Assessment of regulatory needs

Authority: European Chemicals Agency (ECHA)

Group Name: Esters from linear and branched carboxylic acid and alcohols from sugar origin

General structure: -

Revision history

Version	*Date*	*Description*
1.0	15 February 2022	

Substances within this group:

EC / List no	CAS no	Substance name	Registration type (full, OSII or TII, NONS, cease manufacture), highest tonnage band among all the registrations (t/y) [1]
215-663-3[2]	1338-39-2	sorbitan laurate	Full, >1000
215-664-9	1338-41-6	sorbitan stearate	Full, 100-1000
215-665-4	1338-43-8	sorbitan oleate	Not (publicly available)
232-360-1	8007-43-0	Sorbitan, (Z)-9-octadecenoate (2:3)	Full, 100-1000
247-568-8	26266-57-9	sorbitan palmitate	Full, 100-1000
247-569-3	26266-58-0	anhydro-D-glucitol trioleate	Full, 100-1000
247-888-8	26657-97-6	D-glucitol monolaurate	Not (publicly available)
247-891-4	26658-19-5	sorbitan tristearate	Full, 100-1000
276-171-2	71902-01-7	Sorbitan, isooctadecanoate	Full, 100-1000
295-118-4	91844-53-0	Sorbitan, octanoate (2:3)	Full, 100-1000
297-083-0	93334-10-2	Fatty acids, rape-oil, mixed esters with 1,4:3,6-dianhydro-d-glucitol, sorbitan and sorbitol	Not (publicly available)
301-037-8	93980-59-7	Sorbitan, tridocosanoate	Not (publicly available)
306-248-9	96690-53-8	Sunflower oil, ester with sorbitol	Not (publicly available)
307-007-0	97488-70-5	Castor oil, ester with sorbitol	Not (publicly available)
616-298-6	76169-00-1	Sorbitan, monooctadecanoate	Not (publicly available)
700-073-5		Fatty acids, C8-10, diesters with 1,4:3,6-dianhydro-D-glucitol	Not (publicly available)
700-680-5		Isostearic acid, esters with methyl α-D-glucoside	Not (publicly available)
807-840-4	64896-70-4	1,4:3,6-dianhydro-2,5-di-O-octanoyl-D-glucitol	Not (publicly available)
816-845-0	1818326-42-9	Esterification product of sunflower-oil fatty acids,	Not (publicly available)

[1] The total aggregated tonnage band may be available on ECHA's webpage at https://echa.europa.eu/information-on-chemicals/registered-substances

[2] Substances registered with the identifiers EC 215-663-3 and substances registered with the identifier List 931-434-7 are the same. However, this is currently not reflected by some of the data on these substances, including tonnage band of registrations.

EC/List no	CAS no	Substance name	Registration type (full, OSII or TII, NONS, cease manufacture), highest tonnage band among all the registrations (t/y) [1]
		with 1,4:3,6-dianhydro-D-glucitol	
931-434-7 (refer to footnote 1)		Reaction products resulting from the esterification of Sorbitol with C8 – 18 (even) and C18 unsaturated fatty acids in the ratio of 1:1	Full, 100-1000
938-754-6		Sucrose and glycerol, reaction products with C12-18, C18unsatd. fatty acids	Not (publicly available)
939-179-3		Octanoic acid, esters with anhydrosorbitol and dianhydrosorbitol	Not (publicly available)
939-238-3		Stearic acid, esters with methyl α-D-glucoside	Not (publicly available)
941-129-0		D-Glucopyranoside, methyl, mixed decanoates and octanoates and oleates	Not (publicly available)
943-149-5		Sucrose, glycerol and propane-1,2-diol, reaction products with C16-18(even numbered) fatty acids	Not (publicly available)
946-155-6		Reaction mass of 1,4:3,6-dianhydro-D-glucitol monooleate and 1,4:3,6-dianhydro-D-glucitol dioleate	Not (publicly available)
946-364-2		Reaction product of D-Glucopyranoside, methyl; esterified with oleic acid, methyl ester	Not (publicly available)

This table does not contain group members that are only notified under the CLP Regulation.

Contents

DISCLAIMER

The author does not accept any liability with regard to the use that may be made of the information contained in this document. Usage of the information remains under the sole responsibility of the user. Statements made or information contained in the document are without prejudice to any further regulatory work that ECHA, the Member States or other regulatory agencies may initiate at a later stage. Assessments of regulatory needs and their conclusions are compiled on the basis of available information and may change in light of newly available information or further assessment.

Foreword

The assessment of regulatory needs of a group of substances is an iterative, informal process to help authorities consider the most appropriate way to address an identified concern for a group of substances or a single substance and decide whether further regulatory risk management activities are necessary.

The grouping is mainly based on structural similarity and associations made by the registrants between substances through read-across and category approaches as well as category associations from external sources (e.g. OECD categories)[3]. These methods are different from grouping as defined in Section 1.5 of Annex XI to REACH because the scope and intended use of ECHA's grouping is different. Thus, in this context, grouping does not aim to validate read-across and category approaches according to the Annex XI requirements but rather to support a faster and more consistent approach for regulating chemicals and avoid regrettable substitution.

The focus of the assessment is largely based on information available in the registration dossiers and on properties requiring regulatory risk management action at EU level[4]. The information reported on uses is from the registration dossiers (IUCLID) and is used as a proxy for assessing how widespread uses are and whether potential for exposure to humans and releases to the environment can be expected. The chemical safety reports are not necessarily consulted and no quantitative exposure assessment is performed at this stage.

The outcome of these assessments are proposals for immediate (the first action) and subsequent regulatory action(s), including the foreseen ultimate regulatory action (last foreseen regulatory action) to address the identified concern(s) in case the potential hazards are confirmed. For example, further data generation through compliance check is suggested as a first action, to confirm the identified hazard.

Where hazards are confirmed, regulatory risk management actions could be considered for the whole group, for a subgroup or for individual substances within the group. The robustness of the group depends on the stage of assessment and the level of certainty this stage requires. For example, the needs for grouping under restriction may differ from the needs for grouping for the purpose of harmonised classification. Group membership is reconsidered accordingly throughout the iterative assessment of regulatory needs, for example, after further information is generated and the hazard has been clarified or when new insights on uses and risks are available.

The assessment of regulatory needs in itself does not represent a regulatory action, but rather a preparatory step to consider further possible regulatory actions at the level of individual substances or groups/subgroups of substances.

[3] Working with Groups - ECHA (europa.eu)

[4] Regarding hazard properties the focus is for instance on CMR (carcinogenic, mutagenic and/or toxic to reproduction), sensitiser, ED (endocrine disruptor), PBT/vPvB or equivalent (e.g. substances being persistent, mobile and toxic), aquatic toxicity hazard endpoints and therefore only those are reflected in the report. This does not mean that the substances do not have other known or potential hazards. In some specific cases, ECHA may consider additional hazards (e.g. neurotoxicity, STOT RE).

Publication of ARNs makes it easier for companies to follow the latest status of their substances of interest, anticipate potential regulatory actions and make strategic choices in their chemicals portfolio.

For more information on assessments of regulatory needs please consult ECHA's website[5].

[5] https://echa.europa.eu/understanding-assessment-regulatory-needs

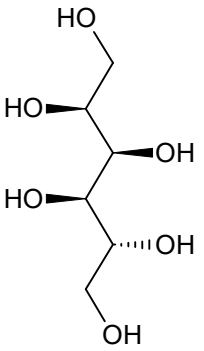
Glossary

ARN	Assessment of Regulatory Needs
CCH	Compliance Check
CLH	Harmonised classification and labelling
CMR	Carcinogenic, mutagenic and/or toxic to reproduction
DEv	Dossier evaluation
ED	Endocrine disruptor
NONS	Notified new substances
OEL	Occupational exposure limit
OSII or TII	On-site isolated intermediate or transported isolated intermediate
PBT/vPvB	Persistent, bioaccumulative and toxic / very persistent and very bioaccumulative
PMT/vPvM	Persistent, mobile, and toxic / very persistent and very mobile
RDT	Repeated dose toxicity
RMOA	Regulatory management options analysis
RRM	Regulatory risk management
SEv	Substance evaluation
STOT RE	Specific target organ toxicity, repeated exposure
SVHC	Substance of very high concern
TPE	Testing proposal evaluation
UVCB	Unknown or variable composition, complex reaction products or of biological materials.

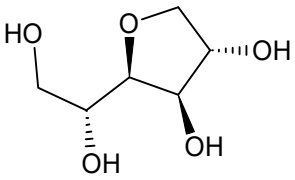
1 Overview of the group

ECHA has grouped together similar substances based on the presence of alcohol moieties from sugar origins and fatty acids.

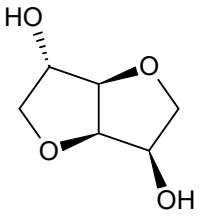
The alcohol moieties originating from sugars are the following:



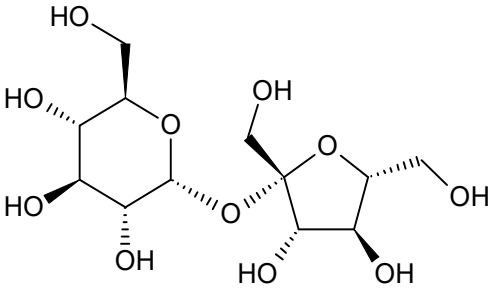
Sorbitol

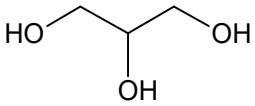


1,4-anhydro-D-glucitol

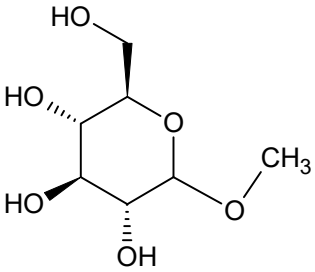


1,4:3,6-dianhydro-D-glucitol





Sucrose and glycerol



Methyl α-D-Glucose

There are 26 substances in the group. The majority of the group members are (complex) UVCBs.

The fatty acid moieties have a carbon chain range between C8 and C22. They are branched or linear; saturated or unsaturated. The esters are mostly mono-, di-, or tri esters.

There are 24 active registrations for this group, all substances with article 10 registrations. Six of those substances also have an intermediate registration.

Based on information reported in the REACH registration dossiers, the majority of the substances in this group has widespread uses in professional setting or consumer mixtures and/or articles, where exposure to human health and releases to the environment can be expected. The most common sector or application is cosmetics. Other common sectors or applications include perfumes, pharmaceuticals, polymer preparations and cleaning products. Around half of the substances with widespread uses has uses across almost all product categories. The articles in which some substances can end up include general rubber goods, tyres, plastic articles, textiles/leather, paper, and construction materials.

2 Conclusions and proposed actions

The conclusions and actions proposed in the table below are based mainly on the REACH and CLP information available at the time of the assessment by ECHA. The conclusions are preliminary suggestions from a screening-level assessment done by ECHA with the aim to propose the next steps for further work (e.g., strengthening of the hazard conclusions, clarification of the uses and/or potential for exposure). The main source of information is the registration dossiers. Relevant public assessments may also be considered. When new information (e.g., on hazards through evaluation processes, or on uses) will become available, the document may be updated, and conclusions and actions revisited.

Table 1: Conclusions and proposed actions

EC/List no	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
215-663-3 215-664-9 215-665-4 232-360-1 247-568-8 247-569-3 247-888-8 247-891-4 276-171-2 295-118-4 297-083-0 301-037-8 306-248-9 307-007-0	No hazard or unlikely hazard	No hazard or unlikely hazard	Widespread uses in e.g. cleaning products, cosmetics, pharmaceuticals, polymer preparations, food, adhesives. Potential for exposure for workers and consumers and releases to the environment except EC/List 301-037-8, 307-007-0, 946-155-6 and 946-364-2, which only have formulation/ industrial use reported. EC/List 215-665-4 and 616-298-6 are not registered. Article service life: EC/List 215-663-3, 215-664-9, 232-360-1, 247-568-8, 247-569-3, 247-888-8, 247-891-4, 276-171-2, 295-118-4, 297-083-0, 700-073-5,	No action Justification: Overall, no or unlikely hazard that would lead to concern for the reported uses.

EC/List no	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Suggested regulatory actions
616-298-6 700-073-5 700-680-5 807-840-4 816-845-0 931-434-7 938-754-6 939-179-3 939-238-3 941-129-0 943-149-5 946-155-6 946-364-2			807-840-4 and 931-434-7.	

3 Justification for the no need for regulatory risk management action at EU level

Based on currently available information, there is no need for (further) EU regulatory risk management for substances in the group.

None of the registered substances in the group needs further EU regulatory risk management actions at the moment due to low potential toxicological and environmental hazard.

Based on currently available information, for CMR, ED, skin sensitisation, STOT RE, PBT/vPvB, PMT/vPvM, aquatic toxicity hazards are considered unlikely for all group members based on the available data with the substances and/or their potential breakdown products/metabolites.

Based on the evaluations[6] from other safety bodies, group members are expected to be hydrolysed into corresponding carboxylic acids and alcohols by carboxylesterase enzymes found in most tissues throughout the body, including the gastrointestinal tract. The resulting alcohols will be oxidised to their corresponding aldehydes and linear carboxylic acids, which will in turn be metabolised to carbon dioxide via the fatty acid pathways and the tricarboxylic acid cycle. The resulting carboxylic acids will undergo different metabolic pathways, depending on the carbon chain length and branching: beta-oxidation for short chains, omega-oxidation for long chains and alfa- and/or beta-oxidation for acids with a methyl substituent.

The majority of the carboxylic acid parts of these group members have been or are being assessed by ECHA (group on fatty acids expected to be of low toxicity). Furthermore, the alcohols (sugar origin) expected from the enzymatic hydrolysis of the esters in this group are of low toxicity.

Group members are unlikely to be mutagenic or skin sensitisers based on the available experimental data (in vitro mutagenicity studies in bacteria/mammalian cells and LLNA assays).

Repeated-dose toxicity studies with EC/List nos. 215-664-9, 700-073-5, 700-680-5, 939-179-3 and 946-364-2, 215-664-9, 931-434-7) did not show any significant or toxicologically relevant effects up to the limit dose (NOAELs >1000 mg/kg bw/d). Chronic toxicity feeding studies (OECD TG 451 or 452) are also available in rats, mice, and dogs with sorbitan stearate (EC 215-664-9). did not show significant systemic toxicity.

Overall, no carcinogenic potential is expected for any substances in the group in view of the absence of mutagenic hazard and absence of indications of hyperplasia or pre-neoplastic lesions from the available repeated dose toxicity studies.

Reproductive and developmental toxicity screening studies (EC/List nos. 215-664-9, 700-680-5 and 939-179-3), a PNDT study (List 700-073-5) and one non-guideline three-generation reproductive toxicity study (with EC 215-664-9) in rats, did not show any significant or toxicologically relevant effects up to the limit dose (NOAELs >1000 mg/kg bw/d).

Regarding a potential ED hazard, the majority of available systemic toxicity studies do not indicate any target organ toxicity in endocrine organs such as the thyroid or

[6] JECFA, 1999 http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2013.3169/epdf; COM, 2003 https://ec.europa.eu/food/sites/food/files/safety/docs/sci-com_scf_out158_en.pdf; EFSA, 2013 http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2013.3169/epdf

the reproductive organs. Therefore, there is no apparent hazard finding that could be linked to endocrine-mediated effects for any substances in the group.

Substances in this group are not persistent (they are either readily or inherently biodegradable) based on the available screening-level information; the only exception to this is the potentially persistent substance EC 301-037-8 (Annex VII). They show no toxicity up to the limit of their respective water solubility. Additionally, they are assumed to be metabolised and/or have low bioavailability to aquatic species which implies a low potential for bioaccumulation.

Majority/many of the substances in the group have widespread uses in professional settings or consumer products, with high exposure potential and release in the environment.

There is remaining uncertainty regarding the breakdown of the esters, more specifically regarding the rate of hydrolysis, as the information available is mostly from literature sources and refers to the generic ability of carboxylesterases to breakdown the esters.
No further action is currently proposed for any group member. Information from the potential breakdown products (acids and alcohols) ARNs and the structurally similar esters when available will further inform on their hazardous properties and the strategy can be revisited.

Annex 1: Overview of classifications

Data extracted on 19 October 2021.

EC / List No	CAS No	Substance name	Harmonised classification	Classification in registrations
215-663-3	1338-39-2	sorbitan laurate	Not included in Annex VI	
215-664-9	1338-41-6	sorbitan stearate	Not included in Annex VI	-
215-665-4	1338-43-8	sorbitan oleate	Not included in Annex VI	
232-360-1	8007-43-0	Sorbitan, (Z)-9-octadecenoate (2:3)	Not included in Annex VI	-
247-568-8	26266-57-9	sorbitan palmitate	Not included in Annex VI	-
247-569-3	26266-58-0	anhydro-D-glucitol trioleate	Not included in Annex VI	-
247-888-8	26657-97-6	D-glucitol monolaurate	Not included in Annex VI	-
247-891-4	26658-19-5	sorbitan tristearate	Not included in Annex VI	-
276-171-2	71902-01-7	Sorbitan, isooctadecanoate	Not included in Annex VI	-
295-118-4	91844-53-0	Sorbitan, octanoate (2:3)	Not included in Annex VI	-
297-083-0	93334-10-2	Fatty acids, rape-oil, mixed esters with 1,4:3,6-dianhydro-d-glucitol, sorbitan and sorbitol	Not included in Annex VI	-
301-037-8	93980-59-7	Sorbitan, tridocosanoate	Not included in Annex VI	-
306-248-9	96690-53-8	Sunflower oil, ester with sorbitol	Not included in Annex VI	-
307-007-0	97488-70-5	Castor oil, ester with sorbitol	Not included in Annex VI	-
616-298-6	76169-00-1	Sorbitan, monooctadecanoate	Not included in Annex VI	
700-073-5		Fatty acids, C8-10, diesters with 1,4:3,6-dianhydro-D-glucitol	Not included in Annex VI	-

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations
700-680-5		*Isostearic acid, esters with methyl α-D-glucoside*	*Not included in Annex VI*	-
807-840-4	*64896-70-4*	*1,4:3,6-dianhydro-2,5-di-O-octanoyl-D-glucitol*	*Not included in Annex VI*	-
816-845-0	*1818326-42-9*	*Esterification product of sunflower-oil fatty acids, with 1,4:3,6-dianhydro-D-glucitol*	*Not included in Annex VI*	-
931-434-7		*Reaction products resulting from the esterification of Sorbitol with C8 – 18 (even) and C18 unsaturated fatty acids in the ratio of 1:1*	*Not included in Annex VI*	-
938-754-6		*Sucrose and glycerol, reaction products with C12-18, C18unsatd. fatty acids*	*Not included in Annex VI*	-
939-179-3		*Octanoic acid, esters with anhydrosorbitol and dianhydrosorbitol*	*Not included in Annex VI*	-
939-238-3		*Stearic acid, esters with methyl α-D-glucoside*	*Not included in Annex VI*	-
941-129-0		*D-Glucopyranoside, methyl, mixed decanoates and octanoates and oleates*	*Not included in Annex VI*	-
943-149-5		*Sucrose, glycerol and propane-1,2-diol, reaction products with C16-18(even numbered) fatty acids*	*Not included in Annex VI*	-
946-155-6		*Reaction mass of 1,4:3,6-dianhydro-D-glucitol monooleate and 1,4:3,6-dianhydro-D-glucitol dioleate*	*Not included in Annex VI*	-
946-364-2		*Reaction product of D-Glucopyranoside, methyl; esterified with oleic acid, methyl ester*	*Not included in Annex VI*	-

Annex 2: Overview of uses based on information available in registration dossiers

Data extracted on 25 August 2021.

Main types of applications structured by product or article types	215-663-3	215-664-9	232-360-1	247-568-8	247-569-3	247-888-8	247-891-4	276-171-2	295-118-4	297-083-0	301-037-8	306-248-9	307-007-0	700-073-5	700-680-5	807-840-4	816-845-0	931-434-7
PC 20: Products such as ph-regulators	F, I, **P, C**	F, I,	F, I,	F, I,	F, I, **P, C**		F, I,	F, I,	F, I,	F, I,								F, I
PC 36: Water softeners	**C**	**C**	**C**	**C**	**C**		**C**	**C**	**C**	**C**								**C**
PC 37: Water treatment chemicals	F, I, **P, C**	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P, C**		F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**								F, I, **P**
PC 2: Adsorbents	F, I, **P, C**	F	F	F	F		F	F	F	F								F
PC 11: Explosives	**P**	**P**	**P**	**P**	**P**		**P**	**P**	**P**	F, **P**								**P**
PC 12: Fertilisers	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								**C**
PC 27: Plant protection products	**P, C**	I, **P, C**	**P, C**	**P, C**	F, **P, C**		**P, C**	**P, C**	**P, C**	**P, C**								F, I, **P, C**
PC 4: Anti-freeze and de-icing products	**P, C**	**P, C**	**P, C**	**P, C**	**P, C**		**P, C**	**P, C**	**P, C**	**P, C**								**P, C**
PC 35: Washing and cleaning products	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								F, I, **P, C**
PC 8: Biocidal products	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**		I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**								I, **P, C**
PC 28: Perfumes, fragrances	F, **C**	F, I, **P, C**	F, I, **P, C**	F, **P, C**	F, **C**	F, **P, C**	F, **P, C**	F, **P, C**	**C**	F, **P, C**								F, **C**
PC 3: Air care products	**C**	**C**	**C**	**C**	**C**		**C**	**C**	**C**	**C**								**C**
PC 39: Cosmetics, personal care products	F, I, **P, C**	F, I, **P, C**	F, I, **P, C A**	F, **P, C**	F, I, **P, C**	F, I, **P, C**	F, **P, C**	F, **P, C**	F, **P, C**	F, **P, C**		F, **C**		F, I	F, **C**	F	F, **P, C**	F, **P, C**
PC 29: Pharmaceuticals	F, I, **P, A**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, **P, C**	F, I, **P, C**	F, I, **P, C**	I, **P,**	F, I, **P, C**								F, I, **P, C**

Main types of applications structured by product or article types	215-663-3	215-664-9	232-360-1	247-568-8	247-569-3	247-888-8	247-891-4	276-171-2	295-118-4	297-083-0	301-037-8	306-248-9	307-007-0	700-073-5	700-680-5	807-840-4	816-845-0	931-434-7
PC 31: Polishes and wax blends	**P, C**	F, I, **P, C**	F, I, **P, C**	**P, C**	F, I, **P, C**		**P, C**	F, I, **P, C**	**P, C**	**P, C**				I				**P, C**
PC 15: Non-metal-surface treatment products	**C**	F, **C**	**C**	**C**	F, **C**		**C**	**C**	**C**	**C**								**C**
PC 24: Lubricants, greases, release products	F, I, **P, C A**	F, I, **P, C**	F, I, **P, C**	F, I,**P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								F, I, **P, C**
PC 25: Metal working fluids	F, I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**		I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**								F, I, **P, C**
PC 16: Heat transfer fluids	I, **P, C**	**C**	I, **P, C**	**C**	**C**		**C**	**C**	**C**	**C**								I, **P, C**
PC 17: Hydraulic fluids	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**		I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**								I, **P, C**
PC 13: Fuels	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**		I, **P, C**	I, **P, C**	I, **P, C**	I, **P, C**								I, **P, C**
PC 32: Polymer preparations and compounds	F, I, **P, C A**	F, I, **P, C A**	F, I, **P, C A**	F, I, **P, C A**	F, I, **P, C A**		F, I, **P, C A**	F, I, **P, C A**	F, I, **P, C A**	F, I, **P, A**	I			F, I, **P, A**				F, I, **P, C A**?
PC 1: Adhesives, sealants	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**				**A**		F, **A**		F, I, **P, C**
PC 9c: Finger paint	F, I, **P, C**	**C**	**C**	**C**	**C**		**C**	**C**	**C**	**C**								F, I, **P, C**
PC 9b: Fillers, putties, plasters, modelling clay	F, I, **P, C**	I, **C**	I, **C**	F, I, **C**	I, **C**		I, **C**	I, **C**	I, **C**	I, **C**								I, **C**
PC 9a: Coatings and paints, thinners, paint removes	F, I,**P, C A**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C A**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								F, I, **P, C**
PC 18: Ink and toners	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								F, I, **P, C**
PC 26: Paper and board treatment products	F, I	I	I, **A**	I	I	I, **A**	I	I	I	I								F, I, **P,**
PC 34: Textile dyes, and impregnating products	F, I, **C,A**	F, I, **C,A**	F, I, **C,A**	F, I, **C,A**	F, I, **C,A**		F, I, **C,A**	F, I, **C,A**	F, I, **C,A**	F, I, **C,A**								F, I, **C,A**

Main types of applications structured by product or article types	215-663-3	215-664-9	232-360-1	247-568-8	247-569-3	247-888-8	247-891-4	276-171-2	295-118-4	297-083-0	301-037-8	306-248-9	307-007-0	700-073-5	700-680-5	807-840-4	816-845-0	931-434-7
PC 23: Leather treatment products	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**		F, I, **P, C**	F, I, **P, C**	F, I, **P, C**	F, I, **P, C**								F, I, **P, C**
PC 14: Metal surface treatment products	I, **P**	I	F, I	I	I		I	I	I	I								I, **P**
PC 38: Welding and soldering products (…)																		**C**
PC 21: Laboratory chemicals	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**		F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**			I					F, I, **P**
PC 19: Intermediate	I, **P**	I	I	I	I, **P**	I	I	I	I	I			I					F, I

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Main types of applications structured by product or article types	938-754-6	939-179-3	939-238-3	941-129-0	943-149-5	946-155-6	946-364-2
PC 35: Washing and cleaning products		F, **C**					
PC 39: Cosmetics, personal care products	F, **C**	F, **C**	F, **C**	F, **C**	F, **C**	F	
PC 32: Polymer preparations and compounds							F, I

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Annex 3: Overview of completed or ongoing regulatory risk management activities

Data extracted on 19 October 2021.

There are no relevant completed or ongoing regulatory risk management activities for any of the substances.