~~Confidential~~

Helsinki, 09 June 2023

Addressee(s)
Registrant(s) of JS_1809-14-9 as listed in Appendix 3 of this decision

Date of submission of the dossier subject to this decision
14/12/2018

Registered substance subject to this decision ("the Substance")
Substance name: dioctyl phosphonate
EC number/List number: 217-315-6

Decision number: Please refer to the REACH-IT message which delivered this communication (in format CCH-D-XXXXXXXXXX-XX-XX/F)

DECISION ON A COMPLIANCE CHECK

Under Article 41 of Regulation (EC) No 1907/2006 (REACH), you must submit the information listed below by ***16 June 2025***.

Requested information must be generated using the Substance unless otherwise specified.

Information required from all the Registrants subject to Annex VII of REACH

1. Short-term toxicity testing on aquatic invertebrates (Annex VII, Section 9.1.1.; test method: EU C.2./OECD TG 202)

2. Growth inhibition study on aquatic plants (Annex VII, Section 9.1.2.; test method: EU C.3/OECD TG 201)

Information required from all the Registrants subject to Annex VIII of REACH

3. In vitro micronucleus study (Annex VIII, Section 8.4.2., test method: OECD TG 487). The aneugenic potential of the Substance must be assessed with an additional control group for aneugenicity on top of the control group for clastogenicity, if the Substance induces an increase in the frequency of micronuclei.

4. If negative results are obtained in the test performed for the information requirement of Annex VIII, Section 8.4.2. then: In vitro gene mutation study in mammalian cells (Annex VIII, Section 8.4.3.; test method: OECD TG 476 or TG 490)

5. Short-term toxicity testing on fish (Annex VIII, Section 9.1.3.; test method: EU C.1./OECD TG 203)

The reasons for the request(s) are explained in Appendix 1.

Information required depends on your tonnage band

You must provide the information listed above for all REACH Annexes applicable to you in

accordance with Articles 10(a) and 12(1) of REACH. The addressees of the decision and their corresponding information requirements based on registered tonnage band are listed in Appendix 3.

You are only required to share the costs of information that you must submit to fulfil your information requirements.

How to comply with your information requirements

To comply with your information requirements, you must submit the information requested by this decision in an updated registration dossier by the deadline indicated above. You must also **update the chemical safety report, where** relevant, including any changes to classification and labelling, based on the newly generated information.

You must follow the general requirements for testing and reporting new tests under REACH, see Appendix 4.

Appeal

This decision, when adopted under Article 51 of REACH, may be appealed to the Board of Appeal of ECHA within three months of its notification to you. Please refer to http://echa.europa.eu/regulations/appeals for further information.

Failure to comply

If you do not comply with the information required by this decision by the deadline indicated above, ECHA will notify the enforcement authorities of your Member State.

Authorised[1] under the authority of Mike Rasenberg, Director of Hazard Assessment

Appendix 1: Reasons for the request(s)
Appendix 2: Procedure
Appendix 3: Addressees of the decision and their individual information requirements
Appendix 4: Conducting and reporting new tests under REACH

[1] As this is an electronic document, it is not physically signed. This communication has been approved according to ECHA's internal decision-approval process.

Appendix 1: Reasons for the request(s)

Contents

Reasons related to the information under Annex VII of REACH

1. Short-term toxicity testing on aquatic invertebrates

1 Short-term toxicity testing on aquatic invertebrates is an information requirement under Annex VII to REACH (Section 9.1.1.).

1.1. Information provided

2 You have provided a short-term toxicity study on daphnia magna (2017) with the Substance.

1.2. Assessment of the information provided

3 To fulfil the information requirement, a study must comply with the OECD TG 202 and the specifications of the OECD GD 23 if the substance is difficult to test (Article 13(3) of REACH). Therefore, the following specifications must be met:

Characterisation of exposure

a) analytical monitoring must be conducted. A reliable analytical method for the quantification of the test material in the test solutions with reported specificity, recovery efficiency, precision, limits of determination (i.e. detection and quantification) and working range must be available;

b) the concentrations of the test material are measured at least at the highest and lowest test concentration, at the beginning and end of the test;

c) the effect values can only be based on nominal or measured initial concentration if the concentration of the test material has been satisfactorily maintained within 20 % of the nominal or measured initial concentration throughout the test (see also Guidance on IRs and CSA, Section R.7.8.4.1).

4 In the study provided:

Characterisation of exposure

a) analytical monitoring of exposure was conducted by measurement of total or dissolved organic carbon (TOC/DOC). No information on the sensitivity or specificity of the method used is provided;

b) the TOC/DOC measurements were conducted in samples taken at the beginning of the study, i.e. T0, but not at the end of the test;

c) the reported effect values are based on measured initial concentration concentrations.

5 Based on the above, there are critical methodological deficiencies resulting in the rejection of the study results. The Substance is difficult to test due to its adsorptive properties (log Kow = 6.1 and logKoc = 5), therefore difficulties in achieving and maintaining test concentrations can be expected. TOC/DOC is not a substance specific method for analytical monitoring of exposure concentrations and you have not provided any justification why chemical specific analysis is not feasible. Furthermore, concentrations at the end of the test were not measured. In the absence of chemical specific analysis (a) and of concentrations measured also at the end of the test (b), you have not provided confirmation that exposures were within ± 20 % of the nominal or initial measured concentrations throughout the test.

Therefore, the reported effect values based on nominal concentrations (c) are considered not reliable and might underestimate the hazard.

6 On this basis, the specifications of the OECD TG 202 are not met and the information requirement is not fulfilled.

7 In the comments to the draft decision you agree with ECHA`s assessment that relevant data on analytical monitoring are lacking and indicate your intention to conduct a new study.

1.3. Study design and test specifications

8 The Substance is difficult to test due to the adsorptive properties: Log K_{ow} = 6.13, log K_{oc} = 5.06. The OECD TG 202 specifies that, for difficult to test substances, you must consider the approach described in the OECD GD 23 or other approaches, if more appropriate for your substance. In all cases, the approach selected must be justified and documented. Due to the properties of Substance, it may be difficult to achieve and maintain the desired exposure concentrations. Therefore, you must monitor the test concentration(s) of the Substance throughout the exposure duration and report the results. If it is not possible to demonstrate the stability of exposure concentrations (i.e. measured concentration(s) not within 80-120% of the nominal concentration(s)), you must express the effect concentration based on measured values as described in the OECD TG 202. In case a dose-response relationship cannot be established (no observed effects), you must demonstrate that the approach used to prepare test solutions was adequate to maximise the concentration of the Substance in the test solution.

9 In your comments to the draft decision, you consider for the new study to be conducted "an analytical monitoring at the beginning and at the end of the exposure period"

10 As explained above, the Substance is difficult to test. OECD GD 23 specifies that analytical monitoring schedules depend on the exposure regime applied. For example, for static exposure systems analysis must be conducted at the beginning and end of the test as well as midway through the test in case variability is expected. For semi-static exposure systems analysis "at the beginning of the test, at the end of the first (or longest) renewal cycle (before and after renewal of test solutions), and at the end of the test is considered the minimum requirement".

11 You further consider in your comments to the draft decision that total organic carbon (TOC) measurement, with Limit of Quantification (LOQ) of 0.5 mg/L, would constitute a suitable analytical method to verify adequate and stable exposure of the test organisms to the test material.

12 ECHA notes that TOC is not a substance-specific analytical method. To demonstrate adequate exposure of the test organisms, it is necessary to report the measurements of the dissolved fractions of the test material. The solubility of the Substance is indicated with 47.2 mg/L which is below 100 mg/L the threshold that is recognised as poor water solubility by the OECD GD 23.

13 According to the OECD GD 23, in case dissolved fractions of poorly water soluble substances cannot be measured, a confirmation "that the analytical methods used were state of the art, and a justification as to why lower detection limits were not feasible (any preliminary analytical efforts should also be described in the report)" could be provided.

14 Therefore, in case in you use the total organic carbon (TOC) measurement as the analytical method and you are not able to report the measurements of the dissolved fractions of the test material, you have to provide evidence on the Substance demonstrating that no other analytical methods are available with higher sensitivity and/or specificity according to the OECD GD 23.

15 You therefore remain responsible to comply with the OECD GD 23 specifications when conducting a new study.

2. Growth inhibition study aquatic plants

16 Growth inhibition study on aquatic plants is an information requirement under Annex VII to REACH (Section 9.1.2.).

2.1. Information provided

17 You have provided a growth inhibition study on aquatic plants/algae (2017) with the Substance.

2.2. Assessment of the information provided

18 To fulfil the information requirement, a study must comply with the OECD TG 201 and the specifications of the OECD GD 23 if the substance is difficult to test (Article 13(3) of REACH). Therefore, the following specifications must be met:

Characterisation of exposure

d) analytical monitoring must be conducted. Alternatively, a justification why the analytical monitoring of exposure concentrations is not technically feasible must be provided. The recovery efficiency of the method and the limit of quantification in the test matrix should be reported;

e) the test media prepared specifically for analysis of exposure concentrations during the test is treated identically to those used for testing (i.e. inoculated with algae and incubated under identical conditions);

f) the concentrations of the test material are measured at least at the beginning and end of the test. For strongly adsorbing test substances, additional samplings for analysis at 24 hour intervals is required;

g) the results can be based on nominal or measured initial concentration only if the concentration of the test material has been maintained within ±20 % of the nominal or measured initial concentration throughout the test.

19 In the study provided:

Characterisation of exposure

a) no substance-specific analytical monitoring of exposure was conducted, without further justification and no information on the recovery efficiency of the method or LOQ in the test matrix is provided;

b) the test media prepared specifically for analysis of exposure concentrations was not inoculated with algae;

c) the concentration of the test material was determined in samples taken at the beginning of the study only, but not at the end of the test. The Substance is strongly adsorbing (log K_{ow} of 6.01, log K_{oc} of 5), and no additional sampling for analysis at 24 h interval was conducted;

d) you have expressed the effect values based on initial measured concentrations.

20 Based on the above, there are critical methodological deficiencies resulting in the rejection of the study results. The Substance is difficult to test due to its adsorptive properties (log

Kow = 6.1 and logKoc = 5), therefore difficulties in achieving and maintaining test concentrations can be expected. TOC/DOC is not a substance specific method for analytical monitoring of exposure concentrations and you have not provided any justification why chemical specific analysis is not feasible. Furthermore, concentrations were measured only at test start, but not every 24h and at test end. In the absence of chemical specific analysis (a) and of concentrations measured also at the end of the test (c), you have not provided confirmation that exposures were within ± 20 % of the nominal or initial measured concentrations throughout the test. Therefore, the reported effect values based on nominal concentrations (d) are considered not reliable and might underestimate the hazard.

21 In the comments to the draft decision, you agree with ECHA`s assessment that relevant data on analytical monitoring are lacking. You indicate your intention for sequential testing. You propose to:

22 First conduct the study on short-term toxicity study in aquatic invertebrates. If in this study the test material was not stable within +/- 20 % of nominal test concentrations the study on growth inhibition in algae will be conducted. If the test material is demonstrated to be stable in the first study, you consider this proof of likewise stability in the study on growth inhibition in algae. You consider that this would address the deficiencies of the available study above and therefore no further testing would be needed.

23 However, the test duration of an OECD 201 study is 72 hours while an OECD TG 202 study duration is 48 hours. You did not explain how extrapolation of the test material's stability from a shorter to a longer test duration should be acceptable. Moreover, you did not explain how other relevant differences in the conditions of two test systems are taken into account which might influence the stability of the test material.

24 Therefore, you have not demonstrated how the results of an OECD 202 study could be used to address the deficiencies identified above.

25 On this basis, the specifications of the OECD TG 201 are not met and the information requirement is not fulfilled.

2.3. Study design and test specifications

26 The OECD TG 201 specifies that, for difficult to test substances, the OECD GD 23 must be followed. As already explained above, the Substance is difficult to test. Therefore, you must fulfil the requirements described in "Study design and test specifications" under request 1.

Reasons related to the information under Annex VIII of REACH

3. In vitro micronucleus study

27 An in vitro mammalian chromosomal aberration study or an in vitro mammalian micronucleus study is an information requirement under Annex VIII, Section 8.4.2.

3.1. Information provided

28 You have provided an in vitro mammalian chromosomal aberration study (1997) with the Substance.

3.2. Assessment of the information provided

29 To fulfil the information requirement, the study has to be an in vitro chromosomal aberration test or an in vitro micronucleus test conducted in mammalian cells. The study must comply with the OECD TG 473 or the OECD TG 487, respectively (Article 13(3) of REACH). Therefore, the following specifications must be met:

a) at least 300 well-spread metaphases are scored per concentration;
b) to conclude on a negative outcome, a negative response is obtained in all three experimental conditions described in paragraph 28 of OECD TG 473, using a short-term treatment with and without metabolic activation and long-term treatment without metabolic activation.

30 In the study provided:

a) 200 metaphases (i.e., less than 300 metaphases) were scored per concentration;
b) one experimental condition described in paragraph 28 of OECD TG 473 (i.e. a short-term treatment without metabolic activation) is missing to conclude on a negative outcome.

31 The information provided does not cover the specifications(s) required by the OECD TG 473. Therefore, the information requirement is not fulfilled.

32 In the comments to the draft decision you acknowledge that the study included in the dossier does not fulfil the information requirement and agree to perform the requested study.

3.3. Specification of the study design

33 According to the Guidance on IR & CSA, Section R.7.7.6.3., either the in vitro mammalian chromosomal aberration ("CA") test (test method OECD TG 473) or the in vitro mammalian cell micronucleus ("MN") test (test method OECD TG 487) can be used to investigate chromosomal aberrations in vitro. However, while the MN test detects both structural chromosomal aberrations (clastogenicity) and numerical chromosomal aberrations (aneuploidy), the CA test detects only clastogenicity, as OECD TG 473 is not designed to measure aneuploidy (see OECD TG 473, paragraph 2).Therefore, you must perform the MN test (test method OECD TG 487), as it enables a more comprehensive investigation of the chromosome damaging potential in vitro. Moreover, in order to demonstrate the ability of the study to identify clastogens and aneugens, you must include two concurrent positive

controls, one known clastogen and one known aneugen [1] (OECD TG 487, paragraphs 33 to 35).

3.3.1. Assessment of aneugenicity potential

34 If the result of the MN test is positive, i.e. your Substance induces an increase in the frequency of micronuclei, you must assess the aneugenic potential of the Substance.

35 In line with the OECD TG 487 (paragraph 4), you should use one of the centromere labelling or hybridisation procedures to determine whether the increase in the number of micronuclei is the result of clastogenic events (i.e. micronuclei contain chromosome fragment(s)) and/or aneugenic events (i.e. micronuclei contain whole chromosome(s)).

[1] According to the TG 487 (2016) "At the present time, no aneugens are known that require metabolic activation for their genotoxic activity" (paragraph 34).

4. In vitro gene mutation study in mammalian cells

36 An in vitro gene mutation study in mammalian cells is an information requirement under Annex VIII, Section 8.4.3., in case of a negative result in the Annex VII, Section 8.4.1. and Annex VIII, Section 8.4.2..

4.1. Triggering of the information requirement

37 Your dossier contains (I) a negative result for in vitro gene mutation study in bacteria, and (II) inadequate data for the in vitro mammalian chromosomal aberration study.

38 The in vitro mammalian chromosomal aberration study provided in the dossier is rejected for the reasons provided in request 3.

39 The result of the request 3 will determine whether the present requirement for an in vitro mammalian cell gene mutation study in accordance with Annex VIII, Section 8.4.3. is triggered.

40 Consequently, you are required to provide information for this information requirement, if the the in vitro micronucleus study provides a negative result.

4.2. Specification of the study design

41 To fulfil the information requirement for the Substance, either the in vitro mammalian cell gene mutation tests using the hprt and xprt genes (OECD TG 476) or the thymidine kinase gene (OECD TG 490) are considered suitable.

5. Short-term toxicity testing on fish

42 Short-term toxicity testing on fish is an information requirement under Annex VIII to REACH (Section 9.1.3.).

5.1. Information provided

43 You have provided a short-term toxicity study on fish (1994) with the Substance.

5.2. Assessment of the information provided

44 To fulfil the information requirement, a study must comply with OECD TG 203 and the specifications of OECD GD 23 if the substance is difficult to test (Article 13(3) of REACH). Therefore, the following specifications must be met:

Characterisation of exposure

a) analytical monitoring must be conducted. A reliable analytical method for the quantification of the test material in the test solutions with reported specificity, recovery efficiency, precision, limits of determination (i.e. detection and quantification) and working range must be available;

45 In the provided study:

Characterisation of exposure

a) no analytical monitoring of exposure was conducted.

46 Based on the above, the Substance is difficult to test due to its adsorptive properties (log Kow = 6.1 and logKoc = 5) and there are critical methodological deficiencies resulting in the rejection of the study results. More, specifically, due to the lack of analytical monitoring (a), it cannot be confirmed that the Substance was present or stable during the course of the study. Therefore, reported effect concentrations are not reliable and might underestimate the hazard.

47 In the comments to the draft decision, you agree with ECHA`s assessment that relevant data on analytical monitoring are lacking. You indicate your intention for sequential testing. You propose to:

48 First conduct the study on short-term toxicity study in aquatic invertebrates followed by the study on growth inhibition in aquatic algae. If in both studies the test material was not stable within +/- 20 % of nominal test concentrations the study on short-term toxicity to fish will be conducted. If the test material is demonstrated to be stable in the first two studies, you consider this proof of likewise stability in the study on short-term toxicity to fish. You consider that this would address the deficiencies of the available study above and therefore no further testing would be needed.

49 However, the test duration of an OECD 203 study is 96 hours while the test duration for an OECD TG 202 is 48 and for an OECD TG 201 72 hours, respectively. You did not explain how extrapolation of the test material's stability from a shorter test duration to a longer test duration should be acceptable. Moreover, you did not explain how other relevant differences in the conditions of the different test systems are taken into account which might influence the stability of the test material.

50 Therefore, you have not demonstrated how the results of an OECD 202 and/or 201 study could be used to address the deficiencies identified above.

51 On this basis, the specifications of the OECD TG 203 are not met and the information requirement is not fulfilled.

5.3. Study design and test specifications

52 The OECD TG 203 specifies that, for difficult to test substances, the OECD GD 23 must be followed. As already explained above, the Substance is difficult to test. Therefore, you must fulfil the requirements described in "Study design and test specifications" under request 1.

References

The following documents may have been cited in the decision.

Guidance on information requirements and chemical safety assessment (Guidance on IRs & CSA)

Chapter R.4 Evaluation of available information; ECHA (2011).
Chapter R.6 QSARs, read-across and grouping; ECHA (2008).
Appendix to Chapter R.6 for nanoforms; ECHA (2019).
Chapter R.7a Endpoint specific guidance, Sections R.7.1 – R.7.7; ECHA (2017).
Appendix to Chapter R.7a for nanomaterials; ECHA (2017).
Chapter R.7b Endpoint specific guidance, Sections R.7.8 – R.7.9; ECHA (2017).
Appendix to Chapter R.7b for nanomaterials; ECHA (2017).
Chapter R.7c Endpoint specific guidance, Sections R.7.10 – R.7.13; ECHA (2017).
Appendix to Chapter R.7a for nanomaterials; ECHA (2017).
Appendix R.7.13-2 Environmental risk assessment for metals and metal compounds; ECHA (2008).
Chapter R.11 PBT/vPvB assessment; ECHA (2017).
Chapter R.16 Environmental exposure assessment; ECHA (2016).

Guidance on data-sharing; ECHA (2017).
Guidance for monomers and polymers; ECHA (2012).
Guidance on intermediates; ECHA (2010).
All guidance documents are available online: https://echa.europa.eu/guidance-documents/guidance-on-reach

Read-across assessment framework (RAAF)

RAAF, 2017 Read-across assessment framework (RAAF); ECHA (2017).
RAAF UVCB, 2017 Read-across assessment framework (RAAF) – considerations on multi- constituent substances and UVCBs; ECHA (2017).

The RAAF and related documents are available online:
https://echa.europa.eu/support/registration/how-to-avoid-unnecessary-testing-on-animals/grouping-of-substances-and-read-across

***OECD Guidance documents* (OECD GDs)**

OECD GD 23 Guidance document on aquatic toxicity testing of difficult substances and mixtures; No. 23 in the OECD series on testing and assessment, OECD (2019).
OECD GD 29 Guidance document on transformation/dissolution of metals and metal compounds in aqueous media; No. 29 in the OECD series on testing and assessment, OECD (2002).
OECD GD 150 Revised guidance document 150 on standardised test guidelines for evaluating chemicals for endocrine disruption; No. 150 in the OECD series on testing and assessment, OECD (2018).
OECD GD 151 Guidance document supporting OECD test guideline 443 on the extended one-generation reproductive toxicity test; No. 151 in the OECD series on testing and assessment, OECD (2013).

Appendix 2: Procedure

This decision does not prevent ECHA from initiating further compliance checks at a later stage on the registrations present.

ECHA followed the procedure detailed in Articles 50 and 51 of REACH.

The compliance check was initiated on 02 May 2022.

The deadline of the decision is set based on standard practice for carrying out OECD TG tests. It has been exceptionally extended by 12 months from the standard deadline granted by ECHA to take into account currently longer lead times in contract research organisations.

ECHA notified you of the draft decision and invited you to provide comments.

ECHA took into account your comments and did not amend the requests.

ECHA notified the draft decision to the competent authorities of the Member States for proposals for amendment.

As no amendments were proposed, ECHA adopted the decision under Article 51(3) of REACH.

Appendix 3: Addressee(s) of this decision and their corresponding information requirements

In accordance with Articles 10(a) and 12(1) of REACH, the information requirements for individual registrations are defined as follows:

- the information specified in Annex VII to REACH, for registration at 1-10 tonnes per year (tpa), or as a transported isolated intermediate in quantity above 1000 tpa;
- the information specified in Annexes VII and VIII to REACH, for registration at 10-100 tpa;

Registrant Name	Registration number	Highest REACH Annex applicable to you
[redacted]	[redacted]	[redacted]

Where applicable, the name of a third party representative (TPR) may be displayed in the list of recipients whereas ECHA will send the decision to the actual registrant.

Appendix 4: Conducting and reporting new tests for REACH purposes

1. Requirements when conducting and reporting new tests for REACH purposes

1.1. Test methods, GLP requirements and reporting

(1) Under Article 13(3) of REACH, all new data generated as a result of this decision must be conducted according to the test methods laid down in a European Commission Regulation or to international test methods recognised by the Commission or ECHA as being appropriate.

(2) Under Article 13(4) of REACH, ecotoxicological and toxicological tests and analyses must be carried out according to the GLP principles (Directive 2004/10/EC) or other international standards recognised by the Commission or ECHA.

(3) Under Article 10(a)(vi) and (vii) of REACH, all new data generated as a result of this decision must be reported as study summaries, or as robust study summaries, if required under Annex I of REACH. See ECHA Practical Guide on How to report robust study summaries[2].

(4) Under the introductory part of Annexes VII/VIII/IX/X to REACH, where a test method offers flexibility in the study design, for example in relation to the choice of dose levels or concentrations, the chosen study design must ensure that the data generated are adequate for hazard identification and risk assessment.

1.2. Test material

Before generating new data, you must agree within the joint submission on the chemical composition of the material to be tested (Test Material) which must be relevant for all the registrants of the Substance.

(5) Selection of the Test material(s)

The Test Material used to generate the new data must be selected taking into account the following:

- the variation in compositions reported by all members of the joint submission,
- the boundary composition(s) of the Substance,
- the impact of each constituent/ impurity on the test results for the endpoint to be assessed. For example, if a constituent/ impurity of the Substance is known to have an impact on (eco)toxicity, the selected Test Material must contain that constituent/ impurity.

(6) Information on the Test Material needed in the updated dossier

- You must report the composition of the Test Material selected for each study, under the "Test material information" section, for each respective endpoint study record in IUCLID.
- The reported composition must include the careful identification and description of the characteristics of the Tests Materials in accordance with

[2] https://echa.europa.eu/practical-guides

OECD GLP (ENV/MC/CHEM(98)16) and EU Test Methods Regulation (EU) 440/2008 (Note, Annex), namely all the constituents must be identified as far as possible as well as their concentration. Also any constituents that have harmonised classification and labelling according to the CLP Regulation must be identified and quantified using the appropriate analytical methods,

With that detailed information, ECHA can confirm whether the Test Material is relevant for the Substance and whether it is suitable for use by all members of the joint submission.

Technical instructions on how to report the above is available in the manual on How to prepare registration and PPORD dossiers (https://echa.europa.eu/manuals).