. and treatment solution.

Scenario 1: Mixing and loading

The biocidal products of Meta SPC 1 and 3 must be diluted prior to application. Dilution covers mixing & loading, stirring and shaking the liquids (biocidal product and water).

Inhalation and dermal exposure to the biocidal product as manufactured or to the diluted treatment solution is possible.
Manual mixing and loading: ES 55 for PT 18 (origin: Mixing and loading Model 4 for liquids, TNsG 2002 user guidance)

Indicative value for hand (dermal) exposure is
0.01 ml/treatment for 1L,
0.2 ml/treatment for 5L and
0.5 ml/treatment for 10L-20L.

Inhalation exposure is considered to be minor and covered by the considerations on the application processes. For more information on the concentration ranges of the biocidal products and treatment solutions, please see table above.

For meta SPC 1 the applicant uses specially designed containers as package for limiting the volume of biocidal product that can be poured per time. Based on the lower velocity and lower kinetic energy of the poured biocidal product, the likeliness of splash and droplet formation is reduced. Detailed description can be found in product dossier, IUCLID, section 12.

Scenario 2: Low pressure spraying with low pressure sprayer (1-3 bars)

Inhalation and dermal exposure to treatment solution

Low pressure spraying (1-3 bar): ES 3 for PT 2: Professional hard surfaces disinfection (floors, walls, ceilings) by coarse spraying

Indicative inhalation exposure to non-volatile compounds: 104 mg/m^3
Indicative dermal exposure: Hands: 181 mg/min (without protective gloves), 10.7 mg/min (inside gloves)
Exposure duration: Referring to the applied model , 120 min/d are recommended as default for this application. This value is applied for scenarios 3 and 4 as well and assumed to cover them as well.

Scenario 3: Pouring with water can

Inhalation and dermal exposure to treatment solution

Pouring with water can: ES 51 for PT 18

Dermal exposure:
Hands: 48.8 mg b.p./min (inside glove) (max. value)
Body: 38.2 mg b.p./min (max. value)
Inhalation exposure:
4.15 mg b.p./m^3 (max. value)
Exposure duration: 120 min/d are assumed as for scenario 2.

Scenario 4: Cleaning of equipment

Inhalation and dermal exposure to treatment solution

Cleaning of manual spray equipment: ES 57 for PT 18 (origin: Recommendation no. 4 of the BPC Ad hoc Working Group on Human Exposure - Cleaning of spray equipment in antifouling use (PT21), BEAT)

Dermal exposure:
Hands: 35.87 mg b.p./min (without protective gloves) (75th percentile)
Body: 19.28 mg b.p./min (75th percentile) (assuming a density of 1 g/mL)
Exposure duration:
5 min (in case of waterbased solutions)

Exposure of the general public

Scenario 5: Child walking through wet b.p.
Scenario 6: Infant touching treated area

Exposure of the general public is not foreseen during the application of the Nonanoic acid algaecide product family.
As described above, secondary exposure due to re-entry of the treated areas is possible. Based on this information, infants are assumed to be the most susceptible group of the population (e.g. infant crawling over treated floor). Inhalation exposure is considered to be not relevant, as the treated surfaces are outdoors and potential inhalation of aerosol can be excluded after application. Dermal and oral exposure is considered to be possible for infants. In addition, regarding exposure and risk of infants, potential hand-to-mouth transfer and potential hand-to-eye transfer need to be taken into account.

Monitoring data

Monitoring data for the Nonanoic acid algaecide product family are not available.

Dietary exposure

Exposure of food, drinking water or livestock due to the application of the Nonanoic acid algaecide product family is not foreseen.

Exposure associated with production, formulation and disposal of the biocidal product

Occupational exposure during production and formulation of the biocidal product is not assessed under the requirements of the BPR. It is assumed that the production is performed in conformity with national and European occupational safety and health regulations.
In addition, production or formulation of biocidal products are already covered by REACH legislation, where the registrants (manufacturers/importers) of substances are obliged to consider human hazard and exposure and to provide RMMs/exposure scenarios for ensuring safe use (e.g. via SDS in the supply chain). Moreover, it is assumed that industrial production sites are subject to permit for installation. Therefore, it is not considered relevant to perform an additional exposure assessment under the biocide regime.

Moreover, the applicant provided the following information:

The Nonanoic acid algaecides are produced batch-wise in an automated processing facility. The batch sizes and frequency of the production are demand driven and thus variable. However, the scheduled amount of Nonanoic acid for the production of the Nonanoic acid algaecide product family is expected to be approximately 18 tons/year. The active substance and the end products in the production sites are only handled by industrial users with adequate training.
Furthermore the production plants are DIN-ISO certified. This means that appropriate operating procedures do exist, which regulate different procedures to ensure that certain safety instructions and procedures are strictly followed by the workers (i.e. for example: wearing of appropriate safety clothing and equipment, depending on the classification of the handled chemical). The production takes place in an almost closed system of an automated facility. The liquid components, as for example Nonanoic acid, are pumped out of drums into a closed reaction container, where the reaction takes place. The process of pumping out the liquid components takes place under a ventilated hood and is supervised by a single worker. This phase of the formulation process is considered as the only possibility where exposure of the worker via inhalation of evaporating active substance may occur, as all other steps of the production, including packaging, take place in a closed system. Via pipelines the final products are pumped to an automated filling facility, where packaging into UN certified packaging material made from HDPE, takes place. The only task of the workers at this stage of the production is to pack the containers into big cartons for storage and transport, respectively. As cleaning of the reaction containers and pipelines takes also place in a closed system, where washing liquids are pumped, after their use, into separate containers for disposal, no further exposure of workers during the manufacture of the formulated products has to be considered.
Normally products will completely be used and no disposal of remains is necessary. In cases where remainders of the product need to be disposed off they shall be given to the local waste disposal for controlled incineration hence no exposure associated with the product during disposal is foreseen.
The products of the Nonanoic acid algaecides family can be used on glass, wood, plastic, metal, roof tiles, thatch roof, stone, bitumen, terracotta. The areas treated include pavement, terraces, walls, facades, gravestone, pots, glasshouses, plastic tunnels, sports fields, fences, roofs and others. These treated areas are usually not disposed off after treatment against algae or lichen. Furthermore, Nonanoic acid is rapidly biodegradable.

Therefore, the Nonanoic acid concentration in treated surfaces will be low even after a short period after application. Hence human exposure due to the disposal of treated surfaces can be considered negligible.

2.2.6.3 Risk characterisation for human health

In line with the European biocidal active substance assessment for nonanoic acid, the risk assessment was carried for the dominating local effects (skin and eye irritation) with the qualitative approach according to the ECHA guidance (ECHA, 2017a).

Meta SPC 3 has skin and eye irritant properties (CLP category 2) and meta SPC 1 has an eye irritatant property (Eye irrit. 2). The composition of the application solutions ranges between 0.5% and 15% product and 0.4% to 3% active substance, respectively. This means that the application solutions do not have skin and/or eye irritant properties, if the CLP principles (generic concentration limit of 10%) are applied. Meta SPC 2 is not classified for any local effects, therefore no risk assessment has been performed for this meta.

Consequently a qualitative risk assessment is provided for Meta SPC 1 and 3 for the use of the products (loading and mixing) and the use of the diluted application solutions. In addition local risk from secondary exposure is considered.

Reference values to be used in Risk Characterisation

For nonanoic acid no systemic AELs or external reference doses for exposure via food (ADI, ARfD) were set during the EU evaluation of the active substance. An oral local medium and long-term AEC of 1% was proposed by the RMS on the basis of a 28 day rat gavage study with nonanoic acid in propylene glycol. However, this AEC contains uncertainty with regard to differences of the irritation effect between the free active substance dissolved in propylene glycol and the ammonium salt in the product NEU 1170 H (Austria, 2013). Moreover oral exposure is not relevant for the PT2 applications.

Maximum residue limits or equivalent

No MRLs are necessary for nonanoic acid as the products will not come into contact with food or animal feeding stuffs when used in compliance with the authorised use.

Risk for industrial users

No industrial use is foreseen. The risk associated with production, formulation and disposal of the biocidal product is not assessed.

Risk for professional and non-professional users

For the use on pavement also an application by watering using a sprinkling device is possible. The same product application rate per m^2 as for spraying is used but the dilution in the sprinkling solution is two fold higher. As exposure from spraying during application may be considered to be higher than that from sprinkling the latter mode of application is covered by the risk assessment for spraying.

Local effects (meta SPC 1) – primary exposure

Hazard	Hazard Category	Low
	Effects in terms of C&L of the b.p. (concentrate)	Eye irrit. 2, H319
	Local effects of the application solution	Application solution would not be classified for local effects (<10% irritating ingredients)
Exposure	PT	2
	Who is exposed?	Professional and non-professional users
	Task, uses, processes	[1] Mixing & Loading [2] Low pressure spraying [3] Pouring with watering can [4] Cleaning of Equipment
	Potential exposure route	Skin Eye (splashes, hand to eye transfer) Respiratory tract
	Frequency and duration of potential exposure	2/year for non-professionals not daily, but ≥1 / week for professionals [1] 10 min/d [2] 120 min/d [3] 120 min/d [4] 5 min/d
	Relevant RMM	H319: Labelling as eye irritant P264: Wash hands thoroughly after handling. Instructions for use that minimize exposure ("Avoid splashes when making a dilution", "Avoid contact with eyes.") The use of eye protection during handling of the product is mandatory for professional users. Child-proof closure for smaller packages (500 ml and 1 L) that are purchasable by non-professional users shall be applied. Special packaging shall minimize the risk for eye exposure to the concentrated product by splashes. Dosing aid is provided with the product for non-professional users.
Risk	Conclusion of risk	Acceptable risk since: + Reversible effect (only relevant for task [1]) Mixing & Loading, application solution would not be classified for irritating effects) + Low frequency + Low vapour pressure of the a.s. + High ventilation rate expected due to outdoor use + The label instructs to minimise contact to b.p. + Special packaging to reduce exposure during mixing and loading (cf. section 2.2.8.2) + Use of child-proof closure

Local effects (meta SPC 3) – primary exposure

Hazard	Hazard Category	Low
	Effects in terms of C&L of the b.p. (concentrate)	Skin Irrit. 2, H315 Eye irrit. 2, H319
	Local effects of the application solution	Application solution would warrant no classification for local effects (<10% irritating ingredients)
Exposure	PT	2
	Who is exposed?	Professional user
	Task, uses, processes	[1] Mixing & Loading [2] Low pressure spraying [3] Pouring with watering can [4] Cleaning of Equipment
	Potential exposure route	Skin Eye (splashes, hand to eye transfer) Respiratory tract
	Frequency and duration of potential exposure	≥1 / week for professionals [1] 10 min/d [2] 120 min/d [3] 120 min/d [4] 5 min/d
	Relevant RMM	H 315: Labelling as skin irritant H 319: Labelling as eye irritant P264: Wash hands thoroughly after handling. During the **mixing and loading**, facial and skin exposure to splashes has to be limited. For professional users, the use of PPE and the application of technical and organisational RMM are required: O Coverall, eye and face protection O Substance/task appropriate gloves; O Minimisation of splashes and spills: instructions for use that minimize exposure ("Avoid splashes when making a dilution", "Avoid contact with skin and eyes.")
Risk	Conclusion of risk	Acceptable risk since: + Reversible effect (only relevant for task [1] Mixing & Loading, application solution is not expected to display irritating effects) + Adequate PPE in place + Low frequency + Low vapour pressure of the a.s. + High ventilation rate expected due to outdoor use + The label instructs to minimise contact to b.p.

Conclusion
Based on the qualitative risk assessment, the risk appears acceptable for professionals and for the unprotected non-professional user from the use of the products within the BPF Nonanoic Acid Algaecides, when used according to the instructions and required RMM.

Risk for the general public

Local effects

Treated surfaces are outdoors and expected to dry quickly in common. The risk for bystanders will be lower compared to the risk for non-professional from the application based on exposure only to the application solution which is a dilution of the classified concentrated products of meta SPC 1 and 3. Based on the calculation rule, no classification for eye damage/irritation is required for meta SPC 2.

Exposure of infants, who may have hand-to-mouth and hand-to-eye contact, is considered negligible as infants are expected to be efficiently kept away from wet surfaces outdoors because of P102 'Keep out of reach of children' and/or the risk mitigation measure N-315: 'Keep uninvolved persons, children and pets away from treated surfaces until dried'.
Still, accidental exposure of infants to a certain amount of the application solution (max. 3%) may occur after touching treated, wet surfaces. Though the concentration of 3% is above the local oral AEC_{medium} and long term of 1% (Austria, 2013), this might (theoretically) cause slight irritations at the mouth mucosa or in the eyes, considering the relative low volume of product that will be transferred the potential effects, if any occurs, it will be very mild and reversible. Also this scenario indicates an acceptable risk for local oral effects considering that the scenario will not happen repeatedly but acutely and accidentally. The RMM N-315: "Keep uninvolved persons, children and pets away from treated surfaces until dried" is also required for meta SPC 2.

Local effects (meta SPC 1 and 3) – secondary exposure

Hazard	Hazard Category	Low
	Effects in terms of C&L	Eye Irrit. 2, H319 and/or Skin Irrit. 2, H315
Exposure	PT	2
	Who is exposed?	Child including toddlers (secondary exposure)
	Task, uses, processes	[5] Child walking through wet treated surfaces with b.p. [6] Infant touching treated area Infant
	Potential exposure route	Skin [5], [6] Oral [6] Eye [6]
	Frequency and duration of potential exposure	2/year, [5] probably few minutes or less [6] probably few minutes or less
	Relevant RMM	Labelling as eye and/or skin irritant; Instructions for use that minimize exposure • Keep out of reach children (P102) • Keep uninvolved persons, children and pets away from treated surfaces until dried (N-315)

Risk	Conclusion of risk	Acceptable since: + Reversible effect + Short exposure duration + Low exposure frequency + The label instructs to exclude/minimise contact to treated areas

Conclusion
Based on the qualitative risk assessment no unacceptable risk for adverse effects are identified for the general public from secondary exposure to the biocidal product family Nonanoic Acid Algaecides, when used according to the label instructions.

Risk for consumers via residues in food

There is no risk for consumers via residues in/on food for nonanoic acid as the products will not come into contact with food or animal feeding stuffs when used as biocidal product. Furthermore, no MRLs were set for the uses as plant protection product as nonanoic acid is included in Annex IV of Reg. (EC) No. 396/2005 which lists active substances for which no MRLs are required.

Risk characterisation from combined exposure to several active substances or substances of concern within a biocidal product

The qualitative risk assessment for local effects is carried out for the product and this includes any other substances that could contribute to the classification for local effects. Systemic effects are not of concern for this product family.

2.2.7 Risk assessment for animal health

Potentially dogs or cats or wild animals might walk over the wet surface treated with the application solution containing a maximum of ~3% active substance. A risk mitigation measure N-315: "'Keep uninvolved persons, children and pets away from treated surfaces until dried'" is included to minimise such contact of domestic animals.
As the risk of secondary exposure of general public was considered acceptable, no adverse effects are expected also for animals, when applied according to the label instructions.

2.2.8 Risk assessment for the environment

No new studies have been generated for nonanoic acid or NEU 1170 H EC, which was the representative product for active substance evaluation of nonanoic acid. Further products in the family are NEU 1170 H AF products, which are ready to use products representing dilutions of NEU 1170 H EC. A further member of the family is the product NEU 1370 H which contains nonanoic acid at a concentration 4 times higher than NEU 1170 H EC.
The intended uses have been extended and the application rates have been changed or were adapted. Therefore, a full environmental risk assessment for the products is presented in the following section.

2.2.8.1 Effects assessment on the environment

The following PNECs for the active substance nonanoic acid in the different environmental compartments were calculated in the AR on nonanoic acid (all values expressed as a.s. technical) (Austria, 2013):

PNEC for aquatic organisms:

$PNEC_{water}$:	0.0568 mg a.s. /L	(based on the NOE_rC value from the growth inhibition test on *Scenedesmus subspicatus*)

PNEC for sewage treatment plant (STP) organisms:

$PNEC_{STP}$:	5.652 mg a.s. /L	(based on the EC_{50} value from the activated sludge respiration inhibition test)

PNEC for sediment dwelling organisms:

$PNEC_{sed}$:	0.1223 mg a.s. /kg	(based on the $PNEC_{water}$ value using EPM (equilibrium partitioning method))

PNEC for terrestrial organisms:

$PNEC_{soil}$:	0.099 mg a.s./kg_{wwt}	(based on the EC_{50} value from the vegetative vigour plant test with *Brassica oleracea*)

PNEC for birds and mammals:

Long term $PNEC_{oral}$:	0.331 mg a.s. /kg diet	(based on the 5 day acute avian dietary studies with Japanese Quail and Mallard duck)

Information relating to the ecotoxicity of the biocidal product which is sufficient to enable a decision to be made concerning the classification of the product is required

Valid data concerning the ecotoxicological effects of the components in the biocidal product family are available. Ecotoxicological effects of the products are solely based on the active substance nonanoic acid. Further effects from other components are not expected.
Further acute and/or chronic aquatic toxicity studies for the active substance or a biocidal product of the product family have not been submitted. According to the 7th ATP to Reg. (EC) No 1272/2008 the harmonised classification and labelling of nonanoic acid for its environmental effects is Aquatic Chronic 3, H412 Harmful to aquatic life with long lasting effects.
According to the content of nonanoic acid in the biocidal product family 3.11-80%(w/w) the members of the family in meta SPC 1 and 2 are not to be classified for environmental hazards, while the product in meta SPC 3 has to be classified as Aquatic Chronic 3, H412. Therefore, the biocidal product in meta SPC 3 (NEU 1370 H) has to be labelled with the hazard statement H412 Harmful to aquatic life with long lasting effects and the precautionary statements P273 and P501.

Further Ecotoxicological studies

No new data was submitted, neither for the active substances nor for the biocidal products.

Effects on any other specific, non-target organisms (flora and fauna) believed to be at risk (ADS)

No other non-target organisms (flora and fauna) are believed to be at risk due to the application of the products of the Nonanoic Acid Algaecides product family. Therefore, no further data on non-target organisms were submitted.

Supervised trials to assess risks to non-target organisms under field conditions

Supervised trials to assess risks to non-target organisms under field conditions are not available and not considered necessary as the products are no baits or granules.

Studies on acceptance by ingestion of the biocidal product by any non-target organisms thought to be at risk

Studies on acceptance by ingestion of the biocidal products by any non-target organisms thought to be at risk are not available and not considered necessary as the products are no baits or granules.

Secondary ecological effect e.g. when a large proportion of a specific habitat type is treated (ADS)

Not necessary as no large proportion of a specific habitat will be treated.

Foreseeable routes of entry into the environment on the basis of the use envisaged

Foreseeable routes of entry into the environment are described in detail in section "Fate and distribution in exposed environmental compartments".

Further studies on fate and behaviour in the environment (ADS)

The oxidative degradation of fatty acids is a universal biochemical capacity among living organisms. Nonanoic acid is readily biodegradable; the pass level for ready biodegradation was already reached after 11 days. The principal way of degradation of fatty acids under aerobic conditions is the microbial shortening by C2 pieces (β-oxidation of fatty acids). Dissipation of Nonanoic acid from soil is even faster with a DT_{50} value of approximately 2.1 days at 12°C (1.1 days at 20°C). Nonanoic acid has been found to be present in untreated soil at naturally occurring background levels.
Moreover, inhibitory effects against aquatic micro-organisms were only found at relatively high nominal concentrations (EC_{50} value of 565.2 mg/L).
Therefore, no further studies on fate and behaviour in the environment were deemed necessary.

Leaching behaviour (ADS)

No tests on leaching behaviour are considered necessary for the nonanoic acid algaecides product family.

Testing for distribution and dissipation in soil (ADS)

No new data on distribution and dissipation of nonanoic acid in soil are available.

Testing for distribution and dissipation in water and sediment (ADS)

No new data on distribution and dissipation of nonanoic acid in water and sediment are available.

Testing for distribution and dissipation in air (ADS)

No new data on distribution and dissipation of nonanoic acid in air are available.

If the biocidal product is to be sprayed near to surface waters then an overspray study may be required to assess risks to aquatic organisms or plants under field conditions (ADS)

Not necessary as the products of the Nonanoic Acid Algaecide family are sprayed outside onto roof tiles, thatch roof, pavemets and masonry. The data on aquatic toxicity of the a.s. gives sufficient information and direct emissions of the products to surface water (incl. sediment) are unlikely.

If the biocidal product is to be sprayed outside or if potential for large scale formation of dust is given then data on overspray behaviour may be required to assess risks to bees and non-target arthropods under field conditions (ADS)

Not necessary as the products of the Nonanoic Acid Algaecides family are sprayed outside onto surfaces like roof tiles, thatch roof, pavements and masonry, that are not preferably visited by bees or are a standard habitat of non-target arthropods. The toxicity data on bees and non-target arthropods give sufficient information and direct large scale emission of bees and non-target arthropods to the products are unlikely.

2.2.8.2 Exposure assessment

The products are intended to control an excessive development of algae and lichen (roof tiles and thatch roof only) on many different surfaces such as walls, facades, greenhouses, plastic tunnels, roofs, paths, terraces, fences, garden pottery or gravestones. The matrices that may be treated include glass, wood, plastic, metal, tiles, stone, bitumen, slate and terracotta.

General information

Assessed PT	PT2
Assessed scenarios	• City-scenario - emission via STP to surface water and soil via sludge application - direct emission to surface water via mixed sewer systems during storm event and via separate sewer system • House in the Countryside-scenario – direct emission to soil
ESD(s) used	• ESD for PT10: Emission scenario document for biocides used as masonry preservatives. (product type 10). INERIS – Institut National de l'Eenvironnement Industriel et des Risques, France, Migné V. (EU 2002) • Leaching from paints, plasters, and fillers applied in urban areas (Muijs, B., Okkerman, P., Version 6, The Netherlands 2015) • The assessment of direct emissions to surface water in urban areas (PT 6.2/6.3 and 7-10, Ahting, M., Mueller, S., Version 3, UBA 2014) • ESD for PT8: OECD SERIES ON EMISSION SCENARIO DOCUMENTS, Number 2, Revised Emission Scenario Document for Wood Preservatives (OECD 2013) • ESD for PT18: OECD SERIES ON EMISSION SCENARIO DOCUMENTS, Number 18, EMISSION SCENARIO DOCUMENT FOR INSECTICIDES, ACARICIDES AND PRODUCTS TO CONTROL OTHER ARTHROPODS FOR HOUSEHOLD AND PROFESSIONAL USES (OECD 2008)
Approach	Average consumption approach
Distribution in the environment	Calculated based onGuidance on the Biocidal Products Regulation (ECHA 2017b) using the calculation model EUSES 2.2.0
Groundwater simulation	FOCUS PEARL 4.4.4
Confidential Annexes	NO
Life cycle steps assessed	Production: No Formulation No Use: Yes Service life: Yes
Remarks	-

Emission estimation

The biocidal product is applied on vertical and horizontal surfaces. No appropriate scenario for the use of nonanoic acid as algaecide in PT2 is available, therefore scenarios stated in ESD for PT10 (EU 2002) and PT8 (OECD 2013) were applied.
In principle, two different scenarios have to be distinguished: the biocidal product is applied on surfaces that are located in a city and surfaces that are located in the countryside. The difference being is the receiving environmental compartment: emissions occuring in the city end up in the sewer system and afterwards in the municipal STP; emissions occuring in the countryside end up directly in the soil compartment due to unpaved surfaces. As the products are intended to be applied by spraying, as a worst case scenario regarding the treatment of vertical surfaces, the emission scenario for calculating the releases from a house (façade) treated by sprayer (EU 2002) is used. Considering vertical surfaces, the façade scenario covers masonry, glasshouses, plastic tunnels and fences. The roof scenario is calculated for roof tiles and thatch roof treatments separately – the treatments differ in applicationdosing. The emissions of a treatment of horizontal surfaces like terrace and pathway are added up to the emissions of the treatment of vertical surfaces when looking at the House in the City-scenario, ending up in the municipal STP.

Furthermore, the documents "Leaching from paints, plasters, and fillers applied in Urban areas" (The Netherlands 2015) is consulted for calculating the number of houses treated per day in a city and the document "The assessment of direct emission to surface water in urban areas (UBA 2014) is consulted for calculating the direct emissions to surface water. The environmental risk assessment is basically based on Guidance on the Biocidal Products Regulation (ECHA 2017b) and the Technical Agreements for Biocides (ECHA 2018a).

The calculation model stated in the ESD for PT10 (EU 2002) regarding masonry preservatives covers two life-cycle steps: application and service life. During application on treated surfaces, there are fractions of the product which are lost due to runoff and spray drift. During service life leaching is being potentially relevant for environmental emissions. The biocidal product in meta SPC 1 is authorised for non-professional and professional users. This also applies for the ready-to-use products in meta SPC 2. The product belonging to meta SPC 3 is authorised for professional users only. No distinction is stipulated in the consulted model calculations between non-professional and professional users. Furthermore, the final application concentrations relating to the compareable uses for non-professionals and professionals are equal.

The calculations of the emissions from horizontal surfaces like terraces, pavements and sports fields are based on the following assumptions:
According to ESD for PT18 (OECD 2008), the typical size of a terrace is 6% of a garden with a size of 500 m² resulting in an area to be treated of 30 m². Regarding the size of pathways in garden, 5% of 500 m²; i.e., 25 m², is a typical size according to the ESD for PT18 (OECD 2008). Added up, an area of 55 m² is treated. This is the basis for the model calculation for horizontal surfaces. For the treatment of sports fields, no suitable scenario is available. Furthermore, the maintenance and cleaning of running tracks is performed in short intervals to extend the service life of the running track and not least for the sake of the users' health. Therefore, it is assumed that not the entire running track is treated with this biocidal product.

The treated horizontal surfaces (terrace plus pathway) is also covered by the house scenario due to its $AREA_{treated}$-$VOLUME_{soil}$-ratio is 7.

The calculations considering horizontal surfaces are based on the same default values for runoff (F_{runoff} = 0.2) and spray drift (F_{drift} = 0.1) as proposed for the vertical surfaces model calculations mentioned in the conducted ESDs.
The horizontal surfaces are only relevant for the calculations for the House on the City-scenario due to the fact that all emissions end up in the sewer. For the House in the Countryside-scenario, the house scenario (vertival surfaces) is calculated as worst case, since the emissions from the house scenario and the terrace and pathway scenarios end up in different soil compartments.

As the ready-to-use products NEU 1170 H AF 28.0 g/L and NEU 1170 H AF 31.02 g/L (meta SPC 2) are applied by trigger sprayer fitted on a 1 L or 3 L bottle it is extremely unrealistic that the areas used for model calculation (i.e. 145 m^2 for roof and 125 m^2 for facade for one house) will be treated with this product. The maximum treated surface is limited to 30 m² per 3 L bottle.

The table below shows the application rates of the different uses.

Although the categories of users are not relevant for calculation, the categories for the different meta SPCs are listed here:
Meta SPC 1: professional and non-professional users (general public)
Meta SPC 2 (RTU): professional and non-professional users (general public)
Meta SPC 3: professional users only

Use number **User category** **Meta SPC**	**Use**	**Calculated treated surfaces**	**F_{form}** **Fraction of active substance in the diluted product**	**V_{form}** **Application rate of diluted biocidal product [L/m²]**	**V_{form} x F_{form}**	**Calculated scenario**
use 1 professional and non-professional Meta SPC 1	Vertical and horizontal surfaces	façade, terrace	0.0099	0.1	0.00099	House in the City-scenario and House in the Country-side-scenario
use 2 professional and non-professional Meta SPC 1	Roof tiles	roof	0.0099	0.1	0.00099	House in the City-scenario and House in the Country-side-scenario

Use number **User category** **Meta SPC**	**Use**	**Calculated treated surfaces**	**F_{form}** **Fraction of active substance in the diluted product**	**V_{form}** **Application rate of diluted biocidal product [L/m²]**	**V_{form} x F_{form}**	**Calculated scenario**
use 3 professional and non-professional Meta SPC 1	Thatch roof	roof	0.00398	0.5	0.00199	House in the Country-side-scenario *
Use 4 professional and non-professional Meta SPC 1	Vertical and horizontal surfaces	façade, terrace, pathway	0.0298	0.1	0.00298	House in the City-scenario and House in the Country-side-scenario
Use 5 professional and non-professional Meta SPC 1	Horizontal surfaces (watering)	terrace, pathway	0.0149	0.2	0.00298	City-scenario and Country-side-scenario
Use 6 (RTU) professional and non-professional Meta SPC 2	Vertical and horizontal surfaces	façade, terrace, pathway (RTU: limited to 30 m²)	0.0298 (28.0 g prod./L) 0.0297 (31.02 g prod./L)	0.1 0.09	0.00298	House in the City-scenario and House in the Country-side-scenario
Use 7 Professional Meta SPC 3	Vertical and horizontal surfaces	façade, terrace	0.0097	0.1	0.00097	House in the City-scenario and House in the Country-side-scenario
Use 8 Professional Meta SPC 3	Roof tiles	roof	0.0097	0.1	0.00097	House in the City-scenario and House in the Country-side-scenario

Use number **User category** **Meta SPC**	**Use**	**Calculated treated surfaces**	**F_{form}** **Fraction of active substance in the diluted product**	**V_{form}** **Application rate of diluted biocidal product [L/m²]**	**V_{form} x F_{form}**	**Calculated scenario**
Use 9 Professional Meta SPC 3	Thatch roof	roof	0.004	0.5	0.002	House in the Country-side-scenario*
Use 10 Professional Meta SPC 3	Vertical and horizontal surfaces	façade, terrace, pathway	0.0298	0.1	0.00298	House in the City-scenario and House in the Country-side-scenario
Use 11 Professional Meta SPC 3	Horizontal surfaces (watering)	terrace, pathway	0.0149	0.2	0.00298	City-scenario and Country-side-scenario

* As a house with thatch roof will be found rather in the countryside.

The solution is evenly sprayed with a spraying device (low pressure sprayer or hand held trigger sprayer) over the surface to be treated. As exposure from spraying during application may be considered to be higher than that from watering (sprinkling) the latter mode of application is covered by the risk assessment for spraying.

Vertical surfaces (treated houses) or horizontal surfaces like terraces, pathways or sports fields can be located either in the countryside or within a city. Regarding a house located in the countryside, a predefined soil volume around the treated house, as a function of wind speed, emission height and settling velocity of droplets has to be identified.

In the ESD for PT8 (OECD 2013) it is stated that the lower the wind velocities and the coarser the spray droplets, the closer to the treated object (house wall) will the spray drift deposit. Under ideal conditions for spraying (wind stillness or faint wind) and when mainly coarse droplets are formed, spray drift will only deposit within the 50-cm zone adjacent to the treated object (house wall). Due to the fact, that one risk mitigation measure indicates that the product must not be applied when there is wind, in order to avoid transfer to other areas by drift, spray drift will only deposit within the 50-cm zone adjacent to the treated surface.

Additionally the soil volume receiving the emissions due to runoff during application and the daily emissions due to leaching has be determined. The default values for the size of the soil receiving runoff (soil adjacent to the façade) and spraydrift (soil within a distance to the facade) are according to the ESD for PT8 (OECD 2013) and TAB (ECHA 2018a):

Dimensions of the receiving soil for the House in the Countryside-scenario

Already agreed values for the evaluation of the soil compartment for PT8 were used.

- **$V_{soil(adjacent)}$**

$V_{soil(adjacent)}$ = 13 m^3 based on a soil depth of 0.5 m
0.5 m x ((0.5 m x 18.5 m x 2) + (0.5 m x 7.5 m x 2)) = **13 m^3**

- **$V_{soil(distant)}$**

$V_{soil(distant),facade}$ = 142.80 m^3 based on a soil depth of 0.5 m and 4.065 m width of receiving compartment (4 x 2.5/2.46 m/s = 4.065 m)
0.5 m x ((18.5 m + 4.065 m x 2) x 2 x 4.065 + (8.5 m x 4.065 m x 2)) = **142.80 m^3**

$V_{soil(distant),roof}$ = 254.72 m^3 based on a soil depth of 0.5 m and 6.4 m width of receiving compartment (c.f. ECHA 2018a, ENV 121)
0.5 x 2 x (31.3 m x 6.4 m + 8.5 m x 6.4 m) = **254.72 m^3**

The volume of the soil compartment within a distance to the treated façade is based on a wind speed of 4 m/s. This is in accordance with the ESD for PT10 (EU 2002).

$V_{soil(distant),roof}$ = 29 m^3 based on a soil depth of 0.5 m and 1.5 m width of receiving compartment based on a wind speed of 1.5 m/s.

Assuming a wind speed of 0.5 m/s the amount of a.s. loss due to spraydrift ends up in a 0.5 m band around the house (= soil adjacent to house).
$V_{soil\_terrace}$ = 8.5 m^2 x 0.5 m = 4 m^3 (according to ECHA 2018a, ENV 154)

The input parameters for calculating the local emissions are listed in the table blow:

Input parameters for calculating the local emissions				
Input	**Definition**	**Value**	**Unit**	**Remarks**
Density of the product	RHO_{form}	990	kg/m³	
Treated area of a façade per day	$AREA_{façade}$	125	m²/d	vertical surface
Treated area of a roof per day	$AREA_{roof}$	145	m²/d	vertical surface
Treated area of a terrace	$AREA_{terrace}$	30	m²/d	horizontal surface
Treated area of a pathway	$AREA_{pathway}$	25	m²/d	horizontal surface
Fraction of product lost during application by spray drift	F_{drift}	0.1	[-]	default
Fraction of product lost during application by runoff	F_{runoff}	0.2	[-]	default
Duration of the initial assessment period (service life - leaching)	$TIME1/T_{initial}$	30	d	day 1-30
Duration of the longer assessment period (service life - leaching)	TIME2	152 (182 – 30)	d	day 31-182
Number of houses in a city recently treated	$N_{house,initial}$	4000*(30/182)=659	-	day 1-30
Number of houses in a city treated more than 30 days ago	$N_{house,longer}$	3341	-	day 31-182
Direct emission to soils (House in the Countryside-scenario)				
Volume of soil distant to surface treated (**façade)**	$Vsoil_{distant, facade}$	142.80 (based of a wind speed of 4 m/s)	m³	vertical surface
Volume of soil distant to surface treated (**roof**)	$Vsoil_{distant, roof}$	29 (based on a wind speed of 1.5 m/s)	m³	vertical surface
Volume of soil adjacent to surface treated (**façade and roof**)	$Vsoil_{adjacent}$	13	m³	vertical surface
Volume of soil adjacent to surface treated (**terrace**)	Vsoil	4	m³	horizontal surface
Density of the soil	RHOsoil	1700	kg/m³	default
Half-life for degradation in soils	DT50	2.1	d	Austria 2013
Emission to the sewer system (City-scenario)				
Number of houses that are treated per day	$N_{house, application}$	22	/d	The Netherlands 2015
Fraction of the houses on which paints, plasters, or fillers are applied	f_{house}	1	[-]	The Netherlands 2015

* The horizontal surfaces are only relevant for the calculations for the city scenario, because all emissions receive the sewer system and therefore end up in the same municipial STP. Regarding the countryside scenario, the emissions end up in different soil compartments. Therefore, the house scenario (façade and roof) is calculated as worst case scenario covering the terrace and pathway scenario due to the larger treated area

City-scenario

In the city scenario, losses due to spray drift and runoff during application and leaching during service life are likely to enter paved ground and are therefore either washed with rain to the sewer system subsequently reaching the STP or directly to surface water in case when rain water is collected separately without being mixed with other waste water (separate sewer systems). Rainwater is (in most cases) not treated and may be

discharged directly to surface water bodies if no rainwater detention reservoir is in between. If an active substance is intended to be used outdoor it may be leached by the rainwater from façades and roofs and will be collected in the rainwater sewer. This emission scenario is calculated according to the agreed scenarios described in "The assessment of direct emission to surface water in urban areas" (UBA 2014).

The number of houses being treated in one day is calculated according to The Netherlands (2015):
$N_{house,application}$ = 4000 / (365/2) d ~ 22 houses per day

According to "Leaching from paints, plasters, and fillers applied in urban areas" (The Netherlands 2015), emissions during application have to be multiplied by 22 taking into account the treatment of 22 houses per day (due to the service life of 182 days). The same assumptions are applied to the treatment of horizontal surfaces (terraces, pathways) in urban areas by applying a spray drift factor of 0.1 and a runoff factor 0.2. This is due to the fact that no emission scenario for horizontal surfaces is available so far.

Release during application

Release to the STP may occur during the application of a product. The daily release during application is calculated as follows - vertical surfaces and horizontal surfaces are summed up:

Use #1, use #7
Horizontal and vertical surfaces (façade, terrace)

- House scenario façade – vertical surfaces

$E_{local,spray\_drift} = AREA_{facade} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift}$ = 125 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.1 x 22 x 10^{-3}
$E_{local,spray\_drift}$ = 2.70E-01 kg/d
$E_{local,runoff} = AREA_{facade} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff}$ = 125 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.2 x 22 x 10^{-3}
$E_{local,runoff}$ = 5.40E-01 kg/d

$E_{local,\ application,\ facade} = E_{local,spray\_drift} + E_{local,runoff}$ = **8.10E-01 kg/d**

- Terrace – horizontal surfaces

$E_{local,spray\_drift} = AREA_{terrace} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift}$ = 30 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.1 x 22 x 10^{-3}
$E_{local,spray\_drift}$ = 6.46E-02 kg/d

$E_{local,runoff} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff}$ = 30 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.2 x 22 x 10^{-3}
$E_{local,runoff}$ = 1.29E-01 kg/d

$E_{local,\ application,\ horizontal} = E_{local,spray\_drift} + E_{local,runoff}$ = **1.94E-01 kg/d**

$E_{local,\ application,\ facade} + E_{local,\ application,\ terrace}$ = **1.00 kg/d**

Use #2, use #8
Roof only (roof tiles)

$E_{local,spray\_drift} = AREA_{roof} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift} = 145\ m^2 \times 0.1\ L/m^2 \times 0.0099 \times 990\ kg/m^3 \times 0.1 \times 22 \times 10^{-3}$
$E_{local,spray\_drift} = 3.12E\text{-}01\ kg/d$

$E_{local,runoff} = AREA_{roof} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff} = 145\ m^2 \times 0.1\ L/m^2 \times 0.0099 \times 990\ kg/m^3 \times 0.2 \times 22 \times 10^{-3}$
$E_{local,runoff} = 6.26E\text{-}01\ kg/d$
$E_{local,\ application,\ house} = E_{local,spray\_drift} + E_{local,runoff} =$ **9.38E-01 kg/d**

Use #3, use #9
Roof only (thatch roof)

The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.

Use #4, use #10
Horizontal and vertical surfaces (façade, terrace, pathway)

- Terrace + pathway – horizontal surfaces

$E_{local,spray\_drift} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift} = (30 + 25)\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.1 \times 22 \times 10^{-3}$
$E_{local,spray\_drift} = 3.56E\text{-}01\ kg/d$

$E_{local,runoff} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff} = (30 + 25)\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.2 \times 22 \times 10^{-3}$
$E_{local,runoff} = 7.14E\text{-}01\ kg/d$

$E_{local,\ application,\ horizontal} = E_{local,spray\_drift} + E_{local,runoff} =$ **1.07 kg/d**

- House scenario (façade) – vertical surfaces

$E_{local,spray\_drift} = AREA_{facade} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift} = 125\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.1 \times 22 \times 10^{-3}$
$E_{local,spray\_drift} = 8.11E\text{-}01\ kg/d$

$E_{local,runoff} = AREA_{facade} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff} = 125\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.2 \times 22 \times 10^{-3}$
$E_{local,runoff} = 1.62\ kg/d$

$E_{local,\ application,\ facade} = E_{local,spray\_drift} + E_{local,runoff} =$ **2.43 kg/d**

$E_{local,\ application,\ h+v} = E_{local,spray\_drift} + E_{local,runoff} =$ **3.50 kg/d**

Use #5, use #11
Horizontal surfaces (terrace, pathway - watering)

$E_{local,spray\_drift} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times F_{drift} \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift} = (30 + 25)\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.1 \times 22 \times 10^{-3}$
$E_{local,spray\_drift} = 3.56E\text{-}01\ kg/d$

$E_{local,runoff} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times F_{runoff} \times N_{house,applic} \times 10^{-3}$
$E_{local,runoff} = (30 + 25)\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 0.2 \times 22 \times 10^{-3}$
$E_{local,runoff} = 7.14E\text{-}01\ kg/d$

$E_{local,\ application,\ horizontal} = E_{local,spray\_drift} + E_{local,runoff} =$ **1.07 kg/d**

Use #6 (RTU products): limited to 30 m²)

The maximum RTU product volume is of 3 L, which means that, at an application rate of 0.1 L/m2, 30m² can be treated with one bottle. Therefore, the calculations are based on a treated surface of 30 m².
$E_{local,spray\_drift+runoff} = AREA \times V_{form} \times F_{form} \times RHO_{form} \times (F_{drift} + F_{runoff}) \times N_{house,applic} \times 10^{-3}$
$E_{local,spray\_drift+runoff} = 30\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times (0.1+0.2) \times 22 \times 10^{-3}$
$E_{local,spray\_drift+runoff} = 5.84E\text{-}01\ kg/d$

Release during service life

Due to leaching data is not available, emissions have to be calculated using a worst-case scenario in which 100% leaching is assumed during the product´s service life: 50% during the first 30 days and 50% during the remaining service life of the product.

The daily emission to the sewer due to leaching is then calculated as follows:

Use #1, use #7
Horizontal and vertical surfaces (façade, terrace)

- House scenario (façade) – vertical surfaces

$N_{houses,\ leach} = N_{house} \times f_{house} = 2000$
$Q_{leach,\ facade} = AREA_{facade} \times V_{form} \times F_{form} \times RHO_{form} \times 10^{-3}$
$Q_{leach,\ facade} = 125\ m^2 \times 0.1\ L/m^2 \times 0.0099 \times 990\ kg/m^3 \times 10^{-3}$
$Q_{leach,\ facade} = 1.23E\text{-}01\ kg/house$
$E_{local,service\ life,\ facade} = (N_{houses} \times Q_{leach}) / T_{service\ life}$
$E_{local,service\ life,\ facade} = (4000 \times 1.23E\text{-}01\ kg/house) / 182 =$ **2.70 kg/d**

$E_{local,service\ life,\ facade} = (659 \times 1.23E\text{-}01\ kg/house) / 30 =$ **2.70 kg/d**
$E_{local,service\ life,\ facade} = (3341 \times 1.23E\text{-}01\ kg/house) / 152 =$ **2.70 kg/d**

- Terrace – horizontal surfaces

$Q_{leach,\ horizontal}$ = $AREA_{horizontal}$ x V_{form} x F_{form} x RHO_{form} x 10^{-3}
$Q_{leach,\ horizontal}$ = 30 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ horizontal}$ = 2.94E-02 kg/scene

$E_{local,service\ life,\ horizontal}$ = (N_{houses} x Q_{leach}) / $T_{service\ life}$
$E_{local,service\ life,\ horizontal}$ = (4000 x 2.94E-02 kg) / 182 = **6.46E-01 kg/d**

$E_{local,service\ life,\ house}$ + $E_{local,service\ life,\ horizontal}$ = **3.35 kg/d**

Use #2, use #8
Roof only (roof tiles)

$N_{houses,\ leach}$ = N_{house} x f_{house} = 2000
$Q_{leach,\ roof}$ = $AREA_{roof}$ x V_{form} x F_{form} x RHO_{form} x 10^{-3}
$Q_{leach,\ roof}$ = 145 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ roof}$ = 1.42E-01 kg/house
$E_{local,service\ life,\ roof}$ = (N_{houses} x Q_{leach}) / $T_{service\ life}$
$E_{local,service\ life,\ roof}$ = (4000 x 1.42E-01 kg/house) / 182 = **3.12 kg/d**

Use #3, use #9
Roof only (thatch roof)

The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.

Use #4, use #10
Horizontal and vertical surfaces (façade, terrace, pathway)
Covering Use #5, use #11
Horizontal surfaces (terrace, pathway - watering)

- Terrace + pathway – horizontal surfaces

$Q_{leach,\ horizontal}$ = $AREA_{horizontal}$ x V_{form} x F_{form} x RHO_{form} x 10^{-3}
$Q_{leach,\ horizontal}$ = (30 + 25) m² x 0.1 L/m² x 0.0298 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ horizontal}$ = 1.62E-01 kg/scene
$E_{local,service\ life,\ horizontal}$ = (N_{houses} x Q_{leach}) / $T_{service\ life}$
$E_{local,service\ life,\ horizontal}$ = (4000 x 1.62E-01 kg/scene) / 182 = **3.56 kg/d**

- House scenario (façade) – vertical surfaces

$Q_{leach,\ facade}$ = $AREA_{facade}$ x V_{form} x F_{form} x RHO_{form} x 10^{-3}
$Q_{leach,\ facade}$ = 125 m² x 0.1 L/m² x 0.0298 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ facade}$ = 3.69E-01 kg/house
$E_{local,service\ life,\ facade}$ = (N_{houses} x Q_{leach}) / $T_{service\ life}$
$E_{local,service\ life,\ facade}$ = (4000 x 3.69E-01 kg) / 182 = **8.10 kg/d**

$E_{local,service\ life,\ facade\ +\ horizontal}$ = **11.66 kg/d**

Use #5, use #11
Horizontal surfaces (terrace, pathway - watering)

$Q_{leach,\ horizontal} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times 10^{-3}$
$Q_{leach,\ horizontal} = (30 + 25)\ m^2 \times 0.2\ L/m^2 \times 0.0149 \times 990\ kg/m^3 \times 10^{-3}$
$Q_{leach,\ horizontal} = 1.62E\text{-}01\ kg/scene$
$E_{local,service\ life,\ horizontal} = (N_{houses} \times Q_{leach}) / T_{service\ life}$
$E_{local,service\ life,\ horizontal} = (4000 \times 1.62E\text{-}01\ kg/scene) / 182 =$ **3.56 kg/d**

Use #6 (RTU products)

The maximum RTU product volume is of 3 L, which means that, at an application rate of 0.1 L/m^2, 30m^2 can be treated with one bottle. Therefore, the calculations are based on a treated surface of 30 m^2.

$Q_{leach} = AREA_{horizontal} \times V_{form} \times F_{form} \times RHO_{form} \times 10^{-3}$
$Q_{leach} = 30\ m^2 \times 0.1\ L/m^2 \times 0.0298 \times 990\ kg/m^3 \times 10^{-3}$
$Q_{leach} = 8.85E\text{-}02\ kg$
$E_{local,service\ life} = (N_{houses} \times Q_{leach}) / T_{service\ life}$
$E_{local,service\ life} = (4000 \times 7.38E\text{-}02\ kg) / 182 =$ **1.95 kg/d**

Resulting local emission to relevant environmental compartments for the House in the City-scenario			
Parameter	**Definition**	**Compartment**	**Value [kg/d]**
Use #1 (Meta SPC 1) **Use #7 (Meta SPC 3)** Total emissions resulting from application and leaching – **horizontal and vertical surfaces** (façade, terrace): 100% leaching after half a year	$Elocal_{water,\ horizontal+vertical,}$	STP/surface water	Runoff+drift: 1.00 1-30d: 1.68 31-182d: 1.68 **Total: 4.35**
Use #2 (Meta SPC 1) **Use #8 (Meta SPC 3)** Total emissions resulting from application and leaching – **roof tiles**: 100% leaching after half a year	$Elocal_{water,\ roof\ tiles}$	STP/surface water	Runoff+drift: 9.38E-01 1-30d: 1.56 31-182d: 1.56 **Total: 4.06**
Use #3 (Meta SPC 1) **Use #9 (Meta SPC 3)** Total emissions resulting from application and leaching – **thatch roof**: 100% leaching after half a year	$Elocal_{water,\ thatch\ roof}$	STP/surface water	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** Total emissions resulting from application and leaching – **horizontal and vertical surfaces** (façade, terrace, pathway): 100% leaching after half a year	$Elocal_{water,\ horizontal+vertical}$	STP/surface water	Runoff+drift: 3.50 1-30d: 5.83 31-182d: 5.83 **Total: 15.16**
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Total emissions resulting from application and leaching – **horizontal surfaces – watering** (terrace, pathway): 100% leaching after half a year	$Elocal_{water,\ horizontal}$	STP/surface water	Runoff+drift: 1.07 1-30d: 1.78 31-182d: 1.78 **Total: 4.63**

Resulting local emission to relevant environmental compartments for the House in the City-scenario			
Parameter	**Definition**	**Compartment**	**Value [kg/d]**
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m²	$Elocal_{water,RTU}$	STP/surface water	Runoff+drift: 5.84E-01 1-30d: 9.75E-01 31-182d: 9.75E-01 **Total: 2.53**

Emission to separate sewer systems is calculated according to the agreed scenarios described in "The assessment of direct emission to surface water in urban areas (UBA 2014).

House in the Countryside-scenario

The horizontal surfaces were not considered for direct emission to soils as the treated surface-soil-ratios are unfavourable in comparison to vertical surfaces. As worst case scenario the façade scenario (use #4, use #10) is chosen because these uses show the highest concentration per m². Please note, that the roof scenario falls into an other use and has furthermore a lower concentration rate of the a.s. per m².

In a rural setting, the losses are assumed to directly end up on unpaved soil. The fractions of the product lost due to spray drift and runoff affect different soil compartments. The droplets due to spray drift reach a soil compartment in a certain distance to the house and the product lost due to runoff reaches the soil compartment adjacent to the treated house.

Release during rinse

As rinsing is not required after the application of the biocidal products a release scenario due to rinsing is not relevant. Furthermore, a general decision at the BPC WG-I-2018 states that "rinsing" is no longer considered relevant.

Release during application

Use #4, use #10
house scenario (facade)

$E_{local,spray\_drift}$ = $AREA_{house}$ x V_{form} x F_{form} x RHO_{form} x F_{drift} x 10^{-3}
$E_{local,spray\_drift}$ = 125 m² x 0.1 L/m² x 0.0298 x 990 kg/m³ x 0.1 x 10^{-3}
$E_{local,spray\_drift}$ = 3.69E-02 kg/d

$E_{local,runoff}$ = $AREA_{house}$ x V_{form} x F_{form} x RHO_{form} x F_{runoff} x 10^{-3}
$E_{local,runoff}$ = 125 m² x 0.1 L/m² x 0.0298 x 990 kg/m³ x 0.2 x 10^{-3}
$E_{local,runoff}$ = 7.38E-02 kg/d

Use #3, use #9
thatch roof

$E_{local,spray\_drift}$ = $AREA_{roof}$ x V_{form} x F_{form} x RHO_{form} x F_{drift} x 10^{-3}
$E_{local,spray\_drift}$ = 145 m² x 0.5 L/m² x 0.00398 x 990 kg/m³ x 0.1 x 10^{-3}
$E_{local,spray\_drift}$ = 2.86E-02 kg/d

$E_{local,runoff}$ = $AREA_{roof}$ x V_{form} x F_{form} x RHO_{form} x F_{runoff} x 10^{-3}
$E_{local,runoff}$ = 145 m² x 0.5 L/m² x 0.00398 x 990 kg/m³ x 0.2 x 10^{-3}
$E_{local,runoff}$ = 5.71E-02 kg/d

Use #1, use #7
house scenario (façade)

$E_{local,spray\_drift}$ = $AREA_{house}$ x V_{form} x F_{form} x RHO_{form} x F_{drift} x 10^{-3}
$E_{local,spray\_drift}$ = 125 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.1 x 10^{-3}
$E_{local,spray\_drift}$ = 1.23E-02 kg/d

$E_{local,runoff}$ = $AREA_{house}$ x V_{form} x F_{form} x RHO_{form} x F_{runoff} x 10^{-3}
$E_{local,runoff}$ = 125 m² x 0.1 L/m² x 0.0099 x 990 kg/m³ x 0.2 x 10^{-3}
$E_{local,runoff}$ = 2.45E-02 kg/d

Use #5, use #11
terrace (watering)

$E_{local,spray\_drift}$ = $AREA_{terrace}$ x V_{form} x F_{form} x RHO_{form} x F_{drift} x 10^{-3}
$E_{local,spray\_drift}$ = 30 m² x 0.2 L/m² x 0.0149 x 990 kg/m³ x 0.1 x 10^{-3}
$E_{local,spray\_drift}$ = 8.85E-03 kg/d

$E_{local,runoff}$ = $AREA_{terrace}$ x V_{form} x F_{form} x RHO_{form} x F_{runoff} x 10^{-3}
$E_{local,runoff}$ = 30 m² x 0.2 L/m² x 0.0149 x 990 kg/m³ x 0.2 x 10^{-3}
$E_{local,runoff}$ = 1.77E-02 kg/d

Release during service life

According to the ESD for PT10 (OECD 2013) after application, emissions to soil from the treated structure may occur due to frequent wetting by rainfall and subsequent leaching from the treated substrate.

Use #4, use #10
house scenario (facade)

$E_{soil(a)leach,\ TIME1} = Q_{leach,facade,\ TIME1}/TIME1$ = 3.69E-01 kg/surface x 0.5/30 = **6.15E-03 kg/d**
$E_{soil(a)leach,TIME2} = Q_{leach,facade,\ TIME2}/TIME2$ = 3.69E-01 kg/surface x 0.5/152 = **1.21E-03 kg/d**

Use #3, use #9
thatch roof

$Q_{leach,\ roof} = AREA_{roof} \times V_{form} \times F_{form} \times RHO_{form} \times 10^{-3}$
$Q_{leach,\ roof}$ = 145 m² x 0.5 L/m² x 0.00398 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ roof}$ = 2.86E-01 kg/roof

$E_{soil(a)leach,\ TIME1} = Q_{leach,roof}/TIME1$ = 2.86E-01 kg/surface x 0.5/30 = **4.76E-03 kg/d**
$E_{soil(a)leach,TIME2} = Q_{leach,roof}/TIME2$ = 2.86E-01 kg/surface x 0.5/152 = **9.40E-04 kg/d**

Use #1, use #7
house scenario (facade)

$E_{soil(a)leach,\ TIME1} = Q_{leach,facade}/TIME1$ = 1.23E-01 kg/surface x 0.5/30 = **2.05E-03 kg/d**
$E_{soil(a)leach,TIME2} = Q_{leach,facade}/TIME2$ = 1.23E-01 kg/surface x 0.5/152 = **4.05E-04 kg/d**

Use #5, use #11
terrace (watering)

$Q_{leach,\ terrace} = AREA_{roof} \times V_{form} \times F_{form} \times RHO_{form} \times 10^{-3}$
$Q_{leach,\ terrace}$ = 30 m² x 0.2 L/m² x 0.0149 x 990 kg/m³ x 10^{-3}
$Q_{leach,\ terrace}$ = 8.85E-02 kg/terrace

$E_{soil(a)leach,\ TIME1} = Q_{leach,facade}/TIME1$ = 8.85E-02 kg/surface x 0.5/30 = **1.48E-03 kg/d**
$E_{soil(a)leach,TIME2} = Q_{leach,facade}/TIME2$ = 8.85E-02 kg/surface x 0.5/152 = **2.91E-04 kg/d**

The following table represents the emissions from use #4 and use #10:

Resulting local emission to relevant environmental compartments for the House in the Countryside-scenario Use #4 and use #10: facade				
Scenario	**Parameter**	**Definition**	**Compartment**	**Value [kg/d]**
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** **house - façade** **worst case scenario**	Local emission of a.s. during application due to spray drift	$Elocal_{drift,\ facade}$	Distant soil	3.69E-02
	Local emission of a.s. during application due to runoff	$Elocal_{runoff,\ facade}$	Adjacent soil	7.38E-02
	Local emission of a.s. due to leaching (100% leaching after half a year)*	$E_{soil(a)\ leach,\ facade}$	Adjacent soil	TIME1: 1-30 d: 6.15E-03 TIME2: 30-182 d:* 1.21E-03

* 50% of the application rate leaches in the first 30 days and 50% leaches from day 31 to 182 (service life is 182 days due to 2 applications per year).

Resulting local emission to relevant environmental compartments for the House in the Countryside-scenario Use #3 and use #9: thatch roof				
Scenario	**Parameter**	**Definition**	**Compartment**	**Value [kg/d]**
Use #3 (Meta SPC 1) **Use #9 (Meta SPC 3)** Thatch roof	Local emission of a.s. during application due to spray drift	$Elocal_{drift,\ roof}$	Distant soil	2.86E-02
	Local emission of a.s. during application due to runoff	$Elocal_{runoff,\ roof}$	Adjacent soil	5.71E-02
	Local emission of a.s. due to leaching (100% leaching after half a year)*	$E_{soil(a)\ leach,\ roof}$	Adjacent soil	TIME1: 1-30 d: 4.76E-03 TIME2: 30-182 d:* 9.40E-04

Resulting local emission to relevant environmental compartments for the House in the Countryside-scenario Use #1 and use #7: facade				
Scenario	**Parameter**	**Definition**	**Compartment**	**Value [kg/d]**
Use #1 (Meta SPC 1) **Use #7 (Meta SPC 3)** Façade	Local emission of a.s. during application due to spray drift	$Elocal_{drift, roof}$	Distant soil	1.23E-02
	Local emission of a.s. during application due to runoff	$Elocal_{runoff, roof}$	Adjacent soil	2.45E-02
	Local emission of a.s. due to leaching (100% leaching after half a year)*	$E_{soil(a) leach, roof}$	Adjacent soil	TIME1: 1-30 d: 2.05E-03 TIME2: 30-182 d:* 4.05E-04

The predicted concentrations in the soil compartment adjacent to a treated surface at day 30 (TIME1) and day 182 (TIME2) were subsequently calculated according to the formulas given in the "Definitions and PEC calculations for wood and other preservatives applied outdoors"(ECHA 2018a, ENV 186) where $V_{soil(a)}$ is the volume of the receiving soil compartment (13 m³), RHO_{soil} is the bluk soil density (1700 kg/m³) and k_{soil} is the total rate constant for soil calculated according to the guidance (0.331/d corresponding to a DT50=2.1 d).

Regarding use #5 and use #11 (watering) the terrace scenario was chosen. According to TAB (ECHA 2018a, ENV 154) it was agreed to use a default area for the terrace of 30 m^2 and assume a receiving area of 8.5 m^2 (taking into account three sides of a terrace). The receiving soil volume is therefore 4 m³.

Resulting local emission to relevant environmental compartments for the House in the Countryside-scenario Use #5 and use #11: terrace				
Scenario	**Parameter**	**Definition**	**Compartment**	**Value [kg/d]**
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** terrace	Local emission of a.s. during application due to spray drift	$Elocal_{drift, roof}$	Distant soil	8.85E-03
	Local emission of a.s. during application due to runoff	$Elocal_{runoff, roof}$	Adjacent soil	1.77E-02
	Local emission of a.s. due to leaching (100% leaching after half a year)*	$E_{soil(a) leach, roof}$	Adjacent soil	TIME1: 1-30 d: 1.48E-03 TIME2: 30-182 d:* 2.91E-04

Fate and distribution in exposed environmental compartments

Fate and distribution in exposed environmental compartments						
	Fresh-water	**Freshwater sediment**	**STP**	**Air**	**Soil**	**Ground-water**
House in the_City-scenario	yes	yes	yes	Not relevant	yes	yes
House in the Countryside-scenario	Not relevant	Not relevant	no	Not relevant	yes	yes

Relevant physical-chemical parameter and environmental fate parameter of the a.s. nonanoic acid are taken from the AR (Austria 2013).

Input parameters (only set values) for calculating the fate and distribution in the environment for EUSES calculations			
Input	**Value**	**Unit**	**Remarks**
Molecular weight	158.24	g x mol/L	according to AR (Austria 2013)
Melting point	11.7	°C	
Boiling point	258.4	°C	
Vapour pressure (at 20°C)	0.9	Pa	
Octanol-water partition coefficient	3.52	log10	
Water solubility (at 20°C)	415	mg/L	
Henry law constant (at 20°C)	0.33	Pa x m^3/mol	
DT50 for degradation in soil (at 12ºC)	2.1	d	
DT50 for biodegradation in surface water	15	d	default value ECHA 2017b (Table 5, page 65)

The fate and distribution in the STP was calculated using Simple Treat 4.0 implemented in EUSES 2.2.0:

Calculated fate and distribution in the STP		
Compartment	**Percentage [%]**	**Remarks**
Air	0.098	According to Simple Treat 4.0
Water	7.924	
Sludge	0.035	
Degraded in STP	90.93	
Primary settler	1.01	

Calculated PEC values

City-scenario

Aquatic compartment

In addition to the common emission pathway via STP, two supplementary situations are calculated:

Direct emission to surface water from

- mixed sewer systems (bypass of STP) and
- separate sewer systems

Mixed sewer systems (bypassing the STP)
If the fraction $Fstp_{water}$ is set to 1, the concentration in untreated waste water ($Clocal_{inf}$) is equal to the concentration in the STP effluent ($Clocal_{eff}$) which is the same as if no degradation would take place in the STP. The dilution of the local emission in wastewater is still 2000 m^3 per day which is supposed to be a worst case for the storm water event.

Separate sewer systems
In separate sewer systems rainwater and wastewater are separately collected in different sewers. After leaching from façades and roofs, the active substances will be collected in the rainwater sewer (UBA 2014). The rainwater is (in most cases) not treated and may be directly discharged to surface water bodies, if no rainwater detention reservoir is in between. For calculating $Clocal_{surface\ water}$ due to direct rainwater discharge, the effluent discharge rate is reduced to 600 m^3 per day (60 litres per capita per day for a population of 10,000 inhabitants).
The risk assessment regarding separate sewer systems covers the risk assessment for mixed sewer systems (bypass of STP), due to the fact that the effluent discharge rate of rainwater sewer is decreased from the default value of 2.00E+06 L/d to 6.00E+05 L/d and therefore, the dilution in the sewer system is less.

Resulting local concentrations of nonanoic acid in STP and surface water for City-scenario – resulting from application and leaching			
	City-scenario	**PEC_{STP} [mg/L]**	**$PEC_{surface\ water}$ [mg/L]**
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Horizontal and vertical surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	Use STP	1.72E-01	1.72E-02
	Bypassing STP (stormwater)	-	2.17E-01
	Direct discharge (separate system)	-	7.25E-01
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)**	Use STP	1.61E-01	1.61E-02

Resulting local concentrations of nonanoic acid in STP and surface water for City-scenario – resulting from application and leaching			
	City-scenario	**PEC_{STP} [mg/L]**	**$PEC_{surface\ water}$ [mg/L]**
Roof only (roof tiles) Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles**	Bypassing STP (stormwater)	-	2.03E-01
	Direct discharge (separate system)	-	6.77E-01
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.		
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	via STP	6.01E-01	6.01E-02
	Bypassing STP (stormwater)	-	7.58E-01
	Direct discharge (separate system)	-	2.53
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	via STP	1.83E-01	1.83E-02
	Bypassing STP (stormwater)	-	2.31E-01
	Direct discharge (separate system)	-	7.72E-01
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m^2	via STP	1.00E-01	1.00E-02
	Bypassing STP (stormwater)	-	1.26E-01
	Direct discharge (separate system)	-	4.22E-01

PEC in sediment

The PEC in sediment is not considered due to the calculation of $PNEC_{sediment}$ using the equilibrium partitioning method. Therefore, the risk characterisation ratio is the same like for surface water (ECHA 2017b, page 139 ff: 3.5.2 Strategy for effects assessment for sediment organisms).

Terrestrial compartment and groundwater

The local concentrations in soil and groundwater result from sludge application. The predicted environmental concentration in soil are calculated according to BPR Vol. IV (ECHA 2017b). The soil pore water concentration (equivalent to groundwater concentration) is assessed using default values stated in BPR Vol. IV (ECHA 2017b) for the PEC calculation in soil pore water and is based on time weighted concentration in soil for 30 days after the sludge application.

Please note, Simple Treat 4.0 sums up the fraction of emission via primary settler (1.01%) and the fraction of emission via surplus sludge (0.035%) for calculating the emission in sludge provided for sludge application on soil.

Resulting local concentrations of nonanoic acid in soil and ground water for the City-scenario resulting from application and leaching discharged to sewer Local PEC in agric. soil (total) averaged over 30 days		
City-scenario	**PEC_{soil} [mg/kg $_{wwt}$]**	**$PEC_{groundwater}$ [µg/L]**
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Horizontal and vertical surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	8.12E-03	1.10
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)** **Roof only (roof tiles)** Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles**	7.58E-03	1.03
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.	

Resulting local concentrations of nonanoic acid in soil and ground water for the City-scenario resulting from application and leaching discharged to sewer Local PEC in agric. soil (total) averaged over 30 days		
City-scenario	**PEC_{soil} [mg/kg wwt]**	**$PEC_{groundwater}$ [µg/L]**
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	2.80E-02	3.83
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	8.64E-03	1.17
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m²	4.72E-03	6.40E-01

Local PECs in groundwater under agricultural soil exceeds the 0.1 µg/L threshold of the EU Drinking Water Directive (Council Directive 98/83/EC). Therefore, additional refined groundwater simulations are calculated using FOCUS PEARL 4.4.4. considering use #4 and use #10. The concentration in dry sewage sludge is 194.5 mg/kg.
Regarding groundwater simulations under agricultural soil, "maize" is recommended as standard crop by the „Proposal for standard scenarios and parameter setting of the FOCUS groundwater scenarios when used in biocide exposure assessment" (Klein M. 2011). It is noted that „maize" was considered by FOCUS PEARL only for eight of the nine groundwater scenarios since the Scandinavian scenario „Jokioinen/maize" is missing. An application type of incorporation into a depth of 20 cm on arable land and an application time of 20 days before emergence are considered.
Regarding grassland, an application of an annual sludge dose as a single event at the beginning of the vegetation period on 1st of March (first application 1906) over a 20-year period (according to FOCUS) was chosen. For the application of sewage sludge on grassland the default crop is grass/alfalfa. An application type of incorporation into a depth of 10 cm on grassland is considered. The concentration of nonanoic acid in dry sewage sludge is 194.5 mg/kg. The application rates are calculated according the following formula:

$Appl_{rate} = Appl_{sludge} \times C_{sludge} \times 10^{-6}$ [kg/ha]

$Appl_{rate\_arable} = 5000$ kg/ha x 194.5 mg/kg x 10^{-6} = 0.9725 kg/ha

$Appl_{rate\_grassland}$ = 1000 kg/ha x 194.5 mg/kg x 10^{-6} = 0.1945 kg/ha

The following table lists the input parameters regarding the FOCUS PEARL groundwater simulations:

Input parameter for FOCUS Pearl 4.4.4		
Parameter	**Unit**	**Value**
Molar mass	g/mol	158.2
Saturated vapour pressure	Pa (at 25°C)	1.27
Solubility in water	mg/L (at 25°C)	445
Koc	L/kg	63.1
Kom = Koc / 1.724	L/kg	36.6
$DT50_{soil}$	d (at 12°C)	2.1
Henry Law Constant	$Pa.m^3/mol$ - measured at 25°C	0.435
Freundlich sorption exponent	-	1
Coefficient for uptake by plant	-	0

Results of the groundwater simulation scenarios using FOCUS PEARL 4.4.4 regarding sludge application on arable land:

Summary table on calculated PEC_{GW} values using FOCUS PEARL for the House in the City-scenario, <u>arable land</u> - crop type: maize	
FOCUS scenario	**PEC_{GW} [µg/L]**
Chateaudun	$< 10^{-4}$
Hamburg	$< 10^{-4}$
Jokioinen	---
Kremsmünster	$< 10^{-4}$
Okehampton	$< 10^{-4}$
Piacenza	$< 10^{-4}$
Porto	$< 10^{-4}$
Sevilla	$< 10^{-4}$
Thiva	$< 10^{-4}$

Results of the groundwater simulation scenarios using FOCUS PEARL 4.4.4 regarding sludge application on grassland:

Summary table on calculated PEC_{GW} values using FOCUS PEARL for the City-scenario, grassland - crop type: alfalfa	
FOCUS scenario	**PEC_{GW} [µg/L]**
Chateaudun	< 10^{-4}
Hamburg	< 10^{-4}
Jokioinen	< 10^{-4}
Kremsmünster	< 10^{-4}
Okehampton	< 10^{-4}
Piacenza	< 10^{-4}
Porto	< 10^{-4}
Sevilla	< 10^{-4}
Thiva	< 10^{-4}

House in the Countryside-scenario

The countryside scenario stipulates the direct emissions to the soil compartment only. During application on the one hand the soil compartment adjacent to the treated surface is affected due to runoff, and on the other hand the soil compartment in distance to the treated surface is affected due to spray drift. During service life leaching occurs and therefore the soil compartment adjacent to the treated surface is affected only.

Terrestrial compartment and groundwater

The PECs for the soil compartment at day 30 and 182 were subsequently calculated as follows:

initial assessment period (0 ≥ t ≤ TIME1):

$$PEC_{soil,time1}(t) = \frac{E_{soil,leach,time1}}{V_{soil} \cdot RHO_{soil} \cdot k_{soil}} - \left[\frac{E_{soil,leach,time1}}{V_{soil} \cdot RHO_{soil} \cdot k_{soil}} - Clocal_{soil,appl} \right] \cdot e^{-t \cdot k_{soil}}$$

second assessment period (TIME1 ≥ t ≤ TIME2):

$$PEC_{soil,time2}(t) = \frac{E_{soil,leach,time2}}{V_{soil} \cdot RHO_{soil} \cdot k_{soil}} - \left[\frac{E_{soil,leach,time2}}{V_{soil} \cdot RHO_{soil} \cdot k_{soil}} - PEC_{soil,time1} \right] \cdot e^{-(t-TIME1) \cdot k_{soil}}$$

where:

- $Clocal_{soil,\ applic}$ Concentration in soil during application (mg/kg wwt)
- V_{soil} Volume of the receiving soil compartment (13 m³);
- RHO_{soil} Bluk soil density (1700 kg/m³);
- ksoil Total rate constant for disappearance for soil

The equations (ECHA 2018a, ENV 186) calculate the concentration in soil as a function of time. As represented they calculate $Clocal_{soil}$ at the end of the assessment period, time1, and time2 respectively.

Please note, the calculations regarding direct emissions to soil (countryside) are presented in an embedded Excelsheet in chapter 3.2.2. Countryside – direct emission to soil calculations.

The following table represents the PEC in soil due to direct emission from façade (use #4 and use #10):

Resulting local concentrations of nonanoic acid in adjacent and distant soil for the House in the Countryside-scenario from application and leaching during service life over the initial and longer assessment period assuming removal in soil **Use #4 and use #10: facade**			
Parameter	**Compartment**	**Period**	**PEC_{soil} [mg/kg_{wwt}]**
direct release to soil (countryside) **vertical surfaces** (house - façade) – worst case scenario			
Local concentration of a.s resulting from one application and daily leaching	Adjacent soil	during application	3.34
		after 30 days	8.41E-01
		after 182 days (end of service life)	1.65E-01
Local concentration of a.s resulting from 2 applications per year and leaching over 10 years	Adjacent soil	during application	3.34
		30 days after last application after 10 year	8.05E-06
		182 days after last application after 10 years	1.14E-27
Local concentration of a.s resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	1.52E-01
		after 30 days	1.53E-02
		after 182 days	2.52E-03

The following table represents the PEC in soil due to direct emission from thatch roof (use #3 and use #9):

Resulting local concentrations of nonanoic acid in adjacent and distant soil for the House in the Countryside-scenario from application and leaching during service life over the initial and longer assessment period assuming removal in soil **Use #3 and use #9: thatch roof**			
Parameter	**Compartment**	**Period**	**PEC_{soil} [mg/kg_{wwt}]**
direct release to soil (countryside)			
Local concentration of a.s resulting from one application and daily leaching	Adjacent soil	during application	2.58
		after 30 days	6.51E-01
		after 182 days (end of service life)	1.29E-01
Local concentration of a.s resulting from 2 applications per year and leaching over 10 years	Adjacent soil	during application	5.71E-02
		30 days after last application after 10 year	6.26E-06
		182 days after last application after 10 years	8.83E-28
Local concentration of a.s resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	5.80E-01
		after 30 days	5.84E-02
		after 182 days	9.63E-03

The following table represents the PEC in soil due to direct emission from façade (use #1 and use #7):

Resulting local concentrations of nonanoic acid in adjacent and distant soil for the House in the Countryside-scenario from application and leaching during service life over the initial and longer assessment period assuming removal in soil **Use #1 and use #7: facade**			
Parameter	**Compartment**	**Period**	**PEC_{soil} [mg/kg_{wwt}]**
direct release to soil (countryside)			
Local concentration of a.s resulting from one application and daily leaching	Adjacent soil	during application	1.11
		after 30 days	2.80E-01
		after 182 days (end of service life)	5.54E-02
Local concentration of a.s resulting from 2 applications per year and leaching over 10 years	Adjacent soil	during application	1.11
		30 days after last application after 10 year	4.50E-06
		182 days after last application after 10 years	6.35E-28
Local concentration of a.s resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	5.07E-02
		after 30 days	5.10E-03
		after 182 days	8.41E-04

The following table represents the PEC in soil due to direct emission from terrace (watering: use #5 and use #11):

Resulting local concentrations of nonanoic acid in adjacent and distant soil for the House in the Countryside-scenario from application and leaching during service life over the initial and longer assessment period assuming removal in soil **Use #5 and use #11: terrace**			
Parameter	**Compartment**	**Period**	**PEC_{soil} [mg/kg_{wwt}]**
direct release to soil (countryside)			
Local concentration of a.s resulting from one application and daily leaching	Adjacent soil	during application	2.60
		after 30 days	2.02E-01
		after 182 days (end of service life)	3.98E-02
Local concentration of a.s resulting from 2 applications per year and leaching over 10 years	Adjacent soil	during application	2.60
		30 days after last application after 10 year	6.26EE-06
		182 days after last application after 10 years	8.83E-28
Local concentration of a.s resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	1.80E-01
		after 30 days	1.81E-02
		after 182 days	2.98E-03

Please note, the total wash off in one day of the amount of application dose taking into account a DT50soil of 2.1 days was calculated for all uses. Considering total wash off in one day showed at which day no unacceptable risk in the soil compartment is reached (at day 13 to 16). The calculation sheet is embedded in chapter 3.2.1.

The predicted environmental concentration in groundwater are calculated according to ESD for PT10 (EU 2002, page 57) and BPR Vol. IV (ECHA 2017b).

Resulting local concentrations of nonanoic acid in soil pore water for the House in the Countryside-scenario due to release during application and service life Use #3 and use #9: thatch roof			
Parameter	**Compartment**	**Period**	**$PEC_{groundwater}$ [µg/L]**
Local concentration of a.s resulting from one application	Adjacent soil	during application	2100
		after 30 days	530
		after 182 days	105
Local concentration of a.s resulting from 2 applications per year over 10 years	Adjacent soil	during application	46
		30 days after last application	5.09E-09
		182 days after last application	7.18E-31
Local concentration of a.s resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	472
		after 30 days	47
		after 182 days	8

Due to exceedance of the 0.1 µg/L threshold of the EU Drinking Water Directive (Council Directive 98/83/EC) concerning all calculated scenarios, in addition, potential concentration in groundwater was estimated for nonanoic acid using FOCUS PEARL (version 4.4.4.). These additional groundwater scenarios are performed according to the ESD for PT8 (OECD 2013) assuming a density of 16 treated houses per ha and a leachable area of 125 m² per house (façade) as well as a fraction for weather side of 1 (worst case) resulting in a total leachable area of 2000 m² per ha. Considering a product application rate of 100 mL/m² and an a.s. concentration of 29.8 g/L, a total amount of 5.96 kg nonanoic acid is leaching after half a year per ha. Assuming 2 applications per year, an amount of 11.92 kg nonanoic acid is leaching per year (100% leaching during service life of half a year; worst case). The application scheme described in the ESD for PT8 (OECD 2013) is applied, i.e.; ten events evenly distributed over the year (10/01, 15/02, 24/03, 29/04, 05/06, 11/07, 17/08, 22/09, 29/10, 04/12) resulting in a dosage of 1.287 kg/ha per event. The assessed crop type is alfalfa/grass and the application mode is surface application.

The results of the FOCUS PEARL groundwater simulations are listed in the table below:

Summary table on calculated PEC_{GW} values using FOCUS Pearl for the House in the Countryside-scenario crop type: alfalfa/gras	
FOCUS scenario	**PEC_{GW} [µg/L]**
Chateaudun	< 10^{-4}
Hamburg	< 10^{-4}
Jokioinen	< 10^{-4}
Kremsmünster	< 10^{-4}
Okehampton	< 10^{-4}
Piacenza	< 10^{-4}
Porto	< 10^{-4}
Sevilla	< 10^{-4}
Thiva	< 10^{-4}

Summary tables

Summary tables on calculated PEC values for the City-scenario and the House in the Countryside-scenario are listed below:

Summary table on calculated PEC values for the City-scenario					
-scenario	**pathway**	**PEC_{STP}**	**$PEC_{surface\ water}$**	**PEC_{soil}**	**PEC_{GW}**
		[mg/L]	[mg/L]	[mg/kg_{wwt}]	[µg/L]
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Horizontal and vertical surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	via STP	1.72E-01	1.72E-02	8.12E-03	1.10
	Bypass STP (stormwater)	Not relevant	2.17E-01	Not relevant	Not relevant
	Direct discharge (separate system)	Not relevant	7.25E-01	Not relevant	Not relevant
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)** **Roof only (roof tiles)**	via STP	1.61E-01	1.61E-02	7.58E-03	1.03
	Bypass STP	Not	2.03E-01	Not	Not

Summary table on calculated PEC values for the City-scenario					
Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles**	(stormwater)	relevant		relevant	relevant
	Direct discharge (separate system)	Not relevant	6.77E-01	Not relevant	Not relevant
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.				
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces** (façade, terrace, pathway)	via STP	6.01E-01	6.01E-02	2.80E-02	3.83
	Bypass STP (stormwater)	Not relevant	7.58E-01	Not relevant	Not relevant
	Direct discharge (separate system)	Not relevant	2.53	Not relevant	Not relevant
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	via STP	1.83E-01	1.83E-02	8.64E-03	1.17
	Bypass STP (stormwater)	Not relevant	2.31E-01	Not relevant	Not relevant
	Direct discharge (separate system)	Not relevant	7.72E-01	Not relevant	Not relevant

Summary table on calculated PEC values for the City-scenario					
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m²	via STP	1.00E-01	1.00E-02	4.72E-03	6.40E-01
	Bypass STP (stormwater)	Not relevant	1.26E-01	Not relevant	Not relevant
	Direct discharge (separate system)	Not relevant	4.22E-01	Not relevant	Not relevant

The summary table below for the **House in the Countryside-scenario.**

The groundwater (porewater) concentrations were calculated using the following formula:

$Clocal_{porewater} = (Clocal_{soil} \times RHOsoil) / k_{soil\text{-}water}$

Where
- RHOsoil = 1700 kg/kgwwt
- Ksoil-water = 2.09

Summary table on calculated PEC values for the House in the Countryside-scenario: Use #4 and use #10 – worst case scenarios				
Parameter	**Compartment**	**Period**	**PEC_{soil}**	**PEC_{GW}**
			[mg/kg_{wwt}]	[mg/L]
Local concentration of a.s resulting from one application	Adjacent soil	during application	3.34	2716
		after 30 days	8.41E-01	684
		after 182 days	1.65E-01	134
Local concentration of a.s resulting from 2 applications per year over 10 years	Adjacent soil	during application	3.34	2716
		30 days after last application	8.05E-12	6.55E-09
		182 days after last application	1.14E-33	9.27E-31
Local concentration of a.s. resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	1.52E-01	123
		after 30 days	1.53E-02	12
		after 182 days	2.52E-03	2

The calculations in the following table represents the PEC in soil for use #3 and use #9 (thatch roof):

Summary table on calculated PEC values for the House in the Countryside-scenario: Use #3 and use #9: thatch roof				
Parameter	**Compartment**	**Period**	**PEC_{soil}**	**PEC_{GW}**
			[mg/kg_{wwt}]	[mg/L]
Local concentration of a.s resulting from one application	Adjacent soil	during application	2.58	2100
		after 30 days	6.51E-01	530
		after 182 days	1.29E-01	105
Local concentration of a.s resulting from 2 applications per year over 10 years	Adjacent soil	during application	5.71E-02	46
		30 days after last application	6.26E-12	5.09E-09
		182 days after last application	8.83E-34	7.18E-31
Local concentration of a.s. resulting from one application	Distant soil according to ESD for PT10 (EU 2002)	during application	5.80E-01	472
		after 30 days	5.84E-02	47
		after 182 days	9.63E-03	8

Primary and secondary poisoning

Primary poisoning

Considering the proposed uses of the nonanoic acid product family a primary poisoning of birds or mammals is not anticipated.

Secondary poisoning

The calculated octanol-water partition coefficient for nonanoic acid of log Kow=3.52 indicates a theoretical potential for bioconcentration and bioaccumulation according to the guidance on the BPR (ECHA 2017b) on risk assessment.

However, according to the CLH Report on Nonanoic acid (Austria 2011) it should be considered that:

- Nonanoic acid is rapidly biodegradable
- Nonanoic acid is a fatty acid. Fatty acids are ubiquitous available in the environment and important naturally occurring biological molecules, found in all living organisms. They may be regarded as having fundamental roles (i.e. they are the building blocks of structurally important molecules in cellular membranes and also serve as sources of energy for biological systems). Thus in predators no negative effects would be expected in concentrations higher than the concentrations tested and used for risk assessment accordingly.
- Nonanoic acid is metabolized via ß-oxidation. This is quantitatively the most significant pathway for catabolism of fatty acids and results in the final products CO_2 and acetyl-CoA which as such are further metabolized to CO_2 and water.

The calculated BCF fish for Nonanoic acid is 195.88 L/kg and the BCF in earthworms is 40.57 L/kg. In addition to the facts and arguments given above, together with the knowledge on metabolism and biological properties of fatty acids, sufficient evidence is given of the non-bioaccumulating properties of nonanoic acid.

2.2.8.3 Risk characterisation

Atmosphere

The PEC of nonanoic acid in air from its outdoor uses as algaecide for various surfaces is considered negligible because the active substance exhibits only a medium volatility to air at ambient temperatures (vapour pressure of nonanoic acid is 0.9 Pa at 20°C and Henry's Law constant is 0.33 Pa x m^3/mol at 20°C). Besides that, the photochemical oxidative degradation half-life of nonanoic acid in air has been estimated to be 39.44 hours, indicating that, if present in air, nonanoic acid is not expected to persist. Furthermore, no ecotoxicity data are available based on atmospheric exposure and there is no agreed method available to derive a PECair. Therefore, a PEC/PNECair cannot be calculated.

City-scenario

Sewage treatment plant (STP)

Summary table on calculated PEC/PNEC$_{STP}$ values **PNEC$_{micro-organisms}$ = 5.652 mg a.s./L**		
City-scenario	**PEC$_{STP}$ [mg/L]**	**PEC/PNEC$_{STP}$**
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces – spraying**	1.72E-01	3.04E-02
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)** **Roof only (roof tiles)** Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles - spraying**	1.61E-01	2.85E-02
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof - spraying**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.	

Summary table on calculated PEC/PNEC$_{STP}$ values **PNEC$_{micro-organisms}$ = 5.652 mg a.s./L**		
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace, pathway)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces – spraying**	6.01E-01	1.06E-01
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	1.83E-01	3.24E-02
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m²	1.00E-01	1.77E-02

Conclusion:

The calculated PEC/PNEC ratios for the City-scenario for emissions into a STP are all <1. The use of the products of the Nonanoic Acid Algaecides product family poses no unacceptable risk to microorganisms in sewage treatment plants.

Aquatic compartment – surface water

The effluent of the STP is released into surface water and is diluted by a factor of 10. When rain water is collected separately without being mixed with other waste water (separate sewer systems), the rainwater may be discharged directly to surface water bodies if no rainwater detention reservoir is in between. Therefore, if the active substance is intended to be used outdoors it may be leached from treated surfaces by the rainwater and will be collected in the rainwater sewer. Direct discharge also occurs during storm water events when waste water bypasses the STP.

Summary table on calculated PEC/PNEC$_{surface\ water}$ values **PNEC$_{water}$ = 0.0568 mg a.s./L**			
City-scenario	**PEC$_{surface\ water}$ [mg/L]**		**PEC/PNEC$_{surface\ water}$**
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces – spraying**)	Via STP	1.72E-02	3.03E-01
	Bypassing STP (stormwater)	2.17E-01	**3.82**
	Direct discharge (separate system)	7.25E-01	**12.76**
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)** **Roof only (roof tiles)** Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles - spraying**	Via STP	1.61E-02	2.83E-01
	Bypassing STP (stormwater)	2.03E-01	**3.56**
	Direct discharge (separate system)	6.77E-01	**11.92**
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof - spraying**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.		
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace, pathway)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces – spraying**	Via STP	6.01E-02	**1.06** **(7.41E-01)***
	Bypassing STP (stormwater)	7.58E-01	**13.35**

Summary table on calculated PEC/PNEC$_{surface\ water}$ values **PNEC$_{water}$ = 0.0568 mg a.s./L**			
	Direct discharge (separate system)	2.53	**44.54**
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	Via STP	1.83E-02	3.22E-01
	Bypassing STP (stormwater)	2.31E-01	**4.07**
	Direct discharge (separate system)	7.72E-01	**13.59**
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30 m²	Via STP	1.00E-02	1.76E-01
	Bypassing STP (stormwater)	1.26E-01	**2.22**
	Direct discharge (separate system)	4.22E-01	**7.43**

* Taking the loss of 30% during application into account (due to spray drift and runoff losses) and appling therefore a Qleach factor of 0.7 for refinement for service life calculations, a risk of 7.41E-01 remains.

Conclusion:

Regarding the emissions to surface water **via STP**, a risk ratio slightly above of 1 was calculated for use #4 and use #10, indicating unacceptable risk. For all other assessed uses risk ratios are <1, indicating acceptable risk for surface water inhabiting organisms.

The calculated risk ratios for **direct rainwater discharge, due to bypassing STP** (storm water scenario) and **due to a separate rainwater sewer system** are all >1, indicating unacceptable risk for water living organisms.

The calculated risk ratio regarding indirect emission to surface water via STP for use #4 and #10 results in 1.06. Taking into account a Qleach factor of 0.7 (due to losses of 30% of the entire application rate during application) the risk ratio is reduced to 7.41E-01. and therefore, an acceptable risk is indicated.

According to the AR on Nonanoic acid (Austria 2013), after 6 hours nonanoic acid will be bound to algae. It's mode of action is a physical effect on plant cell walls which affects cell wall integrity. Due to its lipophilic characteristics the active substance quickly penetrates into the plant tissue by disrupting normal cell membrane permeability. Because of this mechanism, it is expected that after 6 hours only a minor amount of the active substance

is still disposable. Due to these facts the calculated risk ratios are seen as overestimations (for further information please see chapter "Efficacy Calculations" page 93 ff).

It should be further noted that the stormwater and the separate sewer system scenarios were endorsed at WG-III-2014 after approval of the active substance and only one year before the biocidal product application. Therefore, it is not fully in force and cannot be used to remove certain uses from the proposed label.

However, emissions to surface water should be prevented as much as possible. Therefore, the following risk mitigation measures, which will reduces emissions during application and service life to acceptable values, are proposed:

- The area adjacent to the treated surface shall be protected by an impermeable cover (assumed width of 0.5 m) during application of the product.
- N-131: Do not apply the product in case rain is expected within 24 hrs.

  Do not rinse treated surfaces with water after application

Aquatic compartment – sediment

The risk characterisation for the sediment is not considered. Due to the calculation of $PNEC_{sediment}$ using the equilibrium partitioning method, the risk characterisation ratios are the same as for surface water.

Terrestrial compartment

Summary table on calculated PEC/PNEC$_{soil}$ values via sewage sludge application **PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$**		
City-scenario	**PEC$_{soil}$ [mg/kg $_{wwt}$]**	**PEC/PNEC$_{soil}$**
Use #1 (Meta SPC 1) **use #7 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace)** Application (runoff and spraydrift), leaching from recently and not recently treated **horizontal and vertical surfaces - spraying**	8.12E-03	8.20E-02
Use #2 (Meta SPC 1) **use #8 (Meta SPC 3)** **Roof only (roof tiles)** Application (runoff and spraydrift), leaching from recently and not recently treated **roof tiles - spraying**	7.58E-03	7.66E-02
Use #3 (Meta SPC 1) **use #9 (Meta SPC 3)** **Roof only (thatch roof)** Application (runoff and spraydrift), leaching from recently and not recently treated **thatch roof - spraying**	The thatch roof scenario is not contemplated regarding the House in the City-scenario since a thatch roof is more likely to be found in the countryside.	
Use #4 (Meta SPC 1) **Use #10 (Meta SPC 3)** **Vertical and horizontal surfaces (façade, terrace, pathway)** Application (runoff and spraydrift) and leaching from recently and not recently treated **horizontal and vertical surfaces – spraying**	2.80E-02	2.83E-01
Use #5 (Meta SPC 1) **Use #11 (Meta SPC 3)** Application (runoff and spraydrift) and leaching from recently and not recently treated – **horizontal surfaces – watering** (terrace, pathway)	8.64E-03	8.73E-02

Summary table on calculated PEC/PNEC$_{soil}$ values via sewage sludge application **PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$**		
Use #6 (RTU - Meta SPC 2) **RTU product:** treated surface limited to 30m²	2.75E-03	2.78E-02

Conclusion:
Regarding the City-scenario, assuming sewage sludge application onto soil, all PEC/PNEC ratios are <1, indicating acceptable risk for soil inhabiting organisms for all uses.

Groundwater

Predicted environmental concentrations in pore water exceed the trigger value of >0.1 µg/L, according to Council Directive 98/83/EC (1993) relating to the quality of water intended for human consumption. However, the additionally calculated groundwater scenarios using FOCUS PEARL 4.4.4 demonstrate groundwater values <0.0001 µg/L for all nine FOCUS scenarios (Chateaudun, Hamburg, Jokioinen, Kremsmünster, Okehampton, Piacenza, Porto, Sevilla, Thiva) and therefore an acceptable risk to the groundwater compartment.

House in the Countryside-scenario

Terrestrial compartment

During application in the House in the Countryside-scenario, direct emissions from treated surfaces (house) reach unpaved soil.

The calculations in the following table represents the PEC in soil for use #4 and use #10, which were determinated to be the worst case scenrios due to their application rates:

Summary table on calculated PEC/$PNEC_{soil}$ values from direct emissions to soil
House in the Countryside-scenario (use #4 and use #10: façade) – worst case sceanrio
$PNEC_{soil}$ = 0.099 mg a.s./kg_{wwt}

Parameter	Compartment	Period	PEC_{soil} [mg/kg_{wwt}]	PEC/$PNEC_{soil}$
Local concentration due to runoff resulting from one application	Adjacent soil	application	3.34	**33.7**
		after 30 days	8.41E-01	**8.49**
		after 182 days	1.65E-01	**1.67**
Local concentration due to runoff resulting from 2 applications per year over 10 years	Adjacent soil	application	3.34	**33.7**
		30 days after last application	8.05E-12	8.13E-11
		after 182 days after last application	1.14E-33	1.15E-32
Local concentration due to spraydrift resulting from application	Distant soil (according to ESD for PT10, 2002)	application	1.52E-01	**1.54**
		after 30 days	1.53E-02	1.55E-01
		after 182 days	2.52E-03	2.55E-02

Conclusion:

For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application, 30 days and 182 days after application, indicating unacceptable risk for soil organisms.

For **adjacent soil (runoff, 2 applications per year over 10 years)** and for **distant soil (spraydrift)** risk ratios >1 were calculated for application. However, acceptable risk was calculated for both scenarios 30 and 182 days after application.

According to the ESD for PT10 the calculations were based on the assumption that 100% will leach over the service life period, although 30% losses during application are assumed.
According to the AR on Nonanoic acid, after 6 hours nonanoic acid will be bound to algae. It's mode of action is a physical effect on plant cell walls which affects cell wall integrity. Due to its lipophilic characteristics the active substance quickly penetrates into the plant tissue by disrupting normal cell membrane permeability. Because of this mechanism, it is expected that after 6 hours only a minor amount of the active substance is disposable (for further information please see chapter "Efficacy Calculations" page 93 ff).
The $NOEC_{soil}$ for nonanoic acid is based on the most sensitive plant species. Nonanoic acid, which is also used as a herbicide doesn't exhibit systemic herbicidal activity, since it only damages green plant tissues via direct contact. Therefore, plants will normally not be harmed by nonanoic acid through runoff/leaching into soil from treated surfaces. Moreover, nonanoic acid is destroyed by photochemical oxidative degradation with a half-life of 13.15 to 39.44 hours. (AR, Austria 2013)

Based on these information and data, we are of the opinion that the calculated risk ratios in soil are highly overestimated.

However, for products used as algaecide for outdoor remedial treatment of construction materials the following risk mitigation measures shall be established in order to reduce the calculated risk to an acceptable level by preventing spray drift and/or collecting emissions due to run-off:

- The soil adjacent to the treated surface shall be protected by an impermeable cover (assumed width of 0.5 m) during application of the product.
- N-131: Do not apply the product in case rain is expected within 24 hrs.
- Do not rinse treated surfaces with water after application.
- N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.
- Areas covered by plants, which may have been exposed unintentionally shall be watered extensively in order to avoid any damage to plants.
- Spray on dry contaminated surfaces evenly from a distance of about 30 cm until they are completely dampened. Do not apply more fluid than necessary and avoid that droplets runoff from surfaces during application.

Due to the fact, that one risk mitigation measure indicates that the product must not be applied when there is wind, in order to avoid transfer to other areas, spray drift will only deposit within the 50-cm zone adjacent to the treated surface. This assumpation is in accordance with the ESD for PT8 (OECD 2013), stating that "under ideal conditions for spraying (wind stillness or faint wind), spray drift will only deposit within the 50-cm zone adjacent to the treated object (house wall)".

Please note, "windless" is defined as <0.3 m/s. Calculated the drift distance based on this wind speed and the height of the roof (4.25 m), a spray drift distance of 0.5 m is the result for the drift distance (cf. ESD for PT10: S = (UxH)/V = (0.3 x 4.25)/2.46 = 0.5 m).
This width of the plastic sheet (0.5 m) is considered as very specific for this a.s. and its given mode of action and is not stipulated as a rule for other a.s. under wind stillness conditions.
Please note, total wash off in one day due to a storm water event was calculated to show at which day no unacceptable risk in the soil compartment is reached. The Excel-sheet containing these calculations is embedded in chapter 3.2.1.

The following table represents the risk charachterisation of use #3 and use #9 (thatch roof):

Summary table on calculated PEC/PNEC$_{soil}$ values from direct emissions to soil House in the Countryside-scenario (use #3 and use #9: thatch roof) PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$				
Parameter	**Compartment**	**Period**	**PEC$_{soil}$ [mg/kg$_{wwt}$]**	**PEC/PNEC$_{soil}$**
Local concentration due to runoff resulting from one application	Adjacent soil	application	2.58	**26.06**
		after 30 days	6.51E-01	**6.58**
		after 182 days	1.29E-01	**1.30**
Local concentration due to runoff resulting from 2 applications per year over 10 years	Adjacent soil	application	5.71E-02	5.77E-01
		30 days after last application	6.26E-12	6.32E-11
		after 182 days after last application	8.83E-34	8.92E-33
Local concentration due to spraydrift resulting from application	Distant soil (according to ESD for PT10, 2002)	application	5.80E-01	**5.86**
		after 30 days	5.84E-02	5.90E-01
		after 182 days	9.63E-03	9.73E-02

Conclusion:

For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application, 30 days and 182 days after application, indicating unacceptable risk for soil organisms.

For **adjacent soil (runoff, 2 applications per year over 10 years)** risk ratios <1 were calculated, indicating acceptable risk for all scenarios.

For **distant soil (spraydrift)** a risk ratio >1 was calculated for application. However, acceptable risk was calculated for 30 and 182 days after application.

Discussion on the relevance of the calculated risk ratios and proposed risk mitigation measures, please see discussion on use #4 and use #10 above.

The following table represents the risk charachterisation of use #1 and use #7 (facade):

Summary table on calculated PEC/PNEC$_{soil}$ values from direct emissions to soil House in the Countryside-scenario (use #1 and use #7: facade) PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$				
Parameter	**Compartment**	**Period**	**PEC$_{soil}$ [mg/kg$_{wwt}$]**	**PEC/PNEC$_{soil}$**
Local concentration due to runoff resulting from one application	Adjacent soil	application	1.11	**11.21**
		after 30 days	2.80E-01	**2.83**
		after 182 days	5.54E-02	5.60E-01
Local concentration due to runoff resulting from 2 applications per year over 10 years	Adjacent soil	application	1.11	**11.21**
		30 days after last application	4.50E-06	4.55E-05
		after 182 days after last application	6.35E-28	6.41E-27
Local concentration due to spraydrift resulting from application	Distant soil (according to ESD for PT10, 2002)	application	5.07E-02	5.12E-01
		after 30 days	5.10E-03	5.15E-02
		after 182 days	8.41E-04	8.49E-03

Conclusion:

For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application and 30 days after application, indicating unacceptable risk. Risk ratios <1 indicating acceptable risk were calculated 182 days after application.

For **adjacent soil (runoff, 2 applications per year over 10 years)** a risk ratio >1 was calculated for application, indicating unacceptable risk. However, 30 and 182 days after application risk ratios <1 were calculated, indicating acceptable risk.

For **distant soil (spraydrift)** acceptable risk ratios <1 were calculated for application, 30 and 182 days after application.

Discussion on the relevance of the calculated risk ratios and proposed risk mitigation measures, please see discussion on use #4 and use #10 above.

The following table represents the risk charachterisation of use #5 and use #11 (terrace - watering):

Summary table on calculated PEC/PNEC$_{soil}$ values from direct emissions to soil House in the Countryside-scenario (use #5 and use #11: terrace - watering) PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$				
Parameter	**Compartment**	**Period**	**PEC$_{soil}$ [mg/kg$_{wwt}$]**	**PEC/PNEC$_{soil}$**
Local concentration due to runoff resulting from one application	Adjacent soil	application	2.60	**26.3**
		after 30 days	2.02E-01	**2.04**
		after 182 days	3.98E-02	4.02E-01
Local concentration due to runoff resulting from 2 applications per year over 10 years	Adjacent soil	application	2.60	**26.3**
		30 days after last application	6.26EE-06	6.32E-05
		after 182 days after last application	8.83E-28	8.92E-27
Local concentration due to spraydrift resulting from application	Distant soil (according to ESD for PT10, 2002)	application	1.80E-01	**1.82**
		after 30 days	1.81E-02	1.83E-01
		after 182 days	2.98E-03	3.01E-02

Conclusion:
For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application and 30 days after application, indicating unacceptable risk. Acceptable risk ratios <1 were calculated 182 days after application.

For **adjacent soil (runoff, 2 applications per year over 10 years)** and for **distant soil (spraydrift)** risk ratios >1 were calculated for application. However, acceptable risk for both scenarios was calculated 30 and 182 days after application.

Discussion on the relevance of the calculated risk ratios and proposed risk mitigation measures, please see discussion on use #4 and use #10 above.

Direct emission to soil in one day of the total applied amount considering degradation process:

Total wash off in one day due to storm water event of the totaly applied dose taking into account a DT50soil of 2.1 days was calculated for all relevant uses. This was done to find out after how many days acceptable risk in soil compartment is reached for this extreme

worst case, which is by far covering all uses. (Calculation sheet is embedded in chapter 3.2.1).

Summary table on calculated PEC/PNEC$_{soil}$ values from direct emissions to soil **House in the Countryside-scenario (worst case) total wash-off in one day and considering biodegradation (use #4 and use #10, use #3 and use #9, use #1 and use #7 and use #5 and use #11)** **PNEC$_{soil}$ = 0.099 mg a.s./kg$_{wwt}$**		
Scenario	**PEC/PNEC**	
	0 day	**< 1**
Use #4 and use #10	**169**	8.45E-01 **(16 days)**
Use #3 and use #9	**130**	6.53E-01 **(15 days)**
Use #1 and use #7	**56.3**	7.61E-01 **(13 days)**
Use #5 and use #11	**94.3**	9.16E-01 **(15 days)**

Conclusion:
PEC/PNEC ratios are acceptable stating on day 13 -16 after application.
Based on the PEC/PNEC calculations in combination with the proposed risk mitigation measures (see above) the risk for soil organisms through direct exposure to nonanoic acid is considered to be acceptable.

Groundwater

Predicted environmental concentrations in pore water exceed the trigger value of 0.1 µg/L, according to Council Directive 98/83/EC1 (1993) relating to the quality of water intended for human consumption, for adjacent soil from one application (application and still after 30 days), for adjacent soil resulting from 2 applications per year over 10 years (application) and for distant soil (application, after 30 days and after 182 days). Representing all scenarios, supplementary groundwater simulation was calculated for the worst-case-scenario (house scenario: façade, use #4 and use #10) using FOCUS PEARL 4.4.4. The additionaly calculated groundwater simulation demonstrates groundwater

values of <0.0001 µg/L for all nine FOCUS scenarios (Chateaudun, Hamburg, Jokioinen, Kremsmünster, Okehampton, Piacenza, Porto, Sevilla, Thiva) and therefore, an acceptable risk to the groundwater compartment.

Primary and secondary poisoning

Primary poisoning

Considering the proposed uses of the nonanoic acid product family a primary poisoning of birds or mammals can be excluded.

Secondary poisoning

Considering all arguments given in the chapter above (log Kow, rapidly biodegradability ect.) the risk for fish eating and worm eating predators is acceptable. The non-compartment specific effects of secondary poisoning are low for the aquatic and terrestrial food chain.

Mixture toxicity

Screening step

Screening Step 1: Identification of the concerned environmental compartments

For the House in the City-scenario there is significant exposure to STP and from there on to surface water and freshwater sediment, as well as to soil and groundwater via sewage sludge application on arable soil.
For the House in the Countryside-scenario there is significant exposure to soil and thereof to groundwater.

Screening Step 2: Identification of relevant substances

In the biocidal product there is only one relevant substance for the environment which is the active substance nonanoic acid.

Screening Step 3: Screen on synergistic interactions

Screening step	
	Significant exposure of environmental compartments? (Y/N) Y
	Number of relevant substances >1? (Y/N) N
	Indication for synergistic effects for the product or its constituents in the literature? (Y/N) N

Conclusion:
The active substance nonanoic acid is the only relevant substance in the product. No substances of concerne for the environment were identified in the product. Therefore a mixture toxicity assessment is not of relevance for the BPF.

Aggregated exposure (combined for relevant emmission sources)

At the time of preparation of this PAR, no EU agreed guidance was available on how to perform a full aggregated exposure assessment. Therefore, no assessment has been made at this stage. This chapter of the PAR has to be reassessed once an agreed guidance has been made available. This could take place at active substance renewal stage or at product authorisation stage, depending on when such guidance becomes available.

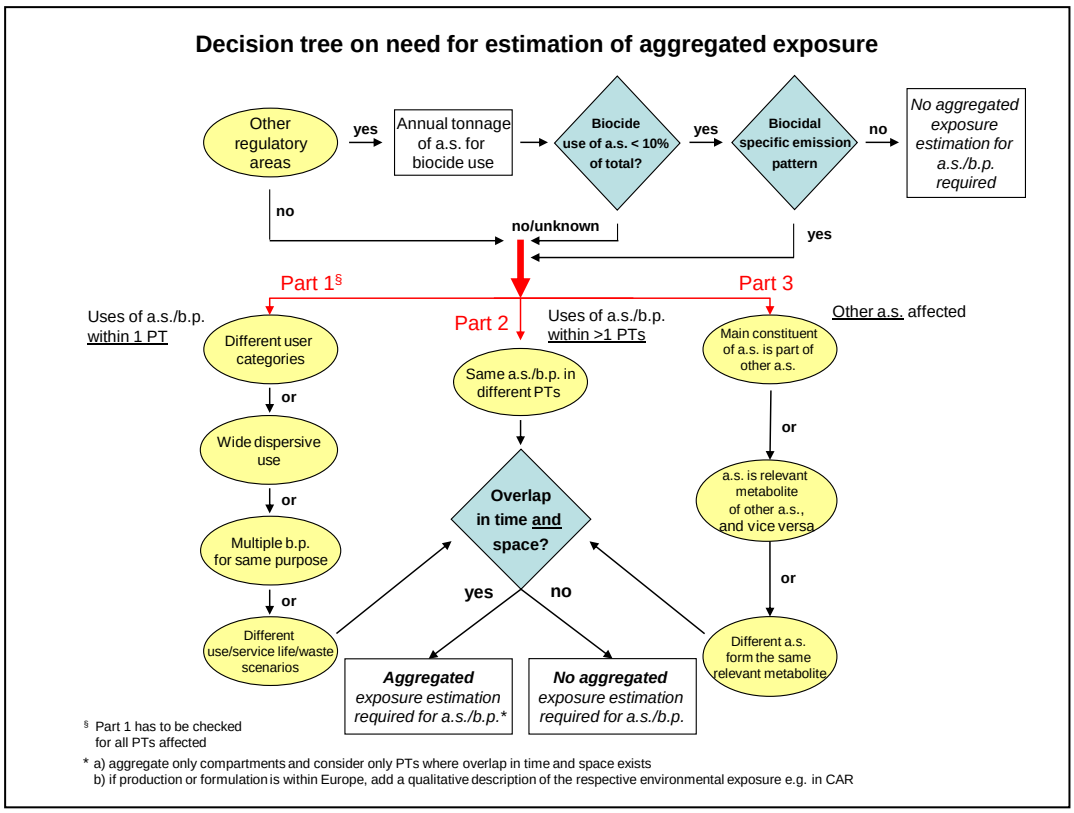


Figure 1: Decision tree on the need for estimation of aggregated exposure

Overall conclusion on the risk assessment for the environment of the product
For the products of the biocidal product family Nonanoic Acid Algaecide a risk assessment was performed for the City-scenario and for the House in the Countryside-scenario. **City-scenario:**

For **STP** and for **soil exposed via sludge application** acceptable risk (risk ratio <1) was calculated for all scenarios.

For indirect emissions to **surface water via STP** risk ratios <1 were calculated, indicating acceptable risk for surface water inhabiting organisms.

However, calculated risk ratios for **direct rainwater discharge to surface water, due to stormwater events bypassing STP** and **due to a separate rainwater sewer system** are all >1, indicating unacceptable risk for water living organisms.

The risk ratios for the **sediment** compartment are the same as for surface water, due to calculation of $PNEC_{sediment}$ using the equilibrium partitioning method.

Therefore, risk mitigation measures are needed to prevent adverse effects to surface water and sediment inhabiting organisms.

The following risk mitigation measures are proposed:

- The area adjacent to the treated surface shall be protected by an impermeable cover (assumed width of 0.5 m) during application of the product.
- N-131: Do not apply the product in case rain is expected within 24 hrs.
- Do not rinse treated surfaces with water after application.

Predicted **groundwater** values were <0.1 µg/L for all calculated scenarios, indicating acceptable risk to groundwater.

House in the Countryside-scenario:

Use #4 and #10, facade:
For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application, 30 and 182 days after application, indicating unacceptable risk for soil organisms.
For **adjacent soil (runoff, 2 applications per year over 10 years)** and for **distant soil (spraydrift)** risk ratios >1 were calculated for application. However, acceptable risk was calculated for both scenarios 30 and 182 days after application.

Use #3 and #9, thatch roof:
For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application, 30 days and 182 days after application, indicating unacceptable risk for soil organisms.
For **adjacent soil (runoff, 2 applications per year over 10 years)** risk ratios <1 were calculated, indicating acceptable risk for all scenarios.
For **distant soil (spraydrift)** a risk ratio >1 was calculated for application. However, acceptable risk was calculated for 30 and 182 days after application.

Use #1 and #7, facade:
For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application and 30 days after application, indicating unacceptable risk. Risk ratios <1, indicating acceptable risk were calculated for 182 days after application.
For **adjacent soil (runoff, 2 applications per year over 10 years)** a risk ratio >1 was calculated for application, indicating unacceptable risk. However, 30 and 182 days after application risk ratios <1 were calculated, indicating acceptable risk.
For **distant soil (spraydrift)** acceptable risk ratios <1 were calculated for application, 30

and 182 days after application.

Use #5 and #11, terrace – watering:
For **adjacent soil (runoff, one application)** PEC/PNEC ratios >1 were calculated for application and 30 days after application, indicating unacceptable risk. Acceptable risk ratios <1 were calculated 182 days after application.
For **adjacent soil (runoff, 2 applications per year over 10 years)** and for **distant soil (spraydrift)** risk ratios >1 were calculated for application. However, acceptable risk for both scenarios was calculated 30 and 182 days after application.

Therefore, risk mitigation measures are proposed to reduce the calculated risk for soil organisms to acceptable levels:

- The soil adjacent to the treated surface shall be protected by an impermeable cover (assumed width of 0.5 m) during application of the product.
- N-131: Do not apply the product in case rain is expected within 24 hrs.
- Do not rinse treated surfaces with water after application.
- N-30, modified: Do not apply the product when there is wind, in order to avoid transfer to other areas by drift.
- Areas covered by plants, which may have been exposed unintentionally shall be watered extensively in order to avoid any damage to plants.
- Spray on dry contaminated surfaces evenly from a distance of about 30 cm until they are completely dampened. Do not apply more fluid than necessary and avoid that droplets runoff from surfaces during application.

Predicted **groundwater** values were <0.1 µg/L for all calculated scenarios, indicating acceptable risk to groundwater.

Primary and secondary poisoning was excluded due to inherent properties (rapid degradation etc.) of the active substance.

2.2.9 Measures to protect man, animals and the environment

Please cf. to chapter 2.1.4 and 2.1.5.

2.2.10 Assessment of a combination of biocidal products

Products of the nonanoic acid algaecide family are not intended to be authorised for the use with other biocidal products. Hence an assessment is not required.

2.2.11 Comparative assessment

Not relevant as nonanoic acid is not a candidate for substitution in accordance with Article 10 of BPR.

2.2.12 ED Assessment

Based on the available information the eCA concluded, that there are no indications for endocrine properties of the co-formulants contained in the BPF Nonanoic Acid Algeacides. Please see confidential annex for detailed information.

3 ANNEXES

3.1 List of studies for the biocidal product (family)

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
3.1.1 3.1.2 3.4.1.2	Anonymous	2001a	Title: STORAGE STABILITY OF NEU 1170H. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: NEU1170-990409 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.1.1 3.1.2 3.1.3 3.2 3.4.1.1 3.4.2.3 3.5.4 3.5.7 3.5.8 3.5.12	Anonymous	2011a	Title: Physico-chemical Properties of the Formulation "Finalsan AF" (NEU 1170 H AF) after Accelerated Storage at 40 °C for 8 weeks. Source: Eurofins Agroscience Services GmbH, Niefern-Öschelbronn, Germany Report No: S10-03484 GLP: Yes Published: No	Y	W. Neudorff GmbH KG
3.1.1 3.1.2 3.1.3 3.2 3.3 3.4.1.1 3.4.2.3 3.5.4	Anonymous	2015a	Title: Accelerated Storage Stability Test. Appearance / Colour / Physical state. Physico-chemical properties. NEU 1170H AF. Source: W. Neudorff GmbH KG, 31860 Emmerthal, Germany Report No: 16.07.2015 GLP: No Published: No	Y	W. Neudorff GmbH KG
3.1.1 3.1.2 3.2 3.3 3.4.1.1 3.5.4 3.5.7 5.1	Anonymous	2015b	Title: Accelerated Storage Stability of NEU1370H Herbicide. 2 weeks, 54°C. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 0A5, Canada Report No: NEU1370H 150525 storage 2 wk 54 GLP: No Published: No	Y	W. Neudorff GmbH KG
3.2	Anonymous	1999a	Title: DETERMINATION OF THE PH OF AN AQUEOUS DISPERSION OF NEU 1170 H. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 282858 GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
3.2	Anonymous	2000b	Title: DETERMINATION OF THE pH OF AN AQUEOUS DISPERSION OF NEU 1170 H AF. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 279517 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.2 3.5.8 3.9 3.4.1.3	Anonymous	2019c	Title: Determination of physico-chemical Properties and Storage Stability for NEU 1370 H EC Source: BioGenius GmbH, Technologie Park Building 56, Friedrich-Ebert-Straße, 51429 Bergisch Gladbach, Germany Report No: F-D-015 (Study No. Mo5368) GLP: No Published: No	Y	W. Neudorff GmbH KG
3.3	Anonymous	1999b	Title: DETERMINATION OF THE DENSITY (LIQUID) OF NEU 1170 H. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 282847 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.3	Anonymous	2000c	Title: DETERMINATION OF THE DENSITY (LIQUID) OF NEU 1170 H AF. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 279506 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.1	Anonymous.	1997a	Title: STORAGE STABILITY OF H01-22. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: (Book reference H2/35, 39) GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.1	Anonymous.	2009a	Title: pH and Emulsion Stability after Accelerated (2 weeks, 54°C) Storage Stability of NEU 1170. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 1S1, Canada Report No: 1170-2W54-090807 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.1	Anonymous	1996a	Title: STORAGE STABILITY OF H01-22. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: (Book reference H01/103, 109, 123) GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
3.4.1.2 5.1	Anonymous.	2009b	Title: Storage Stability of NEU 1170H Addendum. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 1S1, Canada Report No: NEU1170-990409 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.2 5.1	Anonymous.	2005a	Title: Storage Stability of NEU 1170H SL. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: NEU1170H SL-990409 5yr GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.2 5.1	Anonymous	2009e	Title: Storage Stability of NEU1170H RTU Addendum. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 1S1, Canada Report No: NEU1170RTU 960923 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.2 3.4.2.3 3.5.4 3.5.7 3.5.8 5.1	Anonymous	2002a	Title: STORAGE STABILITY of NEU1170H RTU. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: NEU1170RTU 960923 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.3	Anonymous	1998a	Title: Low Temperature Stability of H01-22. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: (Book reference H2/46) GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.4.1.3	Anonymous	1997c	Title: Low Temperature Stability of H01 RTU. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: (Book reference H1/188) GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.5.4	Anonymous	2009c	Title: Emulsion Stability of NEU 1170H. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 1S1, Canada Report No: 1170-EMU-090806 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.5.7	Anonymous	1997b	Title: Foaming of H01-22. Source: Eco-Care Technologies Inc., Sidney, BC V8L 5L6, Canada Report No: (Book reference H2/41) GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
3.5.7	Anonymous	2009d	Title: Foaming of NEU 1170H. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 1S1, Canada Report No: 1170-FOA-090806 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.8	Anonymous	1999c	Title: DETERMINATION OF THE SURFACE TENSION OF AN AQUEOUS SOLUTION OF NEU 1170 H. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 259717 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.8	Anonymous	2008a	Title: Determination of the Surface Tension of NEU 1170 H. Source: Institut für Biologische Analytik und Consulting IBACON GmbH, 64380 Rossdorf, Germany Report No: 39521184 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.8	Anonymous	2000d	Title: DETERMINATION OF THE SURFACE TENSION OF AN AQUEOUS SOLUTION OF NEU 1170 H AF. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 279528 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.8	Anonymous	2015c	Title: Neu 1370 H; Batch No.: 153004. SURFACE TENSION A.5. (OECD 115). Source: Siemens AG Prozess-Sicherheit, 65926 Frankfurt am Main, Germany Report No: 20150310.01 GLP: No Published: No	Y	W. Neudorff GmbH KG
3.9	Anonymous	2000a	Title: DETERMINATION OF THE VISCOSITY OF NEU 1170 H. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 277894 GLP: YES Published: No	Y	W. Neudorff GmbH KG
3.9	Anonymous	2000e	Title: DETERMINATION OF THE VISCOSITY OF NEU 1170 H AF. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 279495 GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
3.9	Anonymous	2015d	Title: Viscosity of NEU1370H. Source: Eco-Care Technologies Inc., Saanichton, BC V8M 0A5, Canada Report No: NEU1370H-VISC 150812 GLP: No Published: No	Y	W. Neudorff GmbH KG
4.6	Anonymous	2020a	Title: Flash Point. Source: DEKRA Automobil GmbH Laboratory for Environmental And Product Analysis, Handwerkstr. 17, 70565 Stuttgart Report No: PB2000803 GLP: NO Published: No	Y	W. Neudorff GmbH KG
4.16	Anonymous	2019a	Title: NEU 1170 H Determination of physico-chemical properties Corrosive Properties of liquids (UN Test C.1) Source: Consilab Gesellschaft für Anlagensicherheit mbH, Industriepark Höchst, G830/G840, 65926 Frankfurt am Main, Germany Report No: CSL-19-1492.01 GLP: YES Published: No	Y	W. Neudorff GmbH KG
4.16	Anonymous	2019b	Title: NEU 1170 H AF Determination of physico-chemical properties Corrosive Properties of liquids (UN Test C.1) Source: Consilab Gesellschaft für Anlagensicherheit mbH, Industriepark Höchst, G830/G840, 65926 Frankfurt am Main, Germany Report No: CSL-19-1493.01 GLP: YES Published: No	Y	W. Neudorff GmbH KG
4.16	Anonymous	2019d	Title: NEU 1370 H Determination of physico-chemical properties Corrosive Properties of liquids (UN Test C.1) Source: Consilab Gesellschaft für Anlagensicherheit mbH, Industriepark Höchst, G830/G840, 65926 Frankfurt am Main, Germany Report No: CSL-19-1491.01 GLP: YES Published: No	Y	W. Neudorff GmbH KG
4.17.1	Anonymous	1998b	Title: NEU 1170 H 22% - Auto-Ignition Temperature. Source: BioChem GmbH, Daimlerstr. 5 b, D-76185 Karlsruhe, Germany Report No: 985040801B GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
5.1	Anonymous	2000b	Title: NEU 1170 H 22% - Determination of Fatty Acids. Source: BioChem GmbH, Daimlerstr. 5 b, D-76185 Karlsruhe, Germany Report No: 005040801 GLP: YES Published: No	Y	W. Neudorff GmbH KG
5.1	Anonymous	2014a	Title: Validation of Method: MV093-NEU: GC-Determination of Pelargonic Acid in NEU 1270 H Source: BioGenius GmbH Analytics, 51429 Bergisch Gladbach, Germany Report No.Mo4854 GLP YES Published No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_01	Anonymus	2015e	Title: Efficacy evaluation of Neu 1270 H and Neu 1170 H against Green algae on pavement. Source: i2LResearch Ltd, Wentloog Cardiff CF3 2PX, UK Report No: 14/356 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_02	Anonymus	2015f	Title: Efficacy evaluation of Neu 1270 H and Neu 1170 H against Green algae on terracotta pots. Source: i2LResearch Ltd, Wentloog Cardiff CF3 2PX, UK Report No: 14/358 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_03	Anonymus	2013	Title: Efficacy test of the biocides Neu 1270 H and Neu 1170 H on green algae on a glass surface 2013. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 13 01-01 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_04	Anonymus	2014b	Title: Efficacy test of the biocides Neu 1270 H and Neu 1170 H on green and yellow algae on a wood surface 2013. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 13 01-02 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_05	Anonymus	2014c	Title: Efficacy test of the biocides Neu 1270 H and Neu 1170 H on green algae on roof tiles 2014. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 14 05-01 GEP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
AIII 6.7 / AIII-6-7_06	Anonymus	2014d	Title: GEP efficacy and selectivity test of the biocide AlgeFri N ProFF on green algae and moss on thatched roofs 2013/2014. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 13 03 (Trial No. 81 13 03-01, 81 13 03-02, 81 13 03-03) GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_07	Anonymus	2015f	Title: Efficacy of Neu 1170 H against green algae on wooden boards. Source: W. Neudorff GmbH KG, Research & Development, 31855 Aerzen, Germany Report No: HERB 12/28 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_08	Anonymus	2015g	Title: Efficacy of Neu 1170 H against green algae on a plastic tunnel. Source: W. Neudorff GmbH KG, Research & Development, 31855 Aerzen, Germany Report No: HERB 12/35 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_09	Anonymus	2015h	Title: Efficacy of Neu 1170 H against green algae on a plastic tunnel at winter conditions. Source: W. Neudorff GmbH KG, Research & Development, 31855 Aerzen, Germany Report No: HERB 13/02 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_10	Anonymus	2015i	Title: Efficacy of Neu 1170 H against green algae on an aluminum fence. Source: W. Neudorff GmbH KG, Research & Development, 31855 Aerzen, Germany Report No: HERB 14/27 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 6.7 / AIII-6-7_11	Anonymus	2015j	Title: Efficacy test of the biocides Neu 1170 H and Neu 1370 H on green algae and lichen on roof tiles 2015. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 15 03-01 GEP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
AIII 6.7 / AIII-6-7_12	Anonymus	2015k	Title: Efficacy test of the biocides Neu 1170 H and Neu 1370 H on green algae and lichen on wooden surfaces 2015. Source: Agrolab A/S; 5500 Middelfart, Denmark Report No: 81 15 04-01 GEP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 8.1 / AIII-8-1_01	Anonymous.	1997a	Title: ACUTE DERMAL IRRITATION/CORROSION NEU 1170 H 21 %IG. Source: BioChem GmbH, Daimlerstr. 5 b, D-76185 Karlsruhe, Germany Report No: 97 10 42 803 A GLP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 8.2 / AIII-8-2_01	Anonymous.	1997b	Title: ACUTE EYE IRRITATION/CORROSION NEU 1170 H 21 %IG. Source: BioChem GmbH, Daimlerstr. 5 b, D-76185 Karlsruhe, Germany Report No: 97 10 42 803 B GLP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 8.3 / AIII-8-3_01	Anonymous.	2000a	Title: ASSESSMENT OF CONTACT HYPERSENSITIVITY TO NEU 1170 H IN THE ALBINO GUINEA PIG (MAXIMISATION-TEST). Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 274591 GLP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 8.5.1 / AIII-8-5-1_01	Anonymous.	1997a	Title: ASSESSMENT OF ACUTE ORAL TOXICITY WITH NEU 1170 H IN THE RAT. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 197009 GLP: YES Published: No	Y	W. Neudorff GmbH KG
AIII 8.5.2 / AIII-8-5-2_01	Anonymous.	1997c	Title: NEU 1170 H - ACUTE INHALATION TOXICITY. Source: BioChem GmbH, Daimlerstr. 5 b, D-76185 Karlsruhe, Germany Report No: 97 10 42 026 GLP: YES Published: No	Y	W. Neudorff GmbH KG

Annex point / Reference	Author	Year	Title Source (where different from company) Company, Report No. GLP or GEP status (where relevant) Published or Unpublished	Data protection claimed Y/N	Owner
AIII 8.5.3 / AIII-8-5-3_01	Anonymous.	1997b	Title: ASSESSMENT OF ACUTE DERMAL TOXICITY WITH NEU 1170 H IN THE RAT. Source: Notox B.V, 's-Hertogenbosch, The Netherlands Report No: 197011 GLP: YES Published: No	Y	W. Neudorff GmbH KG
13	Anonymous	2019e	Title: Statement Ammonia NEU 1170 Source: W. Neudorff GmbH KG, 31860 Emmerthal, Germany	N	W. Neudorff GmbH KG

3.2 Output tables from exposure assessment tools

3.2.1 Countryside – direct emission to soil calculations


NonanoicAcid_soil_2 1122021.xlsx


NonanoicAcid_degra d_entireEmissionToSc

3.3 New information on the active substance

No new information on the active substance is available.

3.4 Residue behaviour

No Information on residue behaviour is necessary for Nonanoic acid as the products will not come into contact with food or animal feeding stuffs when used as biocidal product. Besides that also no MRLs were set for the uses as plant protection product as Nonanoic

acid is included in Annex IV of Reg. (EC) No. 396/2005 which lists active substances for which no MRLs are required.

3.5 Summaries of the efficacy studies (B.5.10.1-xx)

Please cf. to the IUCLID file.

3.6 Confidential annex

Please confer to the separate document.

3.7 Reference list (excluding list of studies)

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Austria 2013, Assessment Report, Nonanoic acid, Product-type 2, Disinfectants and algaecides not intended for direct application to humans or animals. Available at: https://circabc.europa.eu/sd/a/7da7eb11-2661-41d9-8aa8-953af12603cf/Nonanoic%20acid%20-%20PT2%20(assessment%20report%20as%20finalised%20on%2027.09.13).pdf

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EU 2002, ESD for PT 10: Emission scenario document for biocides used as masonry preservatives. (product type 10). INERIS – Institut National de l'Eenvironnement Industriel et des Risques, France, Migné V. available at : https://echa.europa.eu/documents/10162/16908203/pt10_masonry_preservatives_en.pdf/5bab4221-3156-4d4e-a57c-ab0cdc42ea18 2019-02-14

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Germany 2015, Assessment Report, Propan-2-ol, Product-type 2, Private area and public health area disinfectants and other biocidal products. Availabe at: https://echa.europa.eu/documents/10162/14dcf976-ef58-83a1-16ee-acbb8bf3d530 2021-06-16

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LEGAL NORMS

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