EUROPEAN CHEMICALS AGENCY

Helsinki, 10 February 2020

Addressees
Registrants of CAS_119345-04-9_JOINT listed in the last Appendix of this decision

Date of submission for the jointly submitted dossier subject of this decision
15 November 2018

Registered substance subject to this decision, hereafter 'the Substance'
Substance name: Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts
EC number: 601-601-6
CAS number: 119345-04-9

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

DECISION ON A COMPLIANCE CHECK

Based on Article 41 of Regulation (EC) No 1907/2006 (REACH), ECHA requests that you submit the information listed below by the deadline of ***15 August 2023***.

A. Requirements applicable to 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) with the Substance;

B. Requirements applicable to all the Registrants subject to Annex VIII of REACH

1. Short-term toxicity testing on fish (Annex VIII, Section 9.1.3.; test method OECD TG 203) with the Substance;

C. Requirements applicable to all the Registrants subject to Annex IX of REACH

1. Long-term toxicity testing on aquatic invertebrates (Annex IX, Section 9.1.5.; test method EU C.20./OECD TG 211) with the Substance;

2. Long-term toxicity testing on fish (Annex IX, Section 9.1.6.1.; test method OECD TG 210) with the Substance;

3. Simulation testing on ultimate degradation in surface water (Annex IX, Section 9.2.1.2.; test method EU C.25./OECD TG 309) at a temperature of 12 °C with the Substance, including degradation of each relevant constituent present in concentration at or above 0.1% (w/w);

4. Soil simulation testing (Annex IX, Section 9.2.1.3.; test method EU C.23./OECD TG 307) at a temperature of 12 °C with the Substance including degradation of each relevant constituent present in concentration at or above 0.1% (w/w);

5. Sediment simulation testing (Annex IX, Section 9.2.1.4.; test method EU C.24./OECD

TG 308) at a temperature of 12 °C with the Substance including degradation of each relevant constituent present in concentration at or above 0.1% (w/w);

6. Identification of degradation products (Annex IX, 9.2.3.) using an appropriate test method with the Substance;

7. Bioaccumulation in aquatic species (Annex IX, Section 9.3.2; test method OECD TG 305) with the Substance including each relevant constituent present in concentration at or above 0.1% (w/w) and relevant degradation products;

Conditions to comply with the requests

Each addressee of this decision is bound by the requests for information corresponding to the REACH Annexes applicable to their own registered tonnage of the Substance at the time of evaluation of the jointly submitted dossier.

To identify your legal obligations, please refer to the following:

- you have to comply with the requirements of Annex VII of REACH, if you have registered a substance at 1-10 tonnes per annum (tpa), or as a transported isolated intermediate in quantity above 1000 tpa;
- you have to comply with the requirements of Annexes VII, VIII and IX of REACH, if you have registered a substance at 100-1000 tpa;
- you have to comply with the requirements of Annexes VII to X of REACH, if you have registered a substance at above 1000 tpa.

Registrants are only required to share the costs of information that they must submit to fulfil the information requirements for their registration.

The Appendices state the reasons for the requests for information to fulfil the requirements set out in the respective Annexes of REACH.

The Appendix entitled Observations and technical guidance addresses the generic approach for the selection and reporting of the test material used to perform the required studies and provides generic recommendations and references to ECHA guidance and other reference documents.

The studies relating to biodegradation and bioaccumulation (requests C.3 to C.7) are necessary for the PBT assessment. However, to determine the testing needed to reach the conclusion on the persistency and bioaccumulation of the Substance you should consider the sequence in which these tests are performed and other conditions described in section 5 of Appendix E.

You must submit the information requested in this decision by the deadline indicated above in an updated registration dossier and also update the chemical safety report, where relevant, including any changes to classification and labelling, based on the newly generated information. The timeline has been set to allow for sequential testing where relevant.

ECHA
EUROPEAN CHEMICALS AGENCY

Appeal

This decision can be appealed to the Board of Appeal of ECHA within three months of its notification. An appeal, together with the grounds thereof, has to be submitted to ECHA in writing. An appeal has suspensive effect and is subject to a fee. Further details are described under: http://echa.europa.eu/regulations/appeals.

Approved[1] under the authority of Christel Schilliger-Musset, Director of Hazard Assessment

[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 A: Reasons for the requests to comply with Annex VII of REACH

Under Articles 10(a) and 12(1) of REACH, a technical dossier registered at 1 to 10 tonnes or more per year must contain, as a minimum, the information specified in Annex VII to REACH.

1. Short-term toxicity testing on aquatic invertebrates (Annex VII, Section 9.1.1.)

Short-term toxicity testing on aquatic invertebrates is a standard information requirement in Annex VII to REACH.

You have provided a key study ([redacted], 1988) conducted according to ASTM Standard E729-80 (1980) with the Substance.

You have also provided the following two supporting studies conducted with the Substance:

- ([redacted], 1990), according to USEPA Method 1002.0;
- ([redacted], 1998), according to EPA OTS 797.1300.

We have assessed this information and identified the following issue(s).

A. According to Article 13(3) of REACH, tests on substances must be conducted in accordance with the applicable OECD test guidelines or other recognised international test methods. OECD TG 202 is the preferred guideline to fulfil this information requirement.[2] Appendix R.7.8-2 of ECHA Guidance R.7.b lists the acceptable alternatives to the OECD tests. The OECD TG 202 requires that you must (among others):

- include an appropriate number of test animals (at least 20) per test concentration;
- provide details on test material. For multi-constituents, information on chemical identity of the individual constituents and, for each, its percentage of the total mass of the substance is important;
- perform analytical monitoring to verify the initial concentrations and maintenance of the exposure concentrations during the test;
- provide evidence that exposure concentrations have been maintained throughout the test within ±80-120 % of the nominal or initial measured concentration, in case you use nominal concentrations for expressing the results.

The supporting study ([redacted], 1998) is conducted in accordance with a test guideline listed as an acceptable alternative to OECD TG 202.

You have not provided details on the composition of the test material. Also, the concentrations of the test substance were not measured. Furthermore, you have not provided evidence that the concentration of the test substance was maintained within ± 80-120 % of the nominal or measured initial concentration throughout the test, as required by OECD TG 202.

Since the Substance is a multi-constituent, missing information on the test material is essential to verify that the test material is representative of the Substance.

As noted above, the concentrations of the test substance were not measured nor evidence provided that they were maintained at the required level. Due to the adsorptive properties

[2] ECHA Guidance R.7b, Section R.7.8.4.1 and Appendix R.7.8-2

(ionisable substance) and surface activity (surface tension 37.3 mN/m) of the Substance, it is considered as a substance difficult to test. Therefore, evidence that exposure concentrations have been maintained throughout the test is essential to verify the reliability of the studies.

For all the reasons noted above, this study does not provide information required by OECD TG 202.

B. In case the data provided is not carried out according to the methods referred to in Article 13(3) of REACH, the conditions for a general rule for adaptations as set out in Annex XI, Section 1.1.2. have to be met.
According to Annex XI, Section 1.1.2., data shall be considered equivalent to data generated by the corresponding test methods referred to in Article 13(3) if the following conditions are met:
- Adequacy for the purpose of classification and labelling and/or risk assessment;
- Adequate and reliable coverage of the key parameters foreseen to be investigated in the corresponding test methods referred to in Article 13(3).

The information required by the OECD TG 202 is noted above (point A).

The key study and the supporting study ([redacted], 1990) are not conducted in accordance with OECD TG 202 nor with the test guidelines listed as acceptable alternatives (Appendix R.7.8-2 of ECHA Guidance R.7.b).

For neither the key study nor the supporting study ([redacted], 1990) you have provided details on the composition of the test material.

In the supporting study ([redacted], 1990), the number of test animals per test concentration was 10.

In these two studies the concentrations of the test substance were not measured.

For neither of these two studies you have provided evidence that the concentration of the test substance was maintained within ± 80-120 % of the nominal or measured initial concentration throughout the tests, as required by OECD TG 202.

Importance of this missing information, due to the substance properties and characteristic, has already been noted above (point A).

For all the reasons noted above, these two studies do not provide information required by OECD TG 202 nor are they adequate for the purpose of classification and labelling and/or risk assessment.

Consequently, they do not comply with the general rules of adaptation as set out in Annex XI, Section 1.1.2.

C. According to column 2 of Annex VII section 9.1.1 a short-term study on aquatic invertebrates is not required if a long-term aquatic toxicity study on invertebrates is available.

In your comments on the draft decision (DD) you consider to move directly to a long-term aquatic invertebrates study. You acknowledge that the old short-term data provided does not

conform to all aspects of new guideline requirements, but intend to use the existing data to inform on the need for and prioritisation of new studies.

Your approach of conducting a long-term study instead of the short-term study as per column 2 of Annex VII section 9.1.1. is acceptable, however ECHA notes that your acknowledgement of the deficiencies in the available short-term aquatic invertebrate data, see paragraph above, needs to be also reflected in your technical dossier.

Therefore, the information requirement is not fulfilled.

Study design

The substance is difficult to test due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m). OECD TG 202 specifies that for difficult to test substances, the OECD Guidance 23 is to be followed. To get reliable results, the substance properties need to be considered when performing the test, in particular with regard to the test design; including exposure system, test solution preparation, and sampling. OECD GD 23 (Table 1) describes testing difficulties related to a specific property of the substance. You may use the approaches described in OECD GD 23 or other approaches if more appropriate for your substance. The approach selected must be justified and documented.

Due to the substance properties it may be difficult to achieve and maintain the exposure concentrations. Therefore, you have to demonstrate that the concentration of the substance is stable throughout the test (i.e. measured concentrations remains within 80-120% of the nominal concentration). If it is not possible to demonstrate the stability, you must express the effect concentration based on measured values as described in the applicable test guideline. In case a dose-response relationship cannot be established (no observed effects), you must demonstrate that the test solution preparation method applied was sufficient to maximise the concentration of the Substance in the test solution. Furthermore, exposure concentrations must be below the critical micelle concentration (CMC). This will ensure that test organisms are exposed to the freely dissolved chemical species and not the micelle which can alter the uptake of the test chemical.

Appendix B: Reasons for the requests to comply with Annex VIII of REACH

Under Articles 10(a) and 12(1) of REACH, a technical dossier registered at 10 to 100 tonnes or more per year must contain, as a minimum, the information specified in Annexes VII and VIII to REACH.

1. Short-term toxicity testing on fish (Annex VIII, Section 9.1.3.)

Short-term toxicity testing on fish is a standard information requirement in Annex VIII to REACH.

You have provided a key study ([redacted], 1975) conducted according to "*EPA, 1972. Fish - pesticide acute toxicity test guideline.*" with the Substance.

You have also provided a supporting study ([redacted], 1998), conducted according to EPA OTS 797.1400 with the Substance.

We have assessed this information and identified the following issue(s).

According to Article 13(3) of REACH, tests on substances must be conducted in accordance with the applicable OECD test guidelines or other recognised international test methods. OECD TG 203 is the preferred guideline to fulfil this information requirement.[2] Appendix R.7.8-2 of ECHA Guidance R.7.b lists the acceptable alternatives to the OECD tests. In case the data provided is not carried out according to the methods referred to in Article 13(3) of REACH, the conditions for a general rule for adaptations as set out in Annex XI, Section 1.1.2. have to be met.

According to Annex XI, Section 1.1.2., data shall be considered equivalent to data generated by the corresponding test methods referred to in Article 13(3) if the following conditions are met:

- Adequacy for the purpose of classification and labelling and/or risk assessment;
- Adequate and reliable coverage of the key parameters foreseen to be investigated in the corresponding test methods referred to in Article 13(3).

The OECD TG 203 requires that you must (among others):

- use controls and include an appropriate number (7) of test animals per test concentrations and in the controls;
- provide details on test material. For multi-constituents, information on chemical identity of the individual constituents and, for each, its percentage of the total mass of the substance is important;
- perform analytical monitoring to verify the initial concentrations and maintenance of the exposure concentrations during the test;
- provide evidence that exposure concentrations have been maintained throughout the test within ±80-120 % of the nominal or initial measured concentration, in case you use nominal concentrations for expressing the results.

The key study and the supporting study are not conducted in accordance with OECD TG 203 nor with the test guidelines listed as acceptable alternatives.

In the supporting study, no controls were used and the number of test animals per test concentration was 5.

For neither the key study nor the supporting study you have provided details on the composition of the test material.

Also, in all the provided studies the concentrations of the test substance were not measured.

Furthermore, you have not provided evidence that the concentration of the test substance was maintained within ± 80-120 % of the nominal or measured initial concentration throughout the tests, as required by OECD TG 203.

Since the Substance is a multi-constituent, missing information on the test material is essential to verify that the test material is representative of the Substance.

As noted above, the concentrations of the test substance were not measured nor evidence provided that they were maintained at the required level. Due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m) of the Substance, it is considered as a substance difficult to test. Therefore, evidence that exposure concentrations have been maintained throughout the test is essential to verify the reliability of the studies.

For all the reasons noted above, these two studies do not provide information required by OECD TG 203 nor are they adequate for the purpose of classification and labelling and/or risk assessment.

Consequently, they do not comply with the general rules of adaptation as set out in Annex XI, Section 1.1.2..

In your comments on the draft decision you agree with the request.

Therefore, the information requirement is not fulfilled.

Study design
The substance is difficult to test due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m). OECD TG 203 (2019) specifies that for difficult to test substances, the OECD Guidance 23 is to be followed, as described above under request A.1.

Appendix C: Reasons for the requests to comply with Annex IX of REACH

Under Articles 10(a) and 12(1) of REACH, a technical dossier registered at 100 to 1000 tonnes or more per year must contain, as a minimum, the information specified in Annexes VII to IX to REACH.

1. **Long-term toxicity testing on aquatic invertebrates (Annex IX, Section 9.1.5.)**

Long-term toxicity testing on aquatic invertebrates is a standard information requirement in Annex IX to REACH.

You have provided a key study ([redacted], 1990) conducted according to USEPA Method 1002.0 with the Substance.

We have assessed this information and identified the following issue(s).

According to Article 13(3) of REACH, tests on substances must be conducted in accordance with the applicable OECD test guidelines or other recognised international test methods. OECD TG 211 is the preferred guideline to fulfil this information requirement.[2] Appendix R.7.8-2 of ECHA Guidance R.7.b lists the acceptable alternatives to the OECD tests. In case the data provided is not carried out according to the methods referred to in Article 13(3) of REACH, the conditions for a general rule for adaptations as set out in Annex XI, Section 1.1.2. have to be met.

According to Annex XI, Section 1.1.2., data shall be considered equivalent to data generated by the corresponding test methods referred to in Article 13(3) if the following conditions are met:

- Adequacy for the purpose of classification and labelling and/or risk assessment;
- Adequate and reliable coverage of the key parameters foreseen to be investigated in the corresponding test methods referred to in Article 13(3).

The OECD TG 211 requires that you must (among others):

- provide details on test material. For multi-constituents, information on chemical identity of the individual constituents and, for each, its percentage of the total mass of the substance is important;
- perform analytical monitoring to verify the initial concentrations and maintenance of the exposure concentrations during the test;
- provide evidence that exposure concentrations have been maintained throughout the test within ±80-120 % of the nominal or initial measured concentration, in case you use nominal concentrations for expressing the results.

The key study is not conducted in accordance with OECD TG 211 nor with the test guidelines listed as acceptable alternatives.

In the key study you have not provided details on the composition of the test material.

Also, the concentrations of the test substance were not measured.

Furthermore, you have not provided evidence that the concentration of the test substance was maintained within ± 80-120 % of the nominal or measured initial concentration throughout the tests, as required by OECD TG 211.

Since the Substance is a multi-constituent, missing information on the test material is essential to verify that the test material is representative of the Substance.

As noted above, the concentrations of the test substance were not measured nor evidence provided that they were maintained at the required level. Due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m) of the Substance, it is considered as a substance difficult to test. Therefore, evidence that exposure concentrations have been maintained throughout the test is essential to verify the reliability of the study.

For all the reasons noted above, the key study does not provide information required by OECD TG 211 nor is it adequate for the purpose of classification and labelling and/or risk assessment.

Consequently, it does not comply with the general rules of adaptation as set out in Annex XI, Section 1.1.2..

In your comments on the draft decision you agree with the request.

Therefore, the information requirement is not fulfilled.

Study design
The substance is difficult to test due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m). OECD TG 211 specifies that for difficult to test substances, the OECD Guidance 23 is to be followed, as described above under request A.1.

2. Long-term toxicity testing on fish (Annex IX, Section 9.1.6.1.)

Long-term toxicity testing on fish is a standard information requirement in Annex IX to the REACH Regulation.

You have adapted this information by referring to Column 2 of Annex IX Section 9.1., claiming that the chemical safety assessment does not indicate the need to investigate further the effects on fish because the PEC/PNECaqua ratio for the aquatic environment is below one.

We have assessed this information and identified the following issue(s).

As specified in Annex IX, Section 9.1., Column 2, long-term toxicity on fish must be performed unless the Chemical Safety Assessment demonstrates that risks towards the aquatic compartment arising from the use of the Substance are controlled (as per Annex I, section 0.1). The justification must be documented in the Chemical Safety Assessment.

In particular, the Chemical Safety Assessment must take into account the following elements to support that long-term toxicity testing is not required:

- all relevant hazard information from your registration dossier;
- the outcome of the PBT/vPvB assessment including information on relevant degradation products and constituents present in concentration at or above 0.1% (w/w).

As specified in requests A.1, B.1 and C.1, the data on short-term toxicity to fish and to *Daphnia* and the data on long-term toxicity to *Daphnia* are not compliant. Hence, your dossier currently does not include adequate information to characterise the hazardous property of the Substance to aquatic organisms.

Additionally, the screening information provided in your dossier indicates that the Substance may have PBT/vPvB properties (ECHA Guidance R.11, Section R.11.4 and Annex XIII of REACH):

- The Substance is potentially P or vP since not readily biodegradable (0% degradation after 20 days in a study equivalent or similar to OECD TG 301D) nor inherently biodegradable (21% degradation (DOC removal) after 28d in a study according to OECD TG 302B).

Further testing is now requested on the B/vB and P/vP properties of the Substance and on the degradation products, as described in sections C.3-C.7 below. Therefore, no definitive conclusion can be yet reached for PBT/vPvB assessment.

In conclusion, in absence of all this information, your Chemical Safety Assessment does not demonstrate that the risks of the Substance are adequately controlled. As a consequence, your adaptation is rejected as it does not meet the specific rules for adaptation of Annex IX, Section 9.1., Column 2.

In your comments on the draft decision you indicate that you will conduct the long-term fish study following the long-term daphnia study only, if the fish study would be needed to conclude on the T criterion of the substance.

As given above, the long-term toxicity test on fish must be performed unless the Chemical Safety Assessment demonstrates that risks towards the aquatic compartment arising from the use of the Substance are controlled. In addition to the PBT assessment you also need to consider whether the data is required for the hazard and risk assessment and e.g. whether based on the long-term daphnia study and an appropriate assessment factor all risks are controlled, i.e. all relevant RCRs are below 1.

Based on the above, the information requirement is not fulfilled.

Study design
The substance is difficult to test due to the adsorptive properties (ionisable substance) and surface activity (surface tension 37.3 mN/m). OECD TG 210 specifies that for difficult to test substances, the OECD Guidance 23 is to be followed, as described above under request A.1.

3. Simulation testing on ultimate degradation in surface water (Annex IX, Section 9.2.1.2.)

Simulation testing on ultimate degradation in surface water is a standard information requirement in Annex IX to the REACH Regulation.

You have not provided any study on simulation testing on ultimate degradation in surface water, nor an adaptation in accordance with column 2 of Annex IX, Sections 9.2 or 9.2.1.2. or with the general rules of Annex XI for this standard information requirement.

Therefore, the information requirement is not fulfilled.

In your comments on the draft decision you agree with the request. Please refer to request C.5 for ECHA's reply to your testing strategy for persistency.

Study design
OECD test guideline 309 is an appropriate method for studying degradation in surface water. Under Annex XIII, the information must be based on data obtained under conditions relevant for the PBT/vPvB assessment. Therefore:

- You must perform the OECD TG 309 test, by following the pelagic test option with natural surface water containing approximately 15 mg dw/L of suspended solids (acceptable concentration between 10 and 20 mg dw/L) (ECHA Guidance R.11).

- You must perform the test at the temperature of 12 °C, the average environmental temperature for the EU (ECHA Guidance R.16, Table R.16-8). Performing the test at this temperature is in line with the applicable test conditions of the OECD TG 309.

Non-extractable residues (NER) needs to be quantified in all simulation studies. The reporting of results must include a scientific justification of the used extraction procedures and solvents. By default, total NER is regarded as non-degraded substance. However, if reasonably justified and analytically demonstrated, a certain part of NER may be differentiated and quantified as irreversibly bound or as degraded to biogenic NER. Such fractions could be regarded as removed when calculating the degradation half-life(s) (ECHA Guidance Chapter R.11).

Under Annex XIII, you must assess the PBT/vPvB properties of the relevant constituents of the Substance. Therefore, the persistence of each relevant constituent present in concentrations at or above 0.1% (w/w) or, if not technically feasible, in concentrations as low as technically detectable must be assessed. Alternatively, you would have to justify why you consider these not relevant for the PBT/vPvB assessment.

4. Soil simulation testing (Annex IX, Section 9.2.1.3.)

Soil simulation testing is a standard information requirement in Annex IX to REACH for substances with a high potential for adsorption to soil. The Substance is ionisable (estimated pKa values range from -0.91 to -0.24), indicating high adsorptive properties.

You have adapted this information requirement by using a Grouping of substances and read-across approach under Annex XI, Section 1.5. with the following study conducted with the analogue substance DOWFAX 8390 Surfactant (CAS No. 96024-29-2):

- *"ks_2003_Biodegradation in soil"*, [redacted] (2003).

Annex XI, Section 1.5. specifies two conditions which must be fulfilled whenever a read-across approach is used. Firstly, there needs to be structural similarity between substances which results in a likelihood that the substances have similar physicochemical, toxicological and ecotoxicological properties so that the substances may be considered as a group or category. Secondly, it is required that the relevant properties of a substance within the group may be predicted from data for reference substance(s) within the group. Additional information on what is necessary when justifying a read-across approach can be found in the ECHA Guidance R.6 and related documents.

You predict the properties of the Substance from the analogue substance: DOWFAX 8390 Surfactant (CAS No. 96024-29-2; i.e. the source substance).

You have provided a read-across justification that addresses the current endpoint of simulation testing in the Endpoint Summary of IUCLID Section 5.2.3.

We have assessed your adaptation and note the following shortcomings with regards to the prediction of biodegradation properties.

i) Read-across hypothesis only based on structural similarity

A read-across hypothesis needs to be provided, establishing why a prediction for a toxicological or ecotoxicological property is reliable. This hypothesis should be based on recognition of the structural similarities and differences between the source substance(s) and your Substance.[3] It should explain why the differences in the chemical structures should not influence the toxicological/ ecotoxicological properties or should do so in a regular pattern.

You have provided the following reasoning for the prediction of biodegradation properties: *"The primary biodegradation and mineralization of a 14C-radiolabeled C16 mono-alkyl/di-sulfonatated diphenyl oxide substance (DOWFAX 8390) was evaluated in aerobic surface soils, freshwater sediments, and an estuarine sediment over 266 days. This substance is structurally similar to the Dowfax 2A1 substance, with the alkyl group occurring as a branched C12 chain. The sulfonated diphenyl oxide structure is common to both substances, and radiolabeling was specific to the diphenyl oxide rings. Therefore, mineralization of the tested substance to 14CO2 demonstrated in this study is expected to represent the same rate/extent of degradation for the Dowfax 2A1 substance in surface water/sediments. (..)"*

Your read-across hypothesis is that the similarity in chemical structure between the source substance(s) and your Substance is a sufficient basis for predicting the properties of your Substance for other endpoints.

However, similarity in chemical structure does not necessarily lead to predictable or similar biodegradation properties. Additionally, there are structural differences between the source substance and the Substance and you have not considered the impact of the structural differences on the prediction.

Therefore, you have not provided a well-founded hypothesis to establish a reliable prediction for a biodegradation property.

ii) Source study(ies) not meeting Annex XI Section 1.5 Requirements

At last, according to Annex XI, Section 1.5., if the grouping concept is applied then in all cases the results to be read across must:

- be adequate for the purpose of classification and labelling and/or risk assessment;
- have adequate and reliable coverage of the key parameters addressed in the corresponding test method referred to in Article 13(3). For soil simulation testing OECD TG 307 applies.[4]

The key parameters of this test guideline and ECHA Guidance R.7b include that you must

[3] ECHA Guidance R.6
[4] ECHA Guidance R.7b, Section R.7.9.3.1.

(among others):

- Use test concentrations between 1-100 µg/L in order to determine the degradation kinetics (Section R.7.9.4.1 of ECHA Guidance R.7b).
- Determine rates of transformation in four soils.
- Adjust and maintain the soil moisture content at a pF-range of 2.0-2.5.
- Quantify non-extractable residues (NER).
- Report test soil properties, including soil texture (% sand, % silt, % clay), bulk density, water retention characteristics and microbial biomass.
- Report test conditions, including information on pre-incubation period; number of replicates and number of controls.
- Report the results including all measured data and calculated values in tabular form and degradation curves; identification, molar concentration and percentage of applied of major transformation products.

In the source study you provided:

- Test concentration was 1000 µg/L.
- Only three soils were tested.
- Soil moisture content is not reported.
- Non-extractable residues (NER) were not quantified.
- You do not report test soil properties, test conditions and test results as listed above.

Due to the above mentioned deficiencies of the source study, it does not provide adequate and reliable coverage of the key parameters of OECD TG 307. Consequently, the study is not adequate for the purpose of classification and labelling and/or risk assessment.

iii) Conclusion

You have not established that relevant properties of the Substance can be predicted from data on the analogue substance. Your adaptation does not comply with the general rules of adaptation as set out in Annex XI, Section 1.5. and your adaptation based on a grouping and read-across approach is rejected.

Therefore, the information requirement is not fulfilled.

In your comments on the draft decision you acknowledge that the read-across approach is not acceptable and that the studies on the analogue substance have shortcomings with respect to current test guidelines. You agree to conduct the study requested. Please refer to request C.5 for ECHA's reply to your testing strategy for persistency.

Study design

OECD TG 307 is an appropriate method for studying the degradation in soil. The requested simulation tests must be performed under relevant conditions (12 °C) and non-extractable residues (NER) must be quantified, for the reasons explained above in section C.3. The biodegradation of each relevant constituent present in concentration at or above 0.1% (w/w) or, if not technically feasible, in concentrations as low as technically detectable, must be assessed. This can be done simultaneously during the same study. Alternatively, you must provide a justification for why you consider these as not relevant for the PBT/vPvB assessment.

5. Sediment simulation testing (Annex IX, Section 9.2.1.4.)

Sediment simulation testing is a standard information requirement in Annex IX to REACH for substances with a high potential for adsorption to sediment. The Substance is ionisable (estimated pKa values range from -0.91 to -0.24), indicating high adsorptive properties.

You have adapted this information requirement by using a Grouping of substances and read-across approach under Annex XI, Section 1.5. with the following studies conducted with the analogue substance DOWFAX 8390 Surfactant (CAS No. 96024-29-2):

- *"RA KS_2003_Biodegradation in water and sediment: simulation tests"*, [redacted] (2003).
- *"RA_ks_1999_Biodegradation in water and sediment: simulation tests.001"*, [redacted] (1999).

Annex XI, Section 1.5. specifies two conditions which must be fulfilled whenever a read-across approach is used. Firstly, there needs to be structural similarity between substances which results in a likelihood that the substances have similar physicochemical, toxicological and ecotoxicological properties so that the substances may be considered as a group or category. Secondly, it is required that the relevant properties of a substance within the group may be predicted from data for reference substance(s) within the group. Additional information on what is necessary when justifying a read-across approach can be found in the ECHA Guidance R.6 and related documents.

You predict the properties of the Substance from the analogue substance: DOWFAX 8390 Surfactant (CAS No. 96024-29-2; i.e. the source substance).

You have provided a read-across justification that addresses the current endpoint of simulation testing in the Endpoint Summary of IUCLID Section 5.2.2.

We have assessed your adaptation and note the following shortcomings with regards to the prediction of biodegradation properties.

i) Read-across hypothesis only based on structural similarity

A read-across hypothesis needs to be provided, establishing why a prediction for a toxicological or ecotoxicological property is reliable. This hypothesis should be based on recognition of the structural similarities and differences between the source substance(s) and your Substance.[3] It should explain why the differences in the chemical structures should not influence the toxicological/ ecotoxicological properties or should do so in a regular pattern.

You have provided the reasoning for the prediction of biodegradation properties for this endpoint, which is the same as the one provided for simulation in soil (and described in point C.4 above).

In short, your read-across hypothesis is that the similarity in chemical structure between the source substance(s) and your Substance is a sufficient basis for predicting the properties of your Substance for other endpoints.

However, similarity in chemical structure does not necessarily lead to predictable or similar biodegradation properties. Additionally, there are structural differences between the source

substance and the Substance and you have not considered the impact of the structural differences on the prediction.

Therefore, you have not provided a well-founded hypothesis to establish a reliable prediction for a biodegradation property.

ii) Source study(ies) not meeting Annex XI Section 1.5 Requirements

At last, according to Annex XI, Section 1.5., if the grouping concept is applied then in all cases the results to be read across should:

- be adequate for the purpose of classification and labelling and/or risk assessment;
- have adequate and reliable coverage of the key parameters addressed in the corresponding test method referred to in Article 13(3). For sediment simulation testing OECD test guideline 308 applies.[4]

The key parameters of this test guideline and ECHA Guidance R.7b include that you must (among others):

- Use test concentrations between 1-100 µg/L in order to determine the degradation kinetics (Section R.7.9.4.1 of ECHA Guidance R.7b).
- Determine rates of transformation in two sediments. In addition, freshly sampled water and sediment samples must be used and storing must be for a maximum of 4 weeks.
- Quantify non-extractable residues (NER).
- Report characteristics of the water-sediment samples, including pH and TOC for water and pH, TOC and microbial biomass for sediment.
- Report test conditions, including information on pre-incubation period.
- Report the results, including all measured data and calculated values in tabular form and degradation curves and identification, molar concentration and percentage of applied of major transformation products.

In the source study *"RA KS_2003_Biodegradation in water and sediment: simulation tests"* you provided:

- Test concentration was 1000 µg/L.
- Although more than two sediments were tested, all sediment samples except for one (Tittabawassee river) were *"stored from five to nine months prior to use"*.
- You do not specify the number of systems sacrificed at each sampling point.
- Non-extractable residues (NER) were not quantified.
- You do not report characteristics of the water-sediment samples, test conditions and test results as listed above.

In the source study *"RA_ks_1999_Biodegradation in water and sediment: simulation tests.001"* you provided:

- Test concentration was 1000 µg/L.
- Only one sediment was tested.
- Only one system was sacrificed at 6 out of 7 sampling points.
- Non-extractable residues (NER) were not quantified.
- You do not report characteristics of the water-sediment samples, test conditions and test results as listed above.

Due to the above mentioned deficiencies of the source studies, they do not provide adequate and reliable coverage of the key parameters of OECD TG 308. Consequently, the studies are not adequate for the purpose of classification and labelling and/or risk

assessment.

In your comments on the draft decision you acknowledge that the read-across approach is not acceptable and that the studies on the analogue substance have shortcomings with respect to current test guidelines. You acknowledge that it is necessary to assess the persistency of the Substance further, and indicate that new simulation studies should focus on establishing rates of degradation in relevant environmental compartments to make it possible to conclude on persistency and risk assessment. You consider that sediment is not a relevant compartment for testing based on a Koc of 1000 L/kg (Log Koc 3) leading to a Kp < 2000, which you consider a recommended threshold for consideration of an aquatic sediment simulation test according to ECHA Guidance R.7b, and as direct and indirect exposure of sediment is unlikely.

We have assessed this information and identified the following issues.

a. Exposure of sediment

Simulation testing in sediment does not need to be conducted if direct or indirect exposure of sediment is unlikely (Annex IX, Section 9.2.1.3, column 2).

In your comments on the draft decision you do not explain why sediment exposure is unlikely. Due to wide dispersive uses by professionals and consumers (e.g. Environmental Release Category 8d and 8f) exposure of sediment cannot be excluded. Also the exposure estimations provided in the Chemical Safety Report indicate that there is exposure to sediment.

b. Substance properties

According to ECHA Guidance R.7b (version 4.0 June 2017) the Kp or Koc values may be used as indicators of whether testing in a water-sediment system or in soil may be warranted. It states further that "*Substances with e.g. log Koc >4 have a high potential for adsorption to soil and sediment*".

In your dossier you have included an adsorption/desorption study (OECD TG 106) conducted on the source substance DOWFAX 8390 Surfactant (CAS No. 96024-29-2; the same source substance addressed in the read-across section above) with log Koc values ranging from 4.54 to 4.81. You state that "*Linear regression of measured log Koc values for a series of C6, 8,10, and 12 normal alcohols gives a linear relationship, with contribution of each methylene carbon of log Koc = 0.43.*" and based on this you estimate the Log Koc of the Substance to be 3. ECHA has rejected the read-across approach with this source substance above in this draft decision. You have not provided any further information on this proposed read-across nor any endpoint specific justification. You hence have no data on the Substance to show that sediment would not be a relevant compartment to consider.

Based on the above ECHA considers that sediment is a relevant compartment to consider for assessing the degradation of the substance further.

Nevertheless, to determine the testing needed to reach the conclusion on the persistency of the Substance you should consider the sequence in which the simulation tests are performed, the necessity to conduct all of them and other conditions described in section 5 of Appendix E.

iii) Conclusion

You have not established that relevant properties of the Substance can be predicted from data on the analogue substance. Your adaptation does not comply with the general rules of adaptation as set out in Annex XI, Section 1.5. and your adaptation based on a grouping and read-across approach is rejected.

Therefore, the information requirement is not fulfilled.

Study design
OECD TG 308 is an appropriate method for studying the degradation in sediment. The requested simulation tests must be performed under relevant conditions (12 °C) and non-extractable residues (NER) must be quantified, for the reasons explained above in section C.3. The biodegradation of each relevant constituent present in concentration at or above 0.1% (w/w) or, if not technically feasible, in concentrations as low as technically detectable, must be assessed. This can be done simultaneously during the same study. Alternatively, you must provide a justification for why you consider these as not relevant for the PBT/vPvB assessment.

6. Identification of degradation products (Annex IX, 9.2.3.)

Identification of the degradation products is a standard information requirement in Annex IX to the REACH Regulation.

You have not provided any information on the identification of degradation products of the Substance, nor an adaptation in accordance with column 2 of Annex IX, Sections 9.2 or 9.2.3. or with the general rules of Annex XI for this standard information requirement.

Therefore, the information requirement is not fulfilled.

Study selection and design
You must obtain this information while performing the simulation studies requested in this decision (Appendix C, sections 3-5 above). You must provide a scientifically valid justification for any other method you have used for identification of the transformation/degradation products.

Identity, stability, behaviour, and molar quantity of the degradation/ transformation products relative to the Substance must be evaluated and reported, when analytically possible. In addition, degradation half-life, potential for bioaccumulation and toxicity of the degradation/ transformation products must be investigated.

In your comments on the draft decision you indicate that based on the data on the analogue substance (read-across addressed under requests C.4 and C.5) the Substance will most likely undergo primary rapid degradation to sulfodipheny carboxylates. In the simulation studies conducted you hence consider it of most relevance to focus on assessing the rate of degradation.

However, in addition to the degradation rate, the identity and relevance of degradation products must be included in the risk assessment and PBT assessment (ECHA Guidance R.11, Sections R.11.4 and R.11.3.2.1).

The information provided in your comments concerns only potential degradation products of an analogue substance, the read-across of which ECHA has rejected (see requests C.4 and C.5). There is hence no informaton available on the degradation products of the Substacne. This information is required to complete the PBT/vPvB assessment of the Substance.

7. Bioaccumulation in aquatic species (Annex IX, Section 9.3.2.)

Bioaccumulation in aquatic species is a standard information requirement in Annex IX to the REACH Regulation.

You have adapted this information requirement by using Column 2 of Annex IX, Section 9.3.2. You justify the adaptation by stating that the Substance has a low potential for bioaccumulation.

Furthermore, you have adapted this information requirement by using a Grouping of substances and read-across approach under Annex XI, Section 1.5. with the following study conducted with the analogue substance C12-C14 linear alkylbenzene sulfonate (LAS), EC No. 285-600-2 (CAS No. 85117-50-6):

- *"ss_1979_Bioaccumulation: aquatic /sediment- Daphnids and Fathead Minnows"*, Comotto R. M. et al. (1979, publication), no guideline reported

We have assessed your adaptations in the following:

A. Adaptation based on Column 2 of Annex IX, Section 9.3.2

To comply with Column 2 specific rules for adaptation, the following must be demonstrated among others:

- the Substance has low potential for bioaccumulation (e.g. a log Kow ≤3) and/or it has low potential to cross biological membranes.

For some groups of substances (e.g. organometals, ionisable substances, surfactants), log Kow is not a valid descriptor of the bioaccumulation potential,[5] because for these substances bioaccumulation may be driven by other mechanisms than partitioning to lipids (e.g. binding to protein/cell membranes).[6]

You have justified the low potential for bioaccumulation because the partition coefficient value (log Kow) is ≤ 3 (-2.68). The Substance is surface active (surface tension 37.3 mN/m).

As the substance is a surfactant, log Kow is not a valid descriptor for assessing the bioaccumulation potential of such substances.

In your comments on the draft decision you maintain that Log Kow can, together with other supporting information, be used to estimate the bioaccumulation potential of a surfactant. You refer to a scientific study available in literature on another surfactant C12-LAS (source substance assessed below in section B.) where it was shown that biotransformation rate constants obtained from in vitro assays could be used in a Kow-model to accurately reproduce empirical fish BCF values. You acknowledge that this may not be possible for all surfactants but consider it applicable to the Substance due to it having similar moieties to C12-LAS.

[5] ECHA Guidance R.11, Section R.11.4.1.2.10
[6] ECHA Guidance R.7c, Appendix R.7.10-3

It is unclear how you intend to use the information available for the analogue substance C12-LAS to apply for the Substance. You only consider that the substances are both surfactants that have similar moieties, however as fully discussed below in section B. there are also structural differences between the source and the Substance, and due to that, amongst other things, the read-across is not accepted.

Therefore, the provided adaptation is rejected.

B. Grouping of substances and read-across approach

Annex XI, Section 1.5. specifies two conditions which must be fulfilled whenever a read-across approach is used. Firstly, there needs to be structural similarity between substances which results in a likelihood that the substances have similar physicochemical, toxicological and ecotoxicological properties so that the substances may be considered as a group or category. Secondly, it is required that the relevant properties of a substance within the group may be predicted from data for reference substance(s) within the group. Additional information on what is necessary when justifying a read-across approach can be found in the ECHA Guidance R.6 and related documents.

You predict the properties of the Substance from the analogue substance: C12-C14 linear alkylbenzene sulfonate (LAS), EC No. 285-600-2 (CAS No. 85117-50-6; i.e. source substance).

You have provided a read-across justification that addresses the current endpoint of simulation testing in the Endpoint Summary of IUCLID Section 5.3.1.

We have assessed your adaptation and note the following shortcomings with regards to the prediction of bioaccumulation properties.

i) Read-across hypothesis

A read-across hypothesis needs to be provided, establishing why a prediction for a toxicological or ecotoxicological property is reliable. This hypothesis should be based on recognition of the structural similarities and differences between the source substance(s) and your Substance[3]. It should explain why the differences in the chemical structures should not influence the toxicological/ ecotoxicological properties or should do so in a regular pattern.

You have provided the following reasoning for the prediction of bioaccumulation properties: *"Both LAS and DOWFAX 2A1 posses the common structural features of sulfonated aromatic ring and C12 alkyl substituents; therefore, their modes and potential for metabolism in fish should be equivalent. Both substanes are reported to be miscible in water. The DOWFAX 2A1 components have slightly higher lipophilicity, with calculated log Pow (US EPA KOWWIN v.167) ranging from 4.98 to 11.8; while that for components of LAS range from 4.71 to 5.69."*

You further claim: *"Measured bioconcentration of the structurally-analogous C12 -C14 linear alkylbenzene sulfonate (LAS) surfactants in fathead minnow and Daphnia magna ranged from 269 - 1,223 and 500 - 4,000 L/Kg (dry wt.), respectively. The bioconcentration factors reported here can be regarded as highly conservative (...)*

Therefore, DOWFAX 2A1 does not likely exceed the criteria for high or very high bioaccumulation in aquatic organisms (i.e., BCF > 2,000 and 5,000; respectively)."

Your read-across hypothesis is that the similarity in chemical structure and in some of the physicochemical properties between the source substance(s) and your Substance is a sufficient basis for predicting the properties of your Substance for other endpoints. In your hypothesis you further refer to similarity in lipophilicity (log Kow) and in fish metabolism.

However, similarity in chemical structure and in some of the physicochemical properties does not necessarily lead to predictable or similar bioaccumulation properties in other endpoints. Additionally, there are structural differences between the source substance and the Substance and you have not considered the impact of the structural differences on the prediction.

Therefore, you have not provided a well-founded hypothesis to establish a reliable prediction for a bioaccumulation property.

Furthermore, your claim of similarity in lipophilicity (log Kow) does not establish why the prediction for a bioaccumulation property is reliable, since the Substance and the source substance(s) are surfactants and, as explained above, log Kow is not a valid descriptor for assessing the bioaccumulation potential of such substances.[5]

Finally, your claim of similarity in fish metabolism does not establish why the prediction for a bioaccumulation property is reliable due to the following. You have not provided any evidence on why the metabolic rates in fish are not affected by the structural differences. Furthermore, metabolism is not the only process affecting bioaccumulation, since bioaccumulation factors will depend also on the uptake and depuration rate of the organism.[7] However, in your justification you have not explained nor provided any evidence on why the uptake and depuration rates are not affected by the structural differences.

ii) Conclusion

You have not established that relevant properties of the Substance can be predicted from data on the analogue substance. Your adaptation does not comply with the general rules of adaptation as set out in Annex XI, Section 1.5. and your adaptation based on a grouping and read-across approach is rejected.

In your comments on the draft decision, you propose a stepwise approach whereby you would first conduct literature work and modelling to develop and estimate a BCF in a weight-of-evidence approach. You would then conduct an experimental fish study only if further refinement would be needed for the bioaccumulation assessment and/or the CSA or classification and labelling. You also state that you would follow the step wise approach for the overall PBT/vPvB assessment and would first assess the degradation of the substance.

You may, under your own responsibility, carry out a literature review and to see whether it would be possible to fulfil the information requirement by a weight-of-evidence approach according to Annex XI section 1.2 Weight of Evidence. This request relates to the need to clarify the PBT/vPvB assessment of the substance. According to ECHA Guidance R.11 if such Weight-of-Evidence approach is not sufficient to draw a conclusion, as described under

[7] ECHA Guidance R.7c, Section R.7.10.3.4

"Conclusions on the Endpoint" (p. 85), the performance of an experimental bioaccumulation test or generation of other appropriate bioaccumulation information is required. Furthermore, for the purpose of the PBT/vPvB assessment and to determine the testing needed to reach the conclusion on the persistency and bioaccumulation of the Substance you should consider the sequence in which these tests are performed and other conditions described in section 5 of Appendix E.

Therefore, the information requirement is not fulfilled.

Study selection and design

Bioaccumulation in fish: aqueous and dietary exposure (test method EU C.13. / OECD TG 305) is the preferred test to investigate bioaccumulation (ECHA *Guidance, Chapter R.7c, R.7.10.3.1*). Whenever technically feasible, the aqueous route of exposure (OECD TG 305-I) must be used as the results obtained can be used directly for comparison with the B and vB criteria of Annex XIII of REACH. If testing through aquatic exposure is technically not possible, you must provide scientifically valid justification for the infeasibility. In case you conduct the study using the dietary exposure route (OECD 305-III), you must also attempt to estimate the corresponding BCF value from the dietary test data according to Annex 8 of the OECD 305 TG and OECD Guidance Document on Aspects of OECD TG 305 on Fish Bioaccumulation, ENV/JM/MONO (2017)16. In any case you must report all data derived from the dietary test as listed in the OECD TG 305-III.

Under Annex XIII, you must assess the PBT/vPvB properties of the relevant constituents and degradation products of the Substance. Therefore, you must assess the bioaccumulation of each relevant constituent present in concentrations at or above 0.1% (w/w) or, if not technically feasible, in concentrations as low as technically detectable, as well as the bioaccumulation of each relevant degradation product. Alternatively, you would have to justify why you consider these not relevant for the PBT/vPvB assessment.

Appendix D: Procedural history

For the purpose of the decision-making, this decision does not take into account any updates of registration dossiers after the date on which you were notified the draft decision according to Article 50(1) of REACH.

The compliance check was initiated on 2 April 2019.

ECHA notified you of the draft decision and invited you to provide comments within 30 days of the notification.

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 E: Observations and technical guidance

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

2. Failure to comply with the requests in this decision, or to otherwise fulfil the information requirements with a valid and documented adaptation, will result in a notification to the enforcement authorities of the Member States.

3. Test guidelines, GLP requirements and reporting

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

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

   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: 'How to report robust study summaries'[8].

4. Test material

   Selection of the test material(s)

   The registrants of the Substance are responsible for agreeing on the composition of the test material to be selected for carrying out the tests required by the present decision. The test material selected must be relevant for all the registrants of the Substance, i.e. it takes into account the variation in compositions reported by all members of the joint submission. The composition of the test material(s) must fall within the boundary composition(s) of the Substance.

   While selecting the test material you must take into account the impact of each constituent/impurity on the test results for the endpoint(s) 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.

   Technical reporting of the test material

   The composition of the selected test material must be reported in the respective endpoint study record, under the Test material section. The composition must include all constituents of the test material and their concentration values. Without such detailed reporting, ECHA may not be able to confirm that the test material is relevant for the Substance and to all the registrants of the Substance.

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

Technical instructions are available in the manual "How to prepare registration and PPORD dossiers"[9].

5. Strategy for the PBT/vPvB assessment

You are advised to consult ECHA Guidance R.7b (Section R.7.9.), R.7c (Section R.7.10) and R.11 on PBT assessment to determine the sequence of the tests needed to reach the conclusion on PBT/vPvB. The guidance provides advice on 1) integrated testing strategies (ITS) for the P, B and T assessments and 2) the interpretation of results in concluding whether the Substance fulfils the PBT/vPvB criteria of Annex XIII.

In particular, you are advised to first conclude whether the Substance fulfils the Annex XIII criteria for P and vP, and then continue with the assessment for bioaccumulation. When determining the sequence of simulation degradation testing you also need to consider the intrinsic properties of the Substance, its identified uses and release patterns as these could significantly influence the environmental fate of the Substance. You must revise your PBT assessment when the new information is available.

6. Testing strategy for aquatic toxicity testing

You are advised to consult ECHA Guidance R.7b, (Section R.7.8.5) which describes the Integrated Testing Strategy, to determine the sequence of aquatic toxicity tests.

7. Environmental testing for multi-constituent substances

Your Substance is a multi-constituent and, as indicated in ECHA Guidance R.11 (Section R.11.4.2.2), you are advised to consider the following approaches for persistency, bioaccumulation and aquatic toxicity testing:

- the "known constituents approach" (by assessing specific constituents), or
- the "fraction/block approach, (performed on the basis of fractions/blocks of constituents), or
- the "whole substance approach", or
- various combinations of the approaches described above

Selection of the appropriate approach must take into account the possibility to characterise the Substance (i.e. knowledge of its constituents and/or fractions and any differences in their properties) and the possibility to isolate or synthetize its relevant constituents and/or fractions.

8. List of references of the ECHA Guidance and other guidance/ reference documents[10]

Evaluation of available information
Guidance on information requirements and chemical safety assessment, Chapter R.4 (version 1.1., December 2011), referred to as ECHA Guidance R.4 in this decision.

QSARs, read-across and grouping
Guidance on information requirements and chemical safety assessment, Chapter R.6 (version 1.0, May 2008), referred to as ECHA Guidance R.6 in this decision.

[9] https://echa.europa.eu/manuals
[10] https://echa.europa.eu/guidance-documents/guidance-on-information-requirements-and-chemical-safety-assessment

ECHA Read-across assessment framework (RAAF, March 2017)[11]

Physical-chemical properties
Guidance on information requirements and chemical safety assessment, Chapter R.7a (version 6.0, July 2017), referred to as ECHA Guidance R.7a in this decision.

Toxicology
Guidance on information requirements and chemical safety assessment, Chapter R.7a (version 6.0, July 2017), referred to as ECHA Guidance R.7a in this decision.

Guidance on information requirements and chemical safety assessment, Chapter R.7c (version 3.0, June 2017), referred to as ECHA Guidance R.7c in this decision.

Environmental toxicology and fate
Guidance on information requirements and chemical safety assessment, Chapter R.7a (version 6.0, July 2017), referred to as ECHA Guidance R.7a in this decision.

Guidance on information requirements and chemical safety assessment, Chapter R.7b (version 4.0, June 2017), referred to as ECHA Guidance R.7b in this decision.

Guidance on information requirements and chemical safety assessment, Chapter R.7c (version 3.0, June 2017), referred to as ECHA Guidance R.7c in this decision.

PBT assessment
Guidance on information requirements and chemical safety assessment, Chapter R.11 (version 3.0, June 2017), referred to as ECHA Guidance R.11 in this decision.

Guidance on information requirements and chemical safety assessment, Chapter R.16 (version 3.0, February 2016), referred to as ECHA Guidance R.16 in this decision.

OECD Guidance documents[12]
Guidance Document on aqueous-phase aquatic toxicity testing of difficult test chemicals – No 23, referred to as OECD GD 23.
Guidance Document on Mammalian Reproductive Toxicity Testing and Assessment – No 43, referred to as OECD GD 43.

[11] https://echa.europa.eu/support/registration/how-to-avoid-unnecessary-testing-on-animals/grouping-of-substances-and-read-across
[12] http://www.oecd.org/chemicalsafety/testing/series-testing-assessment-publications-number.htm

Appendix F: List of the registrants to which the decision is addressed and the corresponding information requirements applicable to them

Registrant Name	Registration number	(Highest) Data requirements to be fulfilled
[redacted]	[redacted]	[redacted]

Note: where applicable, the name of a third party representative (TPR) may be displayed in the list of recipients whereas the decision is sent to the actual registrant.