EUROPEAN CHEMICALS AGENCY

Helsinki, 28 July 2020

Addressee
Registrant of JS_Niobium_Metal listed in the last Appendix of this decision

Date of submission for the dossier subject of this decision
18 October 2013

Registered substance subject to this decision, hereafter 'the Substance'
Substance name: Niobium
EC number: 231-113-5
CAS number: 7440-03-1

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

Based on Article 41 of Regulation (EC) No 1907/2006 (REACH), ECHA requests that you submit the information listed below by the deadline of ***5 May 2023***.

A. Requirements applicable to all the Registrants subject to Annex VII of REACH

1. Water solubility (Annex VII, Section 7.7.; test method: OECD series on Testing and Assessment Number 29 - Guidance Document on Transformation/Dissolution of Metals and Metal Compounds in Aqueous media) with the Substance

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

3. The long-term toxicity testing on aquatic invertebrates also requested at C.3. below (triggered by Annex VII, Section 9.1.1., column 2)

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

1. Justification for an adaptation of the Short-term repeated dose toxicity study (28-day) (Annex VIII, Section 8.6.1.)

2. Justification for an adaptation of the screening for reproductive/developmental toxicity (Annex VIII, Section 8.7.1.)

3. The long-term toxicity testing on fish also requested at C.4. below (triggered by Annex VIII, Section 9.1.3., column 2)

4. Activated sludge respiration inhibition testing (Annex VIII, Section 9.1.4.; Test method: OECD TG 209) with the Substance

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

1. Sub-chronic toxicity study (90-day), inhalation route (Annex IX, Section 8.6.2.; test

method OECD TG 413) in rats with the Substance

2. Pre-natal developmental toxicity study (Annex IX, Section 8.7.2.; test method OECD TG 414) in a first species (rat or rabbit), oral route with the Substance

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

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

Conditions to comply with the requests

You are bound by the requests for information corresponding to the REACH Annexes applicable to your own registered tonnage of the Substance at the time of evaluation. Therefore you have to comply with the requirements of Annexes VII to IX of REACH.

When a study is required under several Annexes of REACH, the reasons are provided in the corresponding appendices of this decision.

The Appendix on general considerations addresses issues relevant for several requests while the Appendices A to C 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.

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.

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.

Authorised[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 on general considerations

(i) Assessment of your exposure-based adaptations (Annex XI, Section 3.)

You have provided adaptations in your dossier for the following endpoints:

- Short-term repeated dose toxicity (28 day), (Annex VIII, Section 8.6.1.)
- Screening for reproductive/developmental toxicity (Annex VIII, Section 8.7.1.)
- Sub-chronic toxicity study (90-day) (Annex IX, Section 8.6.2.)
- Pre-natal developmental toxicity study (Annex IX, Section 8.7.2.)

Section 3.1 of Annex XI enables testing to be omitted based on the exposure scenario(s) developed in the Chemical Safety Report, if the conditions described in Section 3.2 of Annex XI are met. The adaptation of the information requirement must be supported by adequate justification and documentation which must be based on a thorough and rigorous exposure assessment in accordance with Section 5 of Annex I.

We have assessed the information in your dossier according to the requirements set out in Annex XI, Section 3.2. and we have identified the following issues:

A. Under section 3.2(a) of Annex XI, the justification must fulfil all the following conditions:
   (i) the results of the exposure assessment covering all relevant exposures throughout the life cycle of the substance demonstrate the absence of or no significant exposure in all scenarios of the manufacture and all identified uses as referred to in Annex VI section 3.5.;
   (ii) a suitable DNEL or a PNEC can be derived from results of available test data for the Substance taking full account of the increased uncertainty resulting from the omission of the information requirement, and that DNEL or PNEC is relevant and appropriate both to the information requirement to be omitted and for risk assessment purposes;
   (iii) the comparison of the derived DNEL or PNEC with the results of the exposure assessment shows that exposures are always well below the derived DNEL or PNEC.

   However, you have not provided any DNELs for the substance. Furthermore the information available in your technical dossier with regard to repeated-dose toxicity and developmental toxicity is not adequate to derive suitable DNELs for the endpoints listed above. More specifically, you only provided a Combined repeated dose and reproduction / developmental screening study (OECD TG 422) with the Substance for the above-mentioned endpoints. However, as explained further under requests C.1. and C.2, the data from this study does not permit the derivation of a DNEL for these specific hazards (i.e. 90-day repeated dose toxicity and developmental toxicity) and for risk assessment purposes. In addition, for the developmental toxicity endpoint, footnote 1 of Annex XI, Section 3.2.(a)(ii) specifies that a DNEL derived from a screening reproduction/developmental study is not appropriate to omit a pre-natal developmental toxicity study.

B. In addition, the justification provided must fulfil the conditions set out in 3.2(b) and/or 3.2(c) of Annex XI. In particular:
   (i) where the substance is not incorporated in an article, strictly controlled conditions as set out in Article 18(4)(a) to (f) must apply throughout the life cycle;
   (ii) where the substance is incorporated in an article in which it is permanently

embedded in a matrix or otherwise rigorously:
- the substance is not released during its life cycle, and
- negligible workers or general public or environmental exposure occurs under normal or reasonably foreseeable conditions, and
- strictly controlled conditions as set out in Article 18(4)(a) to (f) must apply during all manufacturing and production stages including the waste management of the substance during these stages.

However, you did not provide any justification and evidence supporting that the conditions set out in Section 3.2(b) and/or 3.2(c) of Annex XI are fulfilled.

Therefore, your adaptation does not comply with the general rules of adaptation set out in Annex XI, Section 3.2. Your exposure-based adaptations do not apply to the Substance, resulting in an data gap for this information requirement.

(ii) Assessment of your read-across adaptations (Annex XI, Section 1.5.)

While you did not claim an adaptation according to Annex XI, Section 1.5., you use information on "*dissolved zinc*" as a "*worst-case scenario*" to predict the ecotoxicological properties of the Substance for the following endpoints:
- Short-term toxicity testing on aquatic invertebrates (Annex VII, Section 9.1.1.)
- Growth inhibition study aquatic plants (Annex VII, Section 9.1.2.)
- Short-term toxicity testing on fish (Annex VIII, Section 9.1.3.)

Annex XI, Section 1.5. specifies three conditions which must be fulfilled whenever a read-across approach is used:
(i) 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;
(ii) 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;
(iii) adequate and reliable documentation of the applied method must be provided.

Additional information on what is necessary when justifying a read-across approach can be found in the ECHA Guidance[2] and related documents[3, 4].

For the endpoints listed above, you refer to data on "*dissolved zinc*". You did not provide any documentation of this read-across adaptation either in Section 13 of your technical dossier or in your CSR so condition (iii) as listed above is not met.

We also note that condition (i) requiring structural similarity between substances is not met as "dissolved zinc" and the Substance are not structurally similar.

Consequently, your adaptations fail to comply with the general rules of adaptation as set out in Annex XI, Section 1.5 and are therefore rejected.

[2] Guidance on information requirements and chemical safety assessment Chapter R.6: QSARs and grouping of Chemicals. 2008 (May) ECHA, Helsinki. 134. pp. Available online: https://echa.europa.eu/documents/10162/13632/information_requirements_r6_en.pdf/77f49f81-b76d-40ab-8513-4f3a533b6ac9
[3] Read-Across Assessment Framework (RAAF). 2017 (March) ECHA, Helsinki. 60 pp. Available online: Read-Across Assessment Framework (https://echa.europa.eu/support/registration/how-to-avoid-unnecessary-testing-on-animals/grouping-of-substances-and-read-across)
[4] Read-across assessment framework (RAAF) - considerations on multi-constituent substances and UVCBs. 2017 (March) ECHA, Helsinki. 40 pp. Available online: https://doi.org/10.2823/794394

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. Water solubility (Annex VII, Section 7.7.)

Water solubility is a standard information requirement in Annex VII to REACH.

In your dossier, you have provided:

- A key study by [redacted] (2013) according to EU test method A.6 and OECD TG 105 with the Substance.

We have assessed this information and identified the following issue:

> EU test method A.6 and OECD TG 105 describe two methods (the column elution method and the flask method) for conducting a water solubility study. The test method must be selected based on a water solubility estimate obtained in a preliminary study. For substances with preliminary water solubility below 10 mg/L the column elution method must be used.
>
> For the study, you specify that "no preliminary test was performed because the water solubilities of heavy metals is generally < 10^{-2} g/L" and that "*the shake flask method was selected since no organic solvent was found to dissolve the test material for loading of the support required for the column elution method*". You report a water solubility estimate of < 1 µg/L at 20°C and pH 5.8-5.9.
>
> Based on the information you provided the column elution method is not applicable. In addition, the reported results of these studies fall outside of the applicability domain of the flask method. Therefore, none of the methods described EU test method A.6 and OECD TG 105 are applicable to the Substance.

Therefore, the information requirement is not fulfiled.

The Substance is a sparingly soluble inorganic metal compound, and therefore as specified in ECHA Guidance R.7a, Section R.7.1.7.3., water solubility must be determined according to the OECD GD 29 on Transformation/Dissolution of metals and metal compounds in aqueous media. OECD GD 29 specifies that the test must be conducted using a test material having the smallest representative particle size. It also states that the specific surface area of the test material must be determined. We note that you report under Section 4.5. of your technical dossier a granulometry according to ISO 13320:2009 which shows that the substance you registered may have a D50 as low as 21.79 µm.

2. Growth inhibition study aquatic plants (Annex VII, Section 9.1.2.)

Growth inhibition study aquatic plants is a standard information requirement in Annex VII to REACH.

You have adapted this information requirement based on Annex VII, Section 9.1.2., Column 2.

In support of your adaptation, you provided the following justification:

- in a study conducted according to OECD TG 105 (shake flask method), the water

solubility of the Substance was determined to be < 1 µg/L;
- the water solubility estimate of 0.5 µg/L is below the $PNEC_{aquatic, freshwater}$ for dissolved Zinc (i.e. 7.8 µg/L). You state that Zinc is known to be very toxic to the aquatic environment and is labelled as aquatic acute (and chronic) toxicity 1 according to regulation 1272/2008/EEC. You consider that it can be seen as a "*worst-case scenario*" for the Substance. You conclude that any adverse effect below the water solubility of the Substance can be excluded and testing – whether short-term or long-term – can be omitted.

Based on the information provided in your dossier we have identified the following issues:

A. Annex VII, Section 9.1.2., Column 2 indicates that information on water solubility may be used to support that aquatic toxicity is unlikely to occur if it shows that the substance is highly insoluble. There is no scientific basis to define a cut off limit value for solubility below which no toxicity could occur (ECHA Guidance R.7b, Section R.7.8.5.). For sparingly soluble metals, measured data on the dissolved fraction are always required for getting reliable toxicity test data (ECHA Guidance R.7b, Section R.7.8.4.1.). In this context it must be considered whether or not the solubility of the Substance permits to conduct a study at concentrations below the solubility limit of the Substance. The technique used to prepare test solutions must aim to achieve the maximum dissolved concentrations (ECHA Guidance R.7b, Table R.7.8-3).

   As explained under request A.1., the information you provided on water solubility does not fulfil the information requirement. Therefore you did not demonstrate that the Substance as registered by you is insoluble to such extent that aquatic toxicity is unlikely to occur. Therefore, your adaptation according to Annex VII, Section 9.1.2., Column 2 is rejected.

B. While you did not claim an adaptation according to Annex XI, Section 1.5., you use information on "*dissolved zinc*" as a "*worst-case scenario*" to predict the ecotoxicological properties of the Substance. As explained in section ii) of the Appendix on general considerations your adaptation is rejected.

Therefore, the information requirement is not fulfilled.

While selecting the test material you must take into account the impact of parameters relevant for the property to be tested. For the Substance, this includes the particle size. For the aquatic toxicity studies, you must justify that the selected test material properties constitute a reasonable worst case to cover all the registrants of the Substance. Therefore the selected test material should correspond to the most soluble form of the substance taking into account the range of properties of the substance as registered under REACH.

3. The long-term toxicity testing on aquatic invertebrates also rerquested at C.3. below (triggered by Annex VII, Section 9.1.1., column 2)

"Short-term toxicity testing on aquatic invertebrates" is a standard information requirement in Annex VII to REACH. However, pursuant to Annex VII, section 9.1.1., Column 2, for poorly soluble substances the long-term aquatic toxicity study on aquatic invertebrates (Annex IX, Section 9.1.5.) must be considered.

You have adapted this information requirement based on Annex VII, Section 9.1.1., Column 2.

In support of your adaptation, you provided the following justification:

- in a study conducted according to OECD TG 105 (shake flask method), the water solubility of the Substance was determined to be < 1 µg/L;
- the water solubility estimate of 0.5 µg/L is below the $PNEC_{aquatic,\ freshwater}$ for dissolved Zinc (i.e. 7.8 µg/L). You state that Zinc is known to be very toxic to the aquatic environment and is labelled as aquatic acute (and chronic) toxicity 1 according to regulation 1272/2008/EEC. You consider that it can be seen as a "worst-case scenario" for the Substance. You conclude that any adverse effect below the water solubility of the Substance can be excluded and testing – whether short-term or long-term – can be omitted.

Based on the information provided in your dossier we have identified the following issues:

A. Annex VII, Section 9.1.1., Column 2 specifies that this information requirement may be adapted if:
   - there are mitigating factors indicating that aquatic toxicity is unlikely to occur (e.g. the substance is highly insoluble) or;
   - a long-term toxicity study on aquatic invertebrates is available.

   As already explained under request A.2. above, the data provided in your dossier does not adequately support that aquatic toxicity is unlikely to occur. As explained under request C.3., you did not provide long-term toxicity study on aquatic invertebrates. Therefore your adaptation according to Annex VII, Section 9.1.1., Column 2 is rejected.

B. While you did not claim an adaptation according to Annex XI, Section 1.5., you use information on "*dissolved zinc*" as a "*worst-case scenario*" to predict the ecotoxicological properties of the Substance. As explained in section ii) of the Appendix on general considerations your adaptation is rejected.

Therefore the information requirement is not fulfilled.

As explained under request A.1., the information you provided on water solubility does not fulfil the information requirement. While there are remaining uncertainties regarding the relative water solubility of the various forms of the Substance, we consider that the information provided is sufficient to conclude that the Substance is poorly water soluble (i.e. water solubility below 1 mg/L).

Poorly water soluble substances require longer time to reach steady-state conditions. Hence, the short-term tests may not give a true measure of toxicity for this type of substances. Therefore, a long-term test must be conducted.

Consequently, a long-term aquatic toxicity study on aquatic invertebrates triggered by Annex VII, section 9.1.1., Column 2 must be performed. This test is already required under request C.3. in accordance with Annex IX, Section 9.1.5.

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. Justification for an adaptation of the short-term repeated dose toxicity study (28-day) (Annex VIII, Section 8.6.1.)

A Short-term repeated dose toxicity study (28 days) is a standard information requirement in Annex VIII to REACH. This information may take the form of a study record or a valid adaptation in accordance with either a specific adaptation rule under Column 2 of Annex VIII or a general adaptation rule under Annex XI.

You have not provided an experimental study. Instead you have provided an adaptation according to Column 2 of Annex VIII, Section 8.6.1. in your dossier. In support of your adaptation your state the following:

- "*Niobium is a metal that forms an oxide layer when exposed to air at room temperature. Due to the protection by this oxide layer, niobium is insoluble in water*";
- "*niobium is dissolved only under extremely oxidising conditions that are not compatible with administration to animals*";
- "*Due to this insolubility it can be assumed that niobium metal will not be absorbed in the stomach and intestinal tract. The negligible bioavailability after oral application allows the prediction that the NOAEL for toxicity, after repeated oral exposure, will be greater than 1000 mg/kg bw/day*";
- Therefore you consider "*repeated dose oral toxicity testing unnecessary*".

Based on the information provided in your dossier we have identified the following issues:

Annex VIII, Section 8.6.1., Column 2 specifies that a short-term (28 days) does not need to be conducted if:

1. if a reliable sub-chronic (90 days) or chronic toxicity study is available, or
2. the Substance undergoes immediate disintegration and there are sufficient data on the cleavage product, or
3. relevant human exposure can be excluded in accordance with Annex XI, Section 3.

With regard to the criteria listed above, we identified the following issues:

a) As explained in request C.1. you have not provided a sub-chronic (90 days) or chronic toxicity study with the Substance. Consequently, the condition set out in point 1 above is not fulfilled.

b) You state that "*Niobium is a metal that forms an oxide layer when exposed to air*". This statement could be regarded as suggesting that the Substance is immediately transformed into niobium oxides. However, you did not provide any scientific information to support that the process is immediate. Furthermore you did not provide data on niobium oxides in your dossier. Therefore, the condition set out in point 2 above is not fulfilled.

c) With regard to human exposure, as explained in section i) of the Appendix on general considerations, the information from your dossier does not fulfil the criteria of Annex XI, Section 3.2. Therefore you did not demonstrate that human exposure is limited. Consequently, the condition set out in point 3 above is not fulfilled.

Therefore, your adaptation according to Annex VIII, Section 8.6.1., Column 2 is rejected and the information requirement is not fulfilled.

The present decision requires you to submit a reliable sub-chronic toxicity study (90 days) (see request C.1.). According to Column 2 of Annex VIII, Section 8.6.1., and to prevent unnecessary animal testing, a short term toxicity study (28 days) does not therefore need to be conducted.

Because you still must comply with the information requirement in Annex VIII, Section 8.6.1., you are requested to submit a justification for the adaptation provided in Column 2 of that provision.

2. Justification for an adaptation of the screening for reproductive/ developmental toxicity (Annex VIII, Section 8.7.1.)

A Screening for reproductive/developmental toxicity study (test method: EU B.63/OECD TG 421 or EU B.64/OECD TG 422) is a standard information requirement under Annex VIII to REACH. This information may take the form of a study record or a valid adaptation in accordance with either a specific adaptation rule under Column 2 of Annex VIII or a general adaptation rule under Annex XI.

You have not provided an experimental study. Instead you have provided an adaptation according to Column 2 of Annex VIII, Section 8.7.1.. In support of your adaptation your state the following:

- "*Niobium is a metal that forms an oxide layer when exposed to air at room temperature. Due to the protection by this oxide layer, niobium is insoluble in water*";
- "*niobium is dissolved only under extremely oxidising conditions that are not compatible with administration to animals*";
- "*Due to this insolubility it can be assumed that niobium metal will not be absorbed in the stomach and intestinal tract. The negligible bioavailability after oral application allows the prediction that the NOAEL for reproductive toxicity will be greater than 1000 mg/kg bw/day*";
- Therefore you consider "*reproductive toxicity testing unnecessary*".

Based on the information provided in your dossier we have identified the following issues:

Annex VIII, Section 8.1.1., Column 2 specifies that a screening for reproductive/ developmental toxicity does not need to be conducted if:

1. relevant human exposure can be excluded in accordance with Annex XI, Section 3.;
2. a pre-natal developmental toxicity study (Annex IX, Sectyion 8.7.2.) or a two-generation reproductive toxicity study (Annex IX, Section 8.7.3.) is available.

With regard to the criteria listed above, we identified the following issues:

a) With regard to human exposure, as explained in section i) of the Appendix on general considerations, the information from your dossier does not fulfil the criteria of Annex XI, Section 3.2. Therefore you did not demonstrate that human exposure is limited.

b) As explained in request C.2. you have not provided a pre-natal developmental toxicity study or a two-generation reproductive toxicity study with the Substance.

Therefore, your adaptation according to Annex VIII, Section 8.7.1., Column 2 is rejected and the information requirement is not fulfilled.

The present decision requires you to submit a reliable pre-natal developmental toxicity study (see request C.2.). According to Column 2 of Annex VIII, Section 8.7.1., and to prevent unnecessary animal testing, a screening for reproductive/developmental toxicity does not therefore need to be conducted.

Because you still must comply with the information requirement in Annex VIII, Section 8.7.1., you are requested to submit a justification for the adaptation provided in Column 2 of that provision.

3. The long-term toxicity testing on fish also requested at C.4. below (triggered by Annex VIII, Section 9.1.3., column 2)

"Short-term toxicity testing on fish" is a standard information requirement in Annex VIII to REACH. However, pursuant to Annex VIII, section 9.1.3., column 2, for poorly soluble substances the long-term aquatic toxicity study on fish (Annex IX, Section 9.1.6.) must be considered.

You have adapted this information requirement based on Annex VIII, Section 9.1.3., Column 2. In support of your adaptation, you provided the following justification:

- in a study conducted according to OECD TG 105 (shake flask method), the water solubility of the Substance was determined to be < 1 µg/L;
- the water solubility estimate of 0.5 µg/L is below the $PNEC_{aquatic,\ freshwater}$ for dissolved Zinc (i.e. 7.8 µg/L). You state that Zinc is known to be very toxic to the aquatic environment and is labelled as aquatic acute (and chronic) toxicity 1 according to regulation 1272/2008/EEC. You consider that it can be seen as a "worst-case scenario" for the Substance. You conclude that any adverse effect below the water solubility of the Substance can be excluded and testing – whether short-term or long-term – can be omitted.

Based on the information provided in your dossier we have identified the following issues:

A. Annex VIII, Section 9.1.3., Column 2 specifies that this information requirement may be adapted if:
   - there are mitigating factors indicating that aquatic toxicity is unlikely to occur (e.g. the substance is highly insoluble) or;
   - a long-term toxicity study on aquatic invertebrates is available.

   As already explained under request A.1. above, the data provided in your dossier does not adequately support that aquatic toxicity is unlikely to occur. As explained under request C.4., you did not provide long-term toxicity study on fish. Therefore, your adaptation according to Annex VIII, Section 9.1.3., Column 2 is rejected.

B. While you did not claim an adaptation according to Annex XI, Section 1.5., you use information on *"dissolved zinc"* as a *"worst-case scenario"* to predict the ecotoxicological properties of the Substance. As explained in section ii) of the Appendix on general considerations your adaptation is rejected.

Therefore, the information requirement is not fulfilled.

As explained under request A.1., the information you provided on water solubility does not fulfil the information requirement. While there are remaining uncertainties regarding the relative water solubility of the various forms of the Substance, we consider that the information provided is sufficient to conclude that the Substance is poorly water soluble (i.e. water solubility below 1 mg/L).

Poorly water soluble substances require longer time to reach steady-state conditions. Hence, the short-term tests may not give a true measure of toxicity for this type of substances. Therefore, a long-term test must be conducted.

Consequently, a long-term aquatic toxicity study on fish triggered by Annex VIII, section 9.1.3., column 2 must be performed. This test is also required under request C.4. in accordance with Annex IX, Section 9.1.6.

4. Activated sludge respiration inhibition testing (Annex VIII, Section 9.1.4.).

Activated sludge respiration inhibition testing is a standard information requirement in Annex VIII to REACH.

You have adapted this information requirement based on Annex VIII, Section 9.1.4., Column 2. In support of your adaptation, you provided the following justification:

- *"The toxicity to microorganisms in water does not need to be determined* [as] *the substance is insoluble (< 0.001 mg/L)"*;
- *"For a substance being considered as insoluble, it can be assumed that it will be adsorbed and removed within the STP process".*

Based on the information provided in your dossier we have identified the following issue:

Annex VIII, Section 9.1.4., Column 2 specifies that this information requirement may be adapted if:

- there are mitigating factors indicating that aquatic toxicity is unlikely to occur (e.g. the substance is highly insoluble) or;
- there is no emission to a sewage treatment plant.

As already explained under request A.1. above, the data provided in your dossier does not adequately support that aquatic toxicity is unlikely to occur. Furthermore, your dossier does not demonstrate that no emission to a sewage treatment plant are expected. Hence your adaptation according to Annex VIII, Section 9.1.4., Column 2 is rejected.

Therefore, the information requirement is not fulfilled.

While selecting the test material you must take into account the impact of parameters relevant for the property to be tested. For the aquatic toxicity studies, you must justify that the selected test material properties (e.g. particle size) constitute a reasonable worst case to cover all the registrants of the Substance. Therefore the selected test material should correspond to the most soluble form of the substance taking into account the range of properties of the substance as registered under REACH.

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. **Sub-chronic toxicity study (90-day), inhalation route (Annex IX, Section 8.6.2.)**

A Sub-chronic toxicity study (90 day) is a standard information requirement in Annex IX to REACH.

You have not provided a sub-chronic toxicity study in your dossier. Instead, you have provided an adaptation according to Column 2 of Annex IX, Section 8.6.2. in your dossier. In support of your adaptation your state the following:

- *"Niobium is a metal that forms an oxide layer when exposed to air at room temperature. Due to the protection by this oxide layer, niobium is insoluble in water"*;
- *"niobium is dissolved only under extremely oxidising conditions that are not compatible with administration to animals"*;
- *"Due to this insolubility it can be assumed that niobium metal will not be absorbed in the stomach and intestinal tract. The negligible bioavailability after oral application allows the prediction that the NOAEL for toxicity, after repeated oral exposure, will be greater than 1000 mg/kg bw/day"*;
- Therefore you conider *"repeated dose oral toxicity testing unnecessary"*.

Based on the information provided in your dossier we have identified the following issues:

Annex IX, Section 8.6.2., Column 2 specifies that a sub-chronic toxicty study (90 days) does not need to be conducted if:

1. the substance is unreactive, insoluble and not inhalable, and
2. there is no evidence of absorption, and
3. there is no evidence in a 28-day 'limit test', particularly if such a pattern is coupled with limited human exposure.

With regard to the criteria listed above, we identified the following issues:

a) As specified in ECHA Guidance R.7c, particles with aerodynamic diameters below 100 µm have the potential to be inhaled. Particles with aerodynamic diameters below 50 µm may reach the thoracic region and those below 15 µm the alveolar region of the respiratory tract. In your dossier, you have provided a granulometry study according to ISO 13320:2009 (laser diffraction method) with the Substance. The D50 was determined at 21.79 µm. Therefore you did not demonstrate that the Substance is not inhalable. Consequently, the condition set out in point 1 above is not fulfilled.

b) As specified in ECHA Guidance R.7a, the justification for the absence of absorption must be based on evidence that no absorption occurs. You provide statements that absorption is not significant but these statements are not supported by experimental evidence in your dossier showing that the Substance is not absorbed by any relevant route of exposure. Therefore, the condition set out in point 2 above is not fulfilled.

c) With regard to human exposure, as explained in section i) of the Appendix on general considerations, the information from your dossier does not fulfil the criteria of Annex XI, Section 3.2. Therefore you did not demonstrate that human exposure is limited. Therefore, the condition set out in point 3 above is not fulfilled.

Consequently, your adaptation according to Annex IX, Section 8.6.2., Column 2 is rejected.

Based on the above the information requirement is not fulfilled.

Following the criteria provided in Annex IX, Section 8.6.2, Column 2, the inhalation route is the most appropriate route of administration to investigate repeated dose toxicity[5]. The sub-chronic toxicity study must be performed according to the OECD TG 413, in rats and with administration of the Substance by inhalation because:

- the Substance is present as fine particles with a significant proportion of particles of inhalable size;
- the use pattern of the Substance includes industrial spraying (PROC 7) in the scope of the registration and therefore human exposure to the Substance by the inhalation route is likely.

While selecting the test material you must take into account the impact of parameters relevant for the property to be tested. For the Substance, this includes the particle size. For the requested repeated dose toxicity study (inhalation route), you must justify that the test material has a particle size distribution small enough to cover all the registrants of the Substance.

2. Pre-natal developmental toxicity study (Annex IX, Section 8.7.2.) in a first species

A Pre-natal developmental toxicity study in one species is a standard information requirement in Annex IX to REACH.

You have not provided a sub-chronic toxicity study in your dossier. Instead, you have provided an adaptation according to Column 2 of Annex IX, Section 8.7. in your dossier. In support of your adaptation your state the following:

- "*Niobium is a metal that forms an oxide layer when exposed to air at room temperature. Due to the protection by this oxide layer, niobium is insoluble in water*";
- "*niobium is dissolved only under extremely oxidising conditions that are not compatible with administration to animals*";
- "*Due to this insolubility it can be assumed that niobium metal will not be absorbed in the stomach and intestinal tract. The negligible bioavailability after oral application allows the prediction that the NOAEL for toxicity, after repeated oral exposure, will be greater than 1000 mg/kg bw/day*";
- Therefore you conider "*repeated dose oral toxicity testing unnecessary*".

Based on the information provided in your dossier we have identified the following issues:

Annex IX, Section 8.7., Column 2 specifies that reproductive toxicity studies listed under this section do not need to be conducted if the following cumulative conditions are met:

[5] ECHA Guidance R.7a, Section R.7.5.6.3.4.

1. the substance is of low toxicological activity (no evidence of toxicity seen in any of the tests available), and
2. it can be proven from toxicokinetics data that no systemic absorption occurs via relevant routes of exposure (e.g. plasma/blood concentrations below detection limit using a sensitive method and absence of the substance in urine, bile or exhaled air), and
3. there is no or no significant exposure.

With regard to the criteria listed above, we identified the following issues:

a) As specified in ECHA Guidance R.7a, the justification for the absence of absorption must be based on evidence that no absorption occurs. However, you did not provide any toxicokinetics data to prove that no systemic absorption occurs via any relevant routes of exposure. Therefore, the condition set out in point 2 above is not fulfilled.

b) With regard to human exposure, as explained in section i) of the Appendix on general considerations, the information from your dossier does not fulfil the criteria of Annex XI, Section 3.2. Consequently, you did not demonstrate that there is no or no significant human exposure.

Therefore, your adaptation according to Annex IX, Section 8.7., Column 2 is rejected.

Based on the above the information requirement is not fulfilled.

A PNDT study according to the test method OECD TG 414 must be performed in rat or rabbit as preferred species with oral[6] administration of the Substance.

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

and

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

Long-term toxicity testing on aquatic invertebrates and on fish are a standard information requirements in Annex IX to REACH.

You have adapted this information requirement based on Column 2 of Annex IX, Section 9.1. You have provided the following justification: "*The hazard assessment reveals neither a need to classify the substance as dangerous to the environment, nor that it is a PBT or vPvB substance, nor that there are any further indications that the substance may be hazardous to the environment. Therefore, and for reasons of animal welfare, a long-term toxicity study in aquatic species is not provided*".

Based on this information we have identified the following issue:

In order to adapt the information requirement for long-term toxicity testing on aquatic invertebrates and on fish based on Annex IX, Section 9.1., Column 2, the Chemical Safety Assessment needs to demonstrate that risks towards the aquatic compartment arising from the use of the Substance are controlled (as per Annex I, section 0.1). The

[6] ECHA Guidance R.7a, Section R.7.6.2.3.2.

Chemical Safety Assessment needs to assess and document that risks arising from the Substance are controlled and demonstrate that there is no need to conduct further testing (Annex I, Section 0.1; Annex IX, Section 9.1., Column 2).

In particular, you need to take into account the following elements in your justification:
- all relevant hazard information from your registration dossier,
- the outcome of the exposure assessment in relation to the uses of the Substance,
- the outcome of the PBT/vPvB assessment including information on relevant constituents present in concentration at or above 0.1% (w/w).

For poorly water soluble substances (e.g. water solubility below 1 mg/L or below the detection limit of the analytical method of the test substance) long-term toxicity study on aquatic invertebrates and on fish) must be considered instead of an acute test (Column 2 of Annex VII, Section 9.1.1. and Annex VIII, Section 9.1.3.).

However, you have not provided any justification that the risks arising from the Substance are controlled, taking account all of the elements above.

As explained under request A.1., the information you provided on water solubility does not fulfil the information requirement. While there are remaining uncertainties regarding the relative water solubility of the various forms of the Substance, we consider that the information provided is sufficient to conclude that the Substance is poorly water soluble (i.e. water solubility below 1 mg/L).

Poorly water soluble substances require longer time to reach steady-state conditions. Hence, the short-term tests may not give a true measure of toxicity for this type of substances and the long-term tests are required. Hence, in the absence of long-term testing on aquatic organisms your dossier does not include any relevant hazard information. Furthermore, you did not conduct an exposure assessment in relation to the uses of the Substance.

Therefore, your adaptation according to Annex IX, Section 9.1., Column 2 is rejected.

Based on the above, the information requirements on long-term toxicity testing on aquatic invertebrates and on fish set out in Annex IX Section 9.1.5. and 9.1.6.1., respectively, are not fulfilled.

While selecting the test material you must take into account the impact of parameters relevant for the property to be tested. For the aquatic toxicity studies, you must justify that the selected test material properties (e.g. particle size) constitute a reasonable worst case to cover all the registrants of the Substance. Therefore the selected test material should correspond to the most soluble form of the substance taking into account the range of properties of the substance as registered under REACH.

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 26 March 2019.

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

ECHA did not receive any comments within the 30-day notification period.

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'[7].

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 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 and other parameters relevant for the property to be tested, in this case particle size. 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.

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

Technical instructions are available in the manual "How to prepare registration and PPORD dossiers"[8].

5. List of references of the ECHA Guidance and other guidance/ reference documents[9]

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.

ECHA Read-across assessment framework (RAAF, March 2017)[10]

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[11]
Guidance Document on aqueous-phase aquatic toxicity testing of difficult test chemicals – No 23, referred to as OECD GD23.
Guidance Document on Mammalian Reproductive Toxicity Testing and Assessment – No 43, referred to as OECD GD43.

[8] https://echa.europa.eu/manuals
[9] https://echa.europa.eu/guidance-documents/guidance-on-information-requirements-and-chemical-safety-assessment
[10] https://echa.europa.eu/support/registration/how-to-avoid-unnecessary-testing-on-animals/grouping-of-substances-and-read-across
[11] 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 fufilled
[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.