EUROPEAN CHEMICALS AGENCY

Helsinki, 11 December 2018

Addressee: [redacted]

Decision number: CCH-D-2114453321-60-01/F
Substance name: Tin disulphide
EC number: 215-252-9
CAS number: 1315-01-1
Registration number: [redacted]
Submission number: [redacted]
Submission date: 11/09/2017
Registered tonnage band: 100-1000

DECISION ON A COMPLIANCE CHECK

Based on Article 41 of Regulation (EC) No 1907/2006 (the REACH Regulation), ECHA requests you to submit information on:

1. **Sub-chronic toxicity study (90-day), inhalation route (Annex IX, Section 8.6.2.; test method: OECD TG 413) in rats with the registered substance;**

2. **Screening for reproductive/developmental toxicity (Annex VIII, Section 8.7.1.; test method: OECD 421/422) in rats, oral route with the registered substance, unless the sub-chronic toxicity study (90-day) by the inhalation route shows adverse effects which are not at the site of entry, when the study will be performed by the inhalation route;**

3. **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 registered substance, unless the sub-chronic toxicity study (90-day) by the inhalation route shows adverse effects which are not at the site of entry, when the study will be performed by the inhalation route;**

4. **Long-term toxicity testing on aquatic invertebrates (Annex IX, Section 9.1.5.; test method: Daphnia magna reproduction test, EU C.20./OECD TG 211) with the registered substance**

5. **Long-term toxicity testing on fish (Annex IX, Section 9.1.6.1.; test method: Fish, early-life stage (FELS) toxicity test, OECD TG 210) with the registered substance;**

You may adapt the testing requested above according to the specific rules outlined in Annexes VI to X and/or according to the general rules contained in Annex XI to the REACH Regulation. To ensure compliance with the respective information requirement, any such adaptation will need to have a scientific justification, referring and conforming to the appropriate rules in the respective annex, and adequate and reliable documentation.

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You have to submit the requested information in an updated registration dossier by **20 June 2022**. You also have to update the chemical safety report, where relevant. The timeline has been set to allow for sequential testing.

You shall perform the sub-chronic toxicity study (90-day), inhalation route, as requested under point *1* before undertaking the Screening for reproductive/developmental toxicity test (point 2) and the pre-natal developmental toxicity study (point 3). If the sub-chronic toxicity study shows evidence of adverse effects which are not at the site of entry, then the Screening for reproductive/developmental toxicity test (point 2) and the pre-natal developmental toxicity study (point 3) shall be conducted by the inhalation route.

The reasons of this decision are set out in Appendix 1. The procedural history is described in Appendix 2 and advice and further observations are provided in Appendix 3.

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] by **Claudio Carlon**, Head of Unit, Evaluation **E2**

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

Appendix 1: Reasons

(ECO)TOXICOLOGICAL INFORMATION

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at 100 to 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to IX to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

Your registration dossier contains for multiple endpoints adaptation arguments in the form of a grouping and read-across approach under Annex XI, Section 1.5. of the REACH Regulation. ECHA has considered first the scientific and regulatory validity of your read-across approach in general before assessing the individual endpoints (Annex IX, Section 8.6.2., 8.7.1., 8.7.2., 9.1.5 and 9.1.6).

Grouping of substances and read-across approach

You have sought to adapt this information requirement according to Annex XI, Section 1.5. of the REACH Regulation by providing two supporting study records for

- Screening for reproductive/developmental toxicity
- Sub-chronic toxicity study (90-day), inhalation route
- Pre-natal developmental toxicity study
- Long-term toxicity testing on aquatic invertebrates
- Long-term toxicity testing on fish

with the analogue substance tin sulphide (EC no 215-248-7).

According to Annex XI, Section 1.5., two conditions shall be necessarily fulfilled. 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 (read-across approach). ECHA considers that the generation of information by such alternative means should offer equivalence to prescribed tests or test methods.

Based on the above, a read-across hypothesis needs to be provided. This hypothesis establishes why a prediction for a toxicological or ecotoxicological property is reliable and should be based on recognition of the structural similarities and differences between the source and registered substances[2]. This hypothesis explains why the differences in the chemical structures should not influence the toxicological/ ecotoxicological properties or should do so in a regular pattern. The read-across approach must be justified scientifically and documented thoroughly, also taking into account the differences in the chemical structures. There may be several lines of supporting evidence used to justify the read-across hypothesis, with the aim of strengthening the case.

Due to the different nature of each endpoint and consequent difference in scientific considerations (e.g. key parameters, biological targets), a read-across must be specific to the endpoint or property under consideration. Key physicochemical properties may

[2] Please see for further information ECHA *Guidance on information requirements and chemical safety assessment* (version 1, May 2008), Chapter R.6: QSARs and grouping of chemicals.

determine the fate of a compound, its partitioning into a specific phase or compartment and largely influence the availability of compounds to organisms, e.g. in bioaccumulation and toxicity tests. Similarly, biotic and abiotic degradation may alter the fate and bioavailability of compounds as well as be themselves hazardous, bioaccumulative and/or persistent. Thus, physicochemical and degradation properties influence the human health and environmental properties of a substance and should be considered in read-across assessments. However, the information on physicochemical and degradation properties is only a part of the read-across hypothesis, and it is necessary to provide additional justification which is specific to the endpoint or property under consideration.

The ECHA Read-across assessment framework foresees that there are two options which may form the basis of the read-across hypothesis[3]- (1) (Bio)transformation to common compound(s)- the read-across hypothesis is that different substances give rise to (the same) common compounds to which the organism is exposed and (2) Different compounds have the same type of effect(s)- the read-across hypothesis is that the organism is exposed to different compounds which have similar (eco)toxicological and fate properties as a result of structural similarity (and not as a result of exposure to common compounds).

Finally, Annex XI, Section 1.5. lists several additional requirements, which deal with the quality of the studies which are to be read-across.

You consider to achieve compliance with the REACH information requirements for the registered substance tin disulphide using data of structurally similar substances tin sulphide (EC no 215-248-7) (hereafter the 'source substance').

You have provided a read-across documentation as a separate attachment in the dossier.

You use the following arguments to support the prediction of properties of the registered substance from data for source substances within the group:

Similar chemical structure.
All substances of this group are inorganic tin compounds. This category includes tin (II) and tin (IV) substances.

Similar physico-chemical properties.

The water solubility for tin sulfide and tin disulfide (0.6 and 0.67 µg/L, respectively) was almost identical. The other physicochemical parameters like melting point support that both substances are very similar and hence read-across can be made. Calculation of water solubility in physiological conditions of the stomach and intestines (pH 2 & 5) indicated that the solubility of both tin sulfide and tin disulfide remains small enough to assume that the dissociation of SnS or SnS2 will be negligible in the gastro-intestinal tract.

Similar ecotoxicological properties. Since tin (IV) has been shown to be slightly less toxic to aquatic organisms when compared to tin (II) (WHO, 2005), read across from tin (II) to tin(IV) substances is conservative. However, the differences were not high, read across from tin (IV) to tin(II) is considered possible as well. You acknowledge that some soluble tin salts ($SnCl_2$) were shown to be genotoxic to fish but you consider this mode of action not relevant to SnS and SnS_2 as these salts have very low solubility. You further support this

[3] Please see ECHA's Read-Across Assessment Framework (https://echa.europa.eu/support/registration/how-to-avoid-unnecessary-testing-on-animals/grouping-of-substances-and-read-across).

hypothesis by providing the results of a toxicity test to aquatic algae on both the target and source substance. You also argue that the sulphide ion is not relevant, and that the mode of action is interference with uptake and metabolism of other metals.

Similar toxicological properties.

You assume that toxicity is mediated by the tin ion, and so it is possible to read-across to various inorganic tin salts. "*For mammalian toxicity, anchor points for acute oral, inhalation & dermal toxicity, skin & eye irritation, sensitisation, and in vitro bacterial/mammalian mutagenicity and chromosomal aberration demonstrated a fully comparable toxicological profile for tins sulfide and tin disulfide. There was no hazard for these endpoints.*" You also argue that the sulphide ion is not relevant, and that the mode of action is interference with uptake and metabolism of other metals. As an integral part of this prediction, you propose that the source and registered substance have similar properties for the above-mentioned information requirement. ECHA considers that this information is your read-across hypothesis.

ECHA's evaluation and conclusion

Your proposed adaptation argument is that the similarity in chemical structure and in some of the physico-chemical, ecotoxicological and toxicological properties between the source and registered substance is a sufficient basis for predicting the properties of the registered substance for other endpoints. Structural similarity is a prerequisite for applying the grouping and read-across approach. However similarity in chemical structure and similarity of some of the physico-chemical, ecotoxicological and toxicological properties does not necessarily lead to predictable or similar human health/environmental properties in other endpoints. Your justification based on structural similarity, similar physico-chemical, ecotoxicological and toxicological properties has not established why the prediction is reliable for the human health and environmental end-points for which the read across is claimed.

Additionally, there is evidence that tin (II) (corresponding to the registerd substance subject to this decision) and tin (IV) (corresponding to the source substance) behave differently in biological systems. In the context of ecotoxicology data you stated: "*Since tin (IV) has been shown to be slightly less toxic to aquatic organisms when compared to tin (II) (WHO, 2005), read across from tin (II) to tin(IV) substances is conservative. However, the differences were not high, read across from tin (IV) to tin(II) is considered possible as well.*" Moreover, from the Statement on the Toxicokinetics of Tin(1I) Sulfide (attached in the dossier), in relation to biotransformation it is suggested that the tin (II) and tin (IV) may have different toxicokinetic behaviour and toxicities: "*Few data on biotransformation are available. The difference in the relative affinity of the kidneys and liver for tin(II) and tin(IV) indicates a valence stability of the administered tin ([redacted], 1974). The difference observed between tin(II) and tin(IV) chloride in their effects on the immune response in C57BL/6J mice also suggests that these two oxidation states are not readily interconverted in vivo ([redacted], 1981). Together, these data suggest that tin cations are not rapidly oxidized or reduced during absorption and systemic transportation in mammals.*"
This evidence of different properties for tin (II) and tin (IV) contradicts your read-across hypothesis, and would need to be addressed in order to explain how it is possible to predict the properties of the registered substance.

Furthermore, you claim that "*potential effects from the sulfide ion were considered not relevant at these concentrations*". ECHA undestand that you consider that the intrinsic

properties of the counter ion of the target and source substance are not relevant in the predictions of the ecotoxicological properties of the registered substance. ECHA disagrees with the statement that effects of a counter ion can be disregarded. Upon dissolution, S_2^- ions are unlikely to be formed[4] and bisulfide ions (HS^-) will dominate at lower/neutral pHs . Evidence suggests that bisulfide ions will only oxidize abiotically[5] at a moderate rate under oxic conditions especially at lower pH[6] (despite the fact that oxidation rate may increase in the presence of oxidized metal compounds). Sulfide may also be oxidised at faster rates by, for *e.g.*, anaerobic photolithotrophic bacteria and aerobic chemolithotrophic symbionts and free-living assemblages. The reaction of O_2 with any reactant that can donate a pair of electrons (such as S^{2-}) is not thermodynamically favorable due to the partial occupancy of the highest occupied π antibonding orbitals, which are similar in energy[5]. These kinetic constraints allow sulfide to persist for long enough periods in oxic and nitrate dominated environments to have toxic effects on aquatic organisms and/or to be exploited by sulfide-oxidizing microbes.

Finally, there are also further arguments why the read-across approach based on data generated for toxicological endpoints with the source substance tin sulphide via the oral route cannot be accepted. ECHA notes that the granulometry of the registered substance shows that more than half of the tin disulphide particles falls into the respirable size fraction, i.e. below 5 µm (d10: 0.59 µm; d50: 1.58 µm; d90: 6.22 µm and the registered substance is water insoluble (0.67 µg/L).). Furthermore, ECHA notes that there are PROCs [redacted], including spray applications, supporting inhalation exposure to industrial workers and professionals. Moreover, you provided data regarding a PBPK model for inhaled tin suggesting that absorption may be higher after inhalation exposure as you state "*The ICRP has also developed a human model for inhaled tin (ICRP, 1994). Sulfides, oxides, hydroxides, halides, and nitrates of tin and tin(IV) orthophosphate are classed as Type M; all other compounds of tin are classed as Type F. [...] For Type M compounds, approximately 70% of the tin deposited in the alveolar interstitial regions is eventually transferred to blood, and there is rapid absorption of about 10% of the tin deposited in the bronchi and bronchiole regions and 5% of the tin deposited in the gastrointestinal tract. Approximately 2.5% of the deposit in the gastrointestinal tract is rapidly absorbed during nose breathing, and 5% is rapidly absorbed during mouth breathing (ICRP, 1994)*". There is also evidence that prolonged inhalational exposure to insoluble tin compounds may lead to higher absorption and accumulation. The provided information on toxicokinetics informs on the levels of tin in people without and with tin occupational exposure: "*Autopsy samples from 78 deceased Spaniards contained mean tin concentrations of 0.47, 0.27, 0.25, 0.24, and 0.16 mg/kg in the bone, brain, kidneys, lungs, and liver, respectively ([redacted], 2001). Analysis of tissue samples from 20 deceased Spanish subjects (without known occupational tin exposure) found highest and lowest tin levels in bone (mean 6.2 mg/kg) and brain (mean 1 mg/kg), respectively ([redacted], 1998)*" and "*Autopsy analysis of the internal organs of 7 Japanese metal industry workers and 12 Japanese males without occupational exposure found elevated concentrations of tin in the lungs, spleen, liver, and kidneys of chromate plating and chromate refining workers. In one chromate refining worker, marked concentrations of tin were found in the hilar lymph nodes (100 mg/kg dry weight) and lungs (100 mg/kg dry weight) ([redacted], 1981)*". Accordingly, in occupational settings there is likely inhalation exposure to tin via dust and fumes which probably contributes to the observed differences in concentration between metal industry workers

[4] May et al. (2018). Goodbye to S^{2-} in aqueous solution. Chem. Commun., 54:1980.
[5] Luther III et al. (2011). Thermodynamics and Kinetics of Sulfide Oxidation by Oxygen: A Look at Inorganically Controlled Reactions and Biologically Mediated Processes in the Environment. Front Microbiol., 2:62.
[6] Nielsen et al. (2006). Kinetics and Stoichiometry of Aerobic Sulfide Oxidation in Wastewater from Sewers—Effects of pH and Temperature. Water Environ. Res. 78(3):275-283.

and non-workers. ECHA notes that the reported PROCs are supporting an inhalation exposure of industrial workers and professionals. If there is higher absorption via inhalation route this may lead to possibly higher toxicities as exemplified in the cases of studies with more soluble tin compounds. Repeated dose inhalation studies with tin sulphide or tin disulphide or other insoluble tin compounds are not available.

In conclusion, in the case of the registered substance testing via the inhalation route is more appropriate than via the oral route for particular endpoints. Consequently, for those endpoints where the inhalation route is the most appropriate route, the *in vivo* oral data obtained with the proposed analogue cannot be accepted also because the route of exposure is inappropriate for the registered substance.

In your comments on the draft decision, you proposed to strengthen the read across justification for environmental properties by providing additional data on tin compounds with the same valence state as the registered substance (i.e. tin(IV)). You also identified a number of published studies that you consider supportive in demonstrating similar ecotoxicological effects of Sn(II) and Sn (IV). You provided supporting evidence for this hypothesis by referring to a number of published studies mostly on SnO_2 nanoparticles (i.e. Sn^{4+}) but also some references to studies conducted on Sn^{2+} salts as well as two comparative studies of the toxicity of tin (II) and tin (IV) compounds to various organisms. Most of these publications are attached to your comments.

You acknowledged that the toxicity of sulphide may be more relevant for the risk assessment of tin sulphide and tin disulphide than the toxicity of Sn^{2+} or Sn^{4+}. You refer to an extensive publication by US-EPA (1976) which reports the results of 159 acute fish tests, 29 chronic fish tests (up to 826 days), 96 acute invertebrate tests and 9 chronic invertebrate tests (up to 138 days). Despite some limitations, you consider the reported fish NOEC (1 µg H_2S/L) is adequate for risk assessment purposes.

Finally, based on the results of an OECD TG 105 study conducted on the registered substance (i.e. water solubility estimated to be 0.67 µg/L), you conclude that available ecotoxicological data on aquatic organisms indicate that no effects are expected at concentrations below the water solubility of tin disulphide.

ECHA would like to point out the following reasons why the read across hypothesis is not considered plausible:

- The published studies on SnO_2 nanoparticles were limited to short-term (acute) studies. ECHA considers that substances that are poorly soluble in water, such as the test substance, require a longer time to be significantly taken up by the test organisms and so steady state conditions are likely not to be reached within the duration of a short-term toxicity test. For this reason, short-term tests may not give a true measure of toxicity for such substances and toxicity may actually not even occur at the water solubility limit of the substance if the test duration is too short. Accordingly, long-term toxicity testing (including Algae) must be considered for poorly water soluble substances (as outlined in ECHA Guidance on Information Requirements and Chemical Safety Assessment, Chapter R.7b, Section R.7.8.2, version 4.0, June 2017) and even more for nanomaterials, if their dissolution rate is negligible, low or moderate (See Appendix R.7-1 to Chapter R.7a, section 2.2.1.1). Considering the above, the relevance of this study to improve the read-across justification is limited;
- The same considerations apply to the poorly water soluble Sn^{2+} salts and hence to the corresponding comparative studies;

- With regard to the publication by US-EPA (1976), although it covers long-term (chronic) and acute aquatic toxicity testing it is only applied to Sulfide and therefore does not cover either Sn^{2+} or Sn^{4+}. Therefore, this publication cannot support a major part of the read-across hypothesis;
- You use the results of an OECD TG 105 study conducted on the registered substance (i.e. water solubility estimated to be 0.67 µg/L) to conclude that available ecotoxicological data on aquatic organisms indicate that no effects are expected at concentrations below the water solubility of tin disulphide. As explained in ECHA *Guidance on Information Requirements and Chemical Safety Assessment, Chapter R.7a, Section R.7.1.7.* (Version 6.0, July 2017), the OECD Test Guidance on transformation/dissolution of metals and sparingly soluble metal compounds (OECD TG 29, 2001) is the preferred method to determine the rate and extent to which metals and sparingly soluble metal compounds can produce soluble bioavailable ionic and other metal-bearing species in aqueous media under a set of standard laboratory conditions representative of those generally occurring in the environment. The outcomes of the transformation/dissolution tests can be used for the identification of potential aquatic environmental hazards. You may consider, under your own responsibility, performing such a test, with monitoring of the two oxidation states (tin (II) and tin (IV), for obtaining additional information.

In your comments on the draft decision, you also proposed to strengthen the read-across justification for the human health by the use of data on additional inorganic tin compounds. You explain that the read-across hypothesis is based on (bio)transformation to a common compound(s), or that the registered and source substance(s) have the same type of effect(s). In this case, both would apply as various other inorganic tin compounds are available either as elemental tin or tin salts. You stated that additional documentation will be added later on in the dossier when Letters of Access for the relevant studies have been obtained.

To strengthen the read-across for human health you provided a broader discussion in relation to the impact of the oxidation state of tin ions on toxicity. In your opinion the available data suggests a greater absorption of the tin (II) which may explain the observed increased toxicity of the tin (II) ion compared to tin (IV). The study of [redacted] 1974 also concluded that "*it is inappropriate to discuss the absorption, distribution and excretion of any inorganic element without regard to the effects of valence and anion complement.*"

As stated in the draft decision, the evidence of different properties for tin (II) and tin (IV) contradicts your read-across hypothesis. While you provide data suggesting higher absorption of tin(II) compounds, you also need to take into account differences in the toxicological properties of tin ions with different valence states and of their counter ions.

Furthermore, in Annex I of your comments you give an overview of available information on inorganic tin salts to support the read-across for toxicological endpoints. You also describe a transformation dissolution approach that you propose to use to correct for differences in the bio-availability or bio-accessibility of inorganic tin compounds. You explain that "*By referring to toxicity data on a metal substance (reference substance) within the group, predictions on the hazard of the other substances in the group can be established ([redacted] 2018). Bioelution testing of metals and metal compounds can be used as an alternative to animal testing for obtaining basic information on their potential toxicity, while allowing compliance with strict information requirements. This testing is conducted according to* the Bioaccessibility Testing Programme of Eurometaux which is based on ASTM D5517-07 [28]: standard test method for determining the extractability of metals from artificial materials

(e.g. gastric / intestinal fluid). When **bio-accessibiltiy (% of released of total content in physiological conditions)** *of different tin salts is known, 'Transformation factors' can be derived.*

Thus, by using the "transformation factors" derived on the basis of bioelution testing, the "corrected" data from other tin compounds will be used to fill in the gaps for the registered substance."

ECHA notes that bioelution measures the degree to which a substance/metal ion is released into artificial biological fluids, i.e. the substance's bioaccessibility. However, bioaccesibility cannot always be used as a predictor of bioavailability and of toxicity in a hazard assessment. Bioaccessibility data should be considered as only one aspect of a read across approach and cannot fill the data gaps. Furthermore, ECHA considers that *in vivo*, other biological processes may come into play (e.g. for inhalation, particle effect, lung overload, redox reactions, oxidative stress, change in pH). Bioelution results should therefore not be used in isolation to predict toxicity ([redacted] 2018). In addition, ECHa considers that validation of bioeluation data by *in-vivo* toxicokinetic and/or toxicity data for each substance and route of exposure would be needed in such an approach. For the inhalation route no repeated dose toxicity data are available for any inorganic tin.

In conclusion, ECHA considers that providing information on the bioaccessibility may or may not support the read-across approach. Moreover, ECHA notes that the comment provided is speculative and the bioaccessibility information is yet to be provided and hence cannot be taken into account. Furthermore, ECHA emphasises that providing bio-accessiblitity data will not resolve the other deficiencies of the current read-across approach such as the fact that the multigeneration study on stannous chloride and the teratogenicity study with tin difluoride are available only as secondary literature and hence the quality of the studies cannot be assessed. Also the two other teratogenicity and screening study reports mentioned as available data in the comments, are still to be provided and, therefore, cannot be taken into account at present. Finally, the impact of the route of exposure also needs to be established. Considering the current lack of information on higher tier endpoints via the inhalation route and the points highlighted above, there is currently insufficient support for your read across hypothesis.

In conclusion, ECHA has taken into account all of your arguments together. ECHA firstly notes that you have not provided a reasoning as to why these arguments add to one another to provide sufficient basis for read-across. Secondly, the defects of each individual argument are not mitigated by the other arguments you have provided, and so ECHA considers that the arguments when taken all together do not provide a reliable basis for predicting the properties of the registered substance.

Therefore, ECHA considers that this grouping and read-across approach does not provide a reliable basis whereby the human health and ecotoxicity effects of the registered substance may be predicted from data for reference substance(s) within the group. Hence, this approach does not comply with the general rules of adaptation as set out in Annex XI, Section 1.5. of the REACH Regulation.

As described above, further elements are needed to establish a reliable prediction for a toxicological or ecotoxicological property, based on recognition of the structural similarities and differences between the source and registered substances. This could be achieved (if it is possible) by a well-founded hypothesis of (bio)transformation to a common compound(s), or that the registered and source substance(s) have the same type of effect(s), together

with sufficient supporting information to allow a prediction of human health and ecotoxicological properties.

For the avoidance of doubt, ECHA considers that, when examining systemic toxicity for relevant human health endpoints, read-across between inorganic tin salts of the same valence state is plausible, when allowance is made for the solubility of the ionic species, and where the counter-ion does not impact significantly the toxicity. If the counter ion does impact the (eco)toxicological properties, it has to be taken into account in the read-across justification. However, for any specific case, it would be necessary to examine the justification for read-across and any substance-specific considerations to determine if it is acceptable.

Therefore, your adaptation of the information requirement is rejected.

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

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at 100 to 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to IX to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

You have sought to adapt this information requirement according to Annex XI, Section 1.5. of the REACH Regulation by providing a study record for a Repeated Dose 90-Day Oral Toxicity in Rodents (OECD TG 408) with the analogue substance tin sulphide (EC no 215-248-7).
However, as explained above in Appendix 1 of this decision under the "Grouping of substances and read-across approach", your adaptation of the information requirement is rejected.

As explained above, the information provided on this endpoint for the registered substance in the technical dossier does not meet the information requirement. Consequently there is an information gap and it is necessary to provide information for this endpoint.

ECHA has evaluated the most appropriate route of administration for the study. The information provided in the technical dossier and the chemical safety report on properties of the registered substance and its uses indicate that human exposure to the registered substance by the inhalation route is likely. More specifically, the substance is respirable (powder with the particle size distribution (the volume distribution -average) of 0.59 µm (d10), 1.58 µm (d50), and 6.22 µm (d90), of low water solubility (0.67 µg/L) and consequently there is a potential for accumulation of the substance in the lungs. The reported PROCs [redacted] include spray applications and are supporting for inhalation exposure to industrial workers and professionals.

In addition, the Registrant provided data regarding a PBPK model for inhaled tin suggesting that absorption may be higher after inhalation exposure and there are no available repeated dose studies with inorganic tin compounds via the inhalation route:
"*The ICRP has also developed a human model for inhaled tin (ICRP, 1994). Sulfides, oxides, hydroxides, halides, and nitrates of tin and tin(IV) orthophosphate are classed as Type M; all other compounds of tin are classed as Type F. [...] For Type M compounds, approximately 70% of the tin deposited in the alveolar interstitial regions is eventually*

transferred to blood, and there is rapid absorption of about 10% of the tin deposited in the bronchi and bronchiole regions and 5% of the tin deposited in the gastrointestinal tract. Approximately 2.5% of the deposit in the gastrointestinal tract is rapidly absorbed during nose breathing, and 5% is rapidly absorbed during mouth breathing (ICRP, 1994)."

Hence, ECHA considers that the inhalation route is the most appropriate route of administration.

In your comments on draft decision you disagree with the appropriateness of selecting the inhalation route for conducting toxicity testing on the registered substance. You discuss the two acute studies performed with the target and the source substances tin sulphide and tin oxide and conclude that after a 4-hours exposure followed by 14 days observation period the systemic toxicity was demonstrated to be absent and only local effects were seen. Based on the lack of toxicity observed in the acute inhalation studies no need for a repeated dose toxicity study via inhalation was identified.

ECHA disagrees that the results of the acute inhalation studies can be used to decide on the need to conduct a repeated dose inhalation toxicty study as (i) there are fundamental differences between the studies, and (ii) a 90-day study may reveal effects that cannot be detected in an acute study. Furthermore, no lung clearance data are available; neither for the target nor for the source substances which are both insoluble particles (i.e. requiring longer time for clearance).

You also explain in your comments that, in Section 4.5 of your technical dossier, the "typical" size of particles was not reported correctly. You indicate that the correct values are: D10 c.a. 2 µm, D50 c.a. 15 µm and D90 c.a. 45 µm. In the context of the particle sizes defined in the CEN document EN 481, "*the respirable fraction (<4 µm) is not more than half, but might be expected to be between 13 and 20% and the thoracic fraction (<10 µm) to reach 34%. The convention for thoracic and respirable fraction sets that 50% of the particles in air with an aerodynamic diameter <10 and <4 µm belong to the thoracic and respirable fraction, respectively, therefore the fractions are expected between 6.5-10 and 17%, respectively.*"

ECHA notes that even if the corrected values indicated in your comments are considered acceptable, a significant proportion is still in the respirable (D20 below 5 µm), and thoracic (D40 about 10 µm) fraction, and a D90 of about 45 µm is well below the threshold for the inhalable fraction of 100 µm. Column 2 of Section 8.6.2. Annex IX specifies that: "*Testing by the inhalation route is appropriate if: — exposure of humans via inhalation is likely taking into account the vapour pressure of the substance and/or the possibility of exposure to aerosols, particles or droplets of an* ***inhalable size****.* " On the basis of the provided data this condition is fulfilled. Furthermore, the reported PROCs include spray applications and are also supporting for inhalation exposure to industrial workers and professionals.

You then refered to the PBPK model from ICRP (2012) provided in the dossier and argued that type M classification is considered to be a worst case proposal for tin disulfide (and elemental tin), as these substances are not water soluble, and therefore type S (slow rate of absorption) would be more appropriate. Furthermore, you argued that the basis for this inclusion was not traced in the literature and stated that "*Updates on the ICRP model have taken place, where new data on rates of particle transport from the nasal passages, bronchial tree (slow phase) and alveolar-interstitial region have come available, some of*

which were conducted to address uncertainties identified by development of the model." However, no such information was provided in the comments.

Furthermore, you explained that the particles which are insoluble and present in the alveoli and which are not absorbed are cleared by alveolar macrophages that are removed from the body by expectoration via the higher airways. Therefore, the small fraction of insoluble tin disulfide that could reach the lung alveoli, if any, would be considered to be removed by the physiological mechanism of lung clearance. However, your argument has not been substantiated with any supporting data.

You argued that "*the occupational studies in humans as referred by ECHA from the PBPK model, do not provide further information on the type of (inorganic/organic) tin compounds.*" and more information is provided in the WHO Concise International Chemical Assessment Document (CICAD) 65 document (2005)." You discussed several older occupational studies in tin workers which focus on effects on the respiratory system and showing that occupational exposure to tin(IV) oxide dust or fumes has induced stannosis, with no indication of fibrosis or apparent disability beyond chest X-ray opacities. ECHA notes that the human data discussed in the draft decision were provided in the dossier in the context of toxicokinetics in relation to the the levels of tin in people without and with tin occupational exposure. Furthermore, the CICAD 65 document ackowledges that "*Adequate data on uptake following inhalation or dermal exposure appear to be lacking ([redacted], 2002).*" The occupational studies discussed in the comments to the draft decision focus on effects on the respiratory system. However, they do not provide information on other possible systemic effects which may arise as a consequence of a higher absorption via inhalation versus the oral route. The influence of the route of exposure has yet to be demonstrated.

In view of the above, ECHA considers that the study should be performed by the inhalation route. Hence, the test shall be performed by the inhalation route using the test method OECD TG 413.
According to the test method OECD TG 413 the rat is the preferred species. ECHA considers this species as being appropriate and testing should be performed with the rat.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision: Sub-chronic inhalation toxicity: 90-day study (test method: OECD TG 413) in rats with the registered substance.

2. Screening for reproductive/developmental toxicity (Annex VIII, Section 8.7.1.)

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at 100 to 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to IX to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

"Screening for reproductive/developmental toxicity" (test method OECD TG 421 or 422) is a standard information requirement as laid down in Annex VIII, Section 8.7.1. of the REACH Regulation if there is no evidence from available information on structurally related substances, from (Q)SAR estimates or from *in vitro* methods that the substance may be a developmental toxicant. No such evidence is presented in the dossier. Therefore, adequate

information on this endpoint needs to be present in the technical dossier for the registered substance to meet this information requirement.

You have sought to adapt this information requirement according to Annex XI, Section 1.5. of the REACH Regulation by providing a study record for a Reproduction/Developmental Toxicity Screening Test (OECD TG 421) with the analogue substance tin sulphide (EC no 215-248-7).

However, as explained above in Appendix 1 of this decision under the "Grouping of substances and read-across approach", your adaptation of the information requirement is rejected.

In your comments you proposed two alternative approaches to fulfil the information requirements for toxicological endpoints. The first approach proposes the use of read-across data on inorganic tin compounds. You consider to apply a 'bio-elution' or 'dissolution/transformation' testing approach *in vitro* in physiological conditions (e.g., stomach/intestinal/lung-fluids) for inorganic tin compounds to further support the read-across and to convert NOAEL values from source substances to the registered substance. However, as explained above in Appendix 1 of this decision under the "Grouping of substances and read-across approach", your adaptation of the information requirement is still rejected.

In the second alternative you propose testing but only if "*it should turn out that read across is not appropriate to fulfil the toxicological data gaps*" and "*The OECD 421 study in rats can only be started based on the results of the 90-day study; if this study by inhalation route shows adverse effects not at the site of entry, inhalation testing would be required.*" As described above, currently the read-across justification is not acceptable. As explained above, the information provided on this endpoint for the registered substance in the technical dossier does not meet the information requirement. Consequently there is an information gap and it is necessary to provide information for this endpoint.

According to the test methods OECD TG 421/422, the test is designed for use with rats. On the basis of this default assumption ECHA considers testing should be performed with rats.

Regarding your comments on the route of administration, ECHA notes that your comments are not in line with ECHA guidance. ECHA considers that the oral route is the most appropriate route of administration for substances except gases to focus on the detection of hazardous properties on reproduction as indicated in ECHA *Guidance on information requirements and chemical safety assessment* (version 6.0, July 2017) Chapter R.7a, Section R.7.6.2.3.2. Since the substance to be tested is a solid powder, ECHA concludes that testing should be performed by the oral route. However, if the results of the sub-chronic study shows that via inhalation route there is systemic toxicity (i.e. adverse effects) which is not at the site of entry, and thereby suggesting a better absorption by inhalation compared to oral route, then the inhalation route should be employed for the Reproduction/Developmental Toxicity Screening Test.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision:
- Reproductive/developmental toxicity screening test (test method: OECD TG 421) *or*
Combined repeated dose toxicity study with the reproduction/developmental toxicity

screening test (test method: OECD TG 422) in rats by the oral route unless the sub-chronic toxicity study (90-day) by the inhalation route shows adverse effects which are not at the site of entry, when the study will be performed by the inhalation route.

Notes for your considerations

For the selection of the appropriate test, please consult ECHA *Guidance on information requirements and chemical safety assessment*, Chapter R.7a, Section R.7.5 and 7.6 (version 6.0, July 2017).

You should also carefully consider the order of testing of the requested screening (OECD TG 421/422) and the developmental toxicity studies (OECD TG 414) to ensure that unnecessary animal testing is avoided, paying particular attention to the endpoint specific guidance (https://echa.europa.eu/documents/10162/13632/information_requirements_r7a_en.pdf) Section R.7.6.2.3.2., pages 484 to 485 of version 6.0 – July 2017."

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

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at 100 to 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to IX to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

A "pre-natal developmental toxicity study" (test method OECD TG 414) for a first species is a standard information requirement as laid down in Annex IX, Section 8.7.2. of the REACH Regulation. Adequate information on this endpoint needs to be present in the technical dossier for the registered substance to meet this information requirement.

You have not provided any study record of a pre-natal developmental toxicity study in the dossier that would meet the information requirement of Annex IX, Section 8.7.2.

In the technical dossier you have provided a study record for a "combined repeated dose toxicity study with the reproduction/developmental toxicity screening test" (test method: OECD TG 422). However, this study does not provide the information required by Annex IX, Section 8.7.2. because it does not cover key parameters of a pre-natal developmental toxicity study like examinations of foetuses for skeletal and visceral alterations. Furthermore, the study was a read-across with an analogue substance which as explained above in Appendix 1, section 0 of this decision was rejected. Therefore, your adaptation of the information requirement is rejected.

In your comments you proposed two alternative approaches to fulfil the information requirements for toxicological endpoints. The first approach proposes the use of read-across data on inorganic tin compounds. You consider to apply a 'bio-elution' or 'dissolution/transformation' testing approach *in vitro* in physiological conditions (e.g., stomach/intestinal/lung-fluids) for inorganic tin compounds to further support the read-across and to convert NOAEL values from source substances to the registered substance. However, as explained above in Appendix 1 of this decision under the "Grouping of substances and read-across approach", your adaptation of the information requirement is still rejected.

The second approach proposes testing but only if "*it should turn out that read across is not appropriate to fulfil the toxicological data gaps*" and "*The OECD 414 study in rats will only be started if there are no problems in the OECD 421 study regarding litter and offspring findings.*". ECHA notes that a prenatal developmental toxicity study (OECD TG 414), conducted in one species, is a standard data requirement at REACH Annex IX level and "*problems in the OECD 421 study regarding litter and offspring findings*" is not a valid waiver for this endpoint. The Chapter R.7a: Endpoint specific guidance Version 6.0–July 2017 clarifes that "*If the results from existing studies (prenatal developmental toxicity test or repeated-dose studies) are sufficient to support classification to Category 1B for effects on developmental toxicity and/or sexual function and fertility and the risk assessment, the Column 2 adaptation rules for REACH Annex IX, point 8.7 should be followed.*" Therefore, neither this approach can be accepted.
You have also sought to adapt this information requirement with the following justification for the adaptation:

- "*the study does not need to be conducted because the substance is of low toxicological activity (no evidence of toxicity seen in any of the tests available), it can be proven from toxicokinetic 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 and of metabolites of the substance in urine, bile or exhaled air) and there is no or no significant human exposure-[exposure considerations; study scientifically not necessary / other information available*]"
- "*Referring to the results of OECD 421 study, there is no evidence that the test item is causing any developmental as well as teratogenetical toxicity. After detailed checking literature situation, even there is no evidence found in epidemiological studies*"

While you have not explicitly claimed an adaptation, you have provided information that could be interpreted as an attempt to adapt the information requirement according to Annex IX, Section 8.7., column 2.
However, ECHA notes that your adaptation does not meet the specific rules for adaptation of Annex IX, Section 8.7., column 2 because while the absorption is minimal via the oral route, there still is systemic absorption and there is significant human exposure (industrial, professional and consumer exposure).

Therefore, your adaptation of the information requirement is rejected.

As explained above, the information provided on this endpoint for the registered substance in the technical dossier does not meet the information requirement. Consequently there is an information gap and it is necessary to provide information for this endpoint.

According to the test method OECD TG 414, the rat is the preferred rodent species and the rabbit the preferred non-rodent species. On the basis of this default assumption ECHA considers testing should be performed with rats or rabbits as a first species.

ECHA considers that the oral route is the most appropriate route of administration for substances except gases to focus on the detection of hazardous properties on reproduction as indicated in ECHA *Guidance on information requirements and chemical safety assessment* (version 6.0, July 2017) Chapter R.7a, Section R.7.6.2.3.2. Since the substance to be tested is a powder, ECHA concludes that testing should be performed by the oral route. However, if the results of the sub-chronic study shows that via inhalation route there is systemic toxicity

(adverse effects) which are not at the site of entry, and thereby suggesting a better absorption by inhalation compared to oral route, then the inhalation route should be employed for the pre-natal developmental toxicity study.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision: Pre-natal developmental toxicity study (test method: OECD TG 414) in a first species (rat or rabbit) by the oral route unless the sub-chronic toxicity study (90-day) by the inhalation route shows adverse effects which are not at the site of entry, when the study will be performed by the inhalation route.

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

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at more than 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to X to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

"Long-term toxicity testing on aquatic invertebrates" is a standard information requirement as laid down in Annex IX, Section 9.1.5. of the REACH Regulation. Adequate information on this endpoint needs to be present in the technical dossier for the registered substance to meet this information requirement.

You have sought to adapt this information requirement according to Annex XI, Section 1.5. of the REACH Regulation by providing a study record for a "TIN SULFIDE. Daphnia magna Reproduction Test According to OECD Guideline No 211" with the analogue substances tin sulfide (EC no 215-248-7).

In your comments on the draft decision, you consider your argumentation as strong enough to defend the hypothesis that the tin disulfide will not cause ecotoxicological effects at the limit of water solubility. As already explained in section "Grouping of substances and read-across approach", you proposed to strengthen the read across justification by providing additional data on tin compounds of the same valence state and by including information on the toxicity of the sulfide counter ion.

You identified a long-term NOEC in fish of 1 µg H_2S/L based on an extensive study of the toxicity of H_2S to aquatic organisms (US-EPA, 1976). On the basis of a water solubility estimate (i.e. 0.67 µg/L) obtained according to OECD TG 105, you conclude that no long-term toxicity of tin disulfide to aquatic organisms is expected.

The data reported by you would suggest that the sulfide counter ion could drive the aquatic toxicity of the registered substance. However, ECHA disagrees that available data on water solubility are sufficient to rule out any toxic potential of the sulphide counter ion to aquatic organisms. As already explained, the water solubility determination of poorly water soluble metallic compounds should be based on the OECD Test Guidance on transformation/dissolution of metals and sparingly soluble metal compounds (OECD TG 29, 2001). In the absence of such information, the water solubility estimate reported in the technical dossier may well underestimate the true water solubility of tin disulphide under environmentally relevant conditions.

As explained above in Appendix 1, section "Grouping of substances and read-across approach" of this decision, your adaptation of the information requirement cannot be accepted.

As explained above, the information provided on this endpoint for the registered substance in the technical dossier does not meet the information requirement. Consequently there is an information gap and it is necessary to provide information for this endpoint.

According to ECHA Guidance on information requirements and chemical safety assessment, Chapter R.7b (version 4.0, June 2017) Daphnia magna reproduction test (test method EU C.20. / OECD TG 211) is the preferred test to cover the standard information requirement of Annex IX, Section 9.1.5.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision: Daphnia magna reproduction test (test method: EU C.20./OECD TG 211).

Notes for your consideration

Once results of the test on long-term toxicity to aquatic invertebrates are available, you shall revise the chemical safety assessment as necessary according to Annex I of the REACH Regulation.

Due to the low solubility of the substance in water you should consult OECD Guidance Document on Aquatic Toxicity Testing of Difficult Substances and Mixtures, ENV/JM/MONO (2000)6 REV1 (6 July 2018) and ECHA Guidance on information requirements and chemical safety assessment (version 4.0, June 2017), Chapter R7b, Table R.7.8-3 summarising aquatic toxicity testing of difficult substances for choosing the design of the requested ecotoxicity test(s) and for calculation and expression of the result of the test(s). Besides the use of OECD GD 23 you are also invited to consider preparing and conducting your experiments at a pH that would be environmentally relevant and representative of the "worst case scenario" for your substance. As such you are requested to perform analytical monitoring of Sn and S to carefully select the pH that maximises solubilisation while remaining in the environmental relevant range.

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

In accordance with Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at more than 1000 tonnes per year must contain, as a minimum, the information specified in Annexes VII to X to the REACH Regulation. The information to be generated for the dossier must fulfil the criteria in Article 13(4) of the same regulation.

"Long-term toxicity testing on fish" is a standard information requirement as laid down in Annex IX, Section 9.1.6. of the REACH Regulation. Adequate information on Fish, early-life stage (FELS) toxicity test (Annex IX, 9.1.6.1.), or Fish, short-term toxicity test on embryo and sac-fry stages (Annex IX, 9.1.6.2.), or Fish, juvenile growth test (Annex IX, 9.1.6.3.) needs to be present in the technical dossier for the registered substance to meet this information requirement.

You have sought to adapt this information requirement according to Annex XI, Section 1.5. of the REACH Regulation by providing a study record for a "TIN SULFIDE. Zebrafish short-

term Toxicity Test on Embryo and Sac-fry Stages According to OECD Guideline No 212" with the analogue substance tin sulfide (EC no 215-248-7).

In your comments to the draft decision, you proposed to strengthen the read across justification by providing additional data on tin compounds of the same valence state and by including information on the toxicity of the sulfide counter ion. You claim that there is no evidence from the read across substances that dissolved tin disulfide will cause toxic effects in fish at the limit of water solubility. You claim that from the available information for Sn^{4+} and sulfide, and information from other read across substance, it is evident that from tin disulfide the sulfide component is the more toxic component for fish. The overall NOEC for fish is 1 µg H_2S/L. You further indicate that this value is significantly above the limit of the sulfide concentration at the water solubility limit of tin disulfide and hence no long-term toxicity of tin disulfide to fish is expected.

As already explained in ECHA's response to your comment on long-term toxicity testing on aquatic invertebrates, ECHA does not consider currently available data as sufficient to prove that the registered substance will not cause long-term toxicity to aquatic life.

However, as explained above in Appendix 1, section Grouping of substances and read-across approach of this decision, your adaptation of the information requirement cannot be accepted.

As explained above, the information provided on this endpoint for the registered substance in the technical dossier does not meet the information requirement. Consequently there is an information gap and it is necessary to provide information for this endpoint.

According to ECHA *Guidance on information requirements and chemical safety assessment, Chapter R.7b* (version 4.0, June 2017) fish early-life stage (FELS) toxicity test (test method OECD TG 210), fish short-term toxicity test on embryo and sac-fry stages (test method EU C.15. / OECD TG 212) and fish juvenile growth test (test method EU C.14. / OECD TG 215) can be performed to cover the standard information requirement of Annex IX, Section 9.1.6.

However, the FELS toxicity test according to OECD TG 210 is more sensitive than the fish, short-term toxicity test on embryo and sac-fry stages (test method EU C.15 / OECD TG 212), or the fish, juvenile growth test (test method EU C.14. / OECD TG 215), as it covers several life stages of the fish from the newly fertilized egg, through hatch to early stages of growth (see ECHA *Guidance on information requirements and chemical safety assessment* (version 4.0, June 2017), *Chapter R7b, Section R.7.8.4.1.*

Moreover, the FELS toxicity test is preferable for examining the potential toxic effects of substances which are expected to cause effects over a longer exposure period, or which require a longer exposure period of time to reach steady state (ECHA *Guidance Chapter R7b,* version 4.0, June 2017).
Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision: Fish, early-life stage (FELS) toxicity test (test method: OECD TG 210).

Notes for your consideration

Once results of the test on long-term toxicity to fish are available, you shall revise the chemical safety assessment as necessary according to Annex I of the REACH Regulation.

ECHA notes that there are no reliable short-term studies available on aquatic invertebrates or on fish for the registered substance. Therefore the Integrated testing strategy (ITS) outlined in ECHA Guidance on information requirements and chemical safety assessment (version 4.0, June 2017), Chapter R7b (Section R.7.8.5 including Figure R.7.8-4), is not applicable in this case and the long-term studies on both invertebrates and fish are requested to be conducted. As the registered substance has a reported low water solubility, long-term studies are indicated.

Due to the low solubility of the substance in water you should consult OECD Guidance Document on Aquatic Toxicity Testing of Difficult Substances and Mixtures, ENV/JM/MONO (2000)6 REV1 (6 July 2018) and ECHA *Guidance on information requirements and chemical safety assessment* (version 4.0, June 2017), Chapter R7b, Table R.7.8-3 summarising aquatic toxicity testing of difficult substances for choosing the design of the requested ecotoxicity test(s) and for calculation and expression of the result of the test(s). Besides the use of OECD GD 23 you are also invited to consider preparing and conducting your experiments at a pH that would be environmentally relevant and representative of the "worst case scenario" for your substance. As such you are requested to perform analytical monitoring of Sn and S to carefully select the pH that maximises solubilisation while remaining in the environmental relevant range.

Deadline to submit the requested information in this decision

In the draft decision communicated to you the time indicated to provide the requested information was 30 months from the date of adoption of the decision. In your comments on the draft decision, you proposed two alternative approaches to fulfil the information requirements for toxicological endpoints and requested an extension of the timeline to 42 months. You sought to justify this request by the fact that testing will have to be done step-wise in order to use the results from one study to another. Hence, you consider that a 30-month time is not sufficient to work out this justification/studies appropriately. You have submitted documentary evidence from the test laboratory indicating the scheduling timelines for the studies in order to justify why an extension to the stated overall deadline from 30 months to 42 months is required. ECHA has modified the deadline of the decision.

Appendix 2: Procedural history

For the purpose of the decision-making, this decision does not take into account any updates of your registration after the date when the draft decision was notified to you under Article 50(1) of the REACH Regulation.

The compliance check was initiated on 17 January 2018.

The decision making followed the procedure of Articles 50 and 51 of the REACH Regulation, as described below:

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

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

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

As no amendments were proposed, ECHA took the decision according to Article 51(3) of the REACH Regulation.

Appendix 3: Further information, observations and technical guidance

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

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 your Member State.

3. In relation to the information required by the present decision, the sample of the substance used for the new tests must be suitable for use by all the joint registrants. Hence, the sample should have a composition that is suitable to fulfil the information requirement for the range of substance compositions manufactured or imported by the joint registrants.

   It is the responsibility of all joint registrants who manufacture or import the same substance to agree on the appropriate composition of the test material and to document the necessary information on their substance composition. In addition, it is important to ensure that the particular sample of the substance tested in the new tests is appropriate to assess the properties of the registered substance, taking into account any variation in the composition of the technical grade of the substance as actually manufactured or imported by each registrant.

   If the registration of the substance by any registrant covers different grades, the sample used for the new tests must be suitable to assess these grades. Finally there must be adequate information on substance identity for the sample tested and the grades registered to enable the relevance of the tests to be assessed.