ECHA
EUROPEAN CHEMICALS AGENCY

Helsinki, 27/07/2017

Addressee: [redacted]
Decision number: CCH-D-2114367120-61-01/F
Substance name: 2-Propenoic acid, reaction products with pentaerythritol
EC number: 629-850-6
CAS number: 1245638-61-2
Registration number: [redacted]
Submission number: [redacted]
Submission date: 17.05.2016
Registered tonnage band: 1000+T

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]

1. **Name or other identifier of the substance (Annex VI, Section 2.1.) of the registered substance;**
   - **Manufacturing process**

2. **Composition (Annex VI, Section 2.3.) of the registered substance;**
   - **Concentration values**

3. **Partition coefficient n-octanol/water (Annex VII, Section 7.8.; using an appropriate test method) of the registered substance;**

4. **In vivo mammalian alkaline comet assay (Annex X, Section 8.4., column 2; test method: OECD TG 489) in rats, oral route, on the following tissues: liver, glandular stomach and duodenum with the registered substance;**

5. **Identification of degradation products (Annex IX, 9.2.3.; test method: Aerobic mineralisation in surface water – simulation biodegradation test, EU C.25./OECD TG 309) with the registered substance;**

6. **Exposure assessment and risk characterisation (Annex I, Sections 5. and 6.) for human health: provide an exposure assessment demonstrating the likelihood that effects for skin and eye irritation and skin sensitisation are avoided for all identified uses and detail the operational conditions and risk management measures;**

[1] No testing for endpoints listed in Annexes IX or X of the REACH Regulation may be started or performed at this moment: Only after a decision has been adopted pursuant to Article 51 of the REACH Regulation it becomes legally effective and binding for you. ECHA will take the decision either after the date it has become clear that Member State competent authorities have not made any proposals for amendment to the draft decision or, where proposals for amendment have been made, after the date the ECHA Member State Committee reached unanimous agreement on the draft decision.

7. Exposure assessment and risk characterisation (Annex I, Sections 5. and 6.) for environment:

- **revise exposure assessment using ERCs default release factors and revise the risk characterisation accordingly for exposure scenarios 1, 2, 3, 4 and 5 *or* provide a detailed justification for not using the default release factors, for instance based on risk management measures, operational conditions or substance properties;**
- **revise exposure assessment using default local freshwater dilution factor for ES 1 and revise the risk characterisation accordingly *or* provide a detailed justification for the non-default dilution factor used in the exposure estimation;**
- **revise exposure assessment using default emission days in ES1, ES2, ES3 and ES4 and revise the risk characterisation accordingly *or* provide a detailed justification for the non-default emission days used in the exposure estimation.**

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 of the REACH Regulation. In order 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 an adequate and reliable documentation.

You are required to submit the requested information in an updated registration dossier by **4 February 2019**. You shall also update the chemical safety report, where relevant.

The reasons of this decision are set out in Appendix 1. The procedural history is described in Appendix 2. 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, shall 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[2] by Kevin Pollard, Head of Unit, Evaluation E1

[2] 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

1. Name or other identifier of the substance (Annex VI, Section 2.1.)

Pursuant to Article 10(a)(ii) of the REACH Regulation, the technical dossier shall contain information on the identity of the substance as specified in Annex VI, Section 2 of the REACH Regulation. In accordance with Annex VI, Section 2 the information provided shall be sufficient to enable the identification of the registered substance.

ECHA notes that you identified the registered substance as of Unknown or Variable composition, Complex reaction products or Biological materials (UVCB). Information required to be provided according to Annex VI, Section 2.1. of the REACH Regulation on the naming of UVCB substances such as the registered substance shall consist of two parts: (1) the chemical name and (2) a more detailed description of the manufacturing process, as indicated in section 4.3 of the Guidance for identification and naming of substances under REACH and CLP (Version: 1.3, February 2014) – referred to as "the Guidance" hereinafter.

According to the Guidance, the description of the manufacturing process shall include information on the chemical identity of the starting materials and information on the most relevant steps of the process. The chemical process description shall be a description of the type of process, together with relevant process circumstances.

If the substance covered by the registration is manufactured according to different manufacturing processes, including the use of different sources, steps and/or processing parameters, then the detailed description of the manufacturing process shall be reported separately for each manufacturing process. A manufacturing process may be considered different when the relevant processing steps and/or processing parameters are different. Substances manufactured according to different manufacturing processes may indicate multiple substances and consequently the requirement for multiple registrations.

ECHA observes that in IUCLID section 3.1 you stated generically that the registered substance is prepared "[redacted]." However, no further information has been specified on the ratio of the reactants, on the identity of the stabilizers/inhibitors and on the manufacturing process parameters which can determine the composition of the registered substance and therefore its identity.

ECHA points out the above summarized description of the manufacturing process is not sufficiently detailed for the identification of the registered substance. Therefore, ECHA considers that you did not provide sufficient information on the manufacturing process description to allow for an accurate and complete identification of the registered substance.

In the comments according to Article 50(1) of the REACH Regulation you agreed to the information request.

You are accordingly required to provide details of the manufacturing processing steps

that are applied to the starting materials.

More specifically, and based on the Guidance, the information submitted must at least include the following:

- The molar ratio between the different starting materials used.
- The identity of the stabilizers/inhibitors used during the reaction.
- For each step, all relevant process parameters, such as temperature and pressure, that affect the composition and therefore the identity of the substance.

As for the reporting of the information in IUCLID, the manufacturing process description for the registered substance shall be reported in the "Description" field of the reference substance in IUCLID section 1.1.

You shall ensure that the chemical name and other identifiers reported in section 1.1 of the IUCLID dossier are representative of the UVCB substance as described by the manufacturing process.

Further technical details on how to report the identifiers of UVCB substances in IUCLID are available in paragraphs 2.1 of the Data Submission Manual 18 on the ECHA website.

2. Composition of the substance (Annex VI, Section 2.3.)

Pursuant to Article 10(a)(ii) of the REACH Regulation, the technical dossier shall contain information on the identity of the substance as specified in Annex VI, Section 2 of the REACH Regulation. In accordance with Annex VI, Section 2 the information provided shall be sufficient to enable the identification of the registered substance.

The substance composition corresponds to the chemical representation of what the substance consists of and is therefore an essential part of substance identification and the cornerstone of all the REACH obligations.

Annex VI, Section 2.3. of the REACH Regulation requires that each registration dossier contains sufficient information for establishing the composition of the registered substance and therefore its identity.

In that respect, according to chapter 4.3 of the Guidance, you shall note that for UVCB substances (substances of Unknown, or Variable Composition, or of Biological origin), such as the registered substance, the following applies:

- All constituents present in the substance with a concentration of ≥ 10 % shall be identified and reported individually,

- All known constituents and constituents relevant for the classification and/or PBT assessment of the registered substance shall be identified and reported individually; and
- Other constituents shall be identified as far as possible by a generic description of their chemical nature.

For each constituent or group of constituents, the typical, minimum and maximum concentrations shall be specified.

In IUCLID section 1.2 you have reported the constituents with their chemical name and numerical identifiers, relative typical concentrations and concentration ranges. The reported composition is based on the analytical results attached in IUCLID section 1.4. Based on the results provided on page 7 of the file "[redacted]", ECHA notes that only selective constituents were reported with the typical, minimum and maximum concentrations. Other minor constituents were not reported and therefore the substance composition is accounted only up to [redacted]% (w/w). In addition some of the constituents are reported with a very broad concentration range (i.e [redacted]"), which is not justified by the manufacturing process description due to its lack of details.

ECHA therefore concludes that the compositional information has not been provided to the required level of detail, and the registration does not contain sufficient information for establishing the composition of the registered substance and therefore its identity.

You are accordingly requested, pursuant to Article 41(1) and (3) of the REACH Regulation, to revise the information on the composition of the registered substance in order to establish a precise chemical representation of what the substance consists of. In particular, you shall revise the compositional information in order to cover the composition of the registered substance up to 100% by adding the missing constituents/group of constituents, and providing for each of them the typical, minimum and maximum concentration values.

Furthermore, you should provide an explanation for the high variability in the composition. A detailed description of the manufacturing process may clarify the broad concentration ranges reported for the registered substance. In case the concentration ranges provided in the present dossier are not representative for the registered substance as manufactured, you should revise the ranges. Without this information ECHA is not able to conclude on the representativeness of these values.

In the event that the present registration dossier covers different compositions of the registered substance you shall report separately the compositional information.

In the comments according to Article 50(1) of the REACH Regulation you agreed to the information request.

Regarding how to report the composition in IUCLID, the following applies:

You shall indicate each composition of the registered substance in IUCLID section 1.2.

For each constituent required to be reported individually, the IUPAC name, CAS name and CAS number (if available), molecular and structural formula, as well as the minimum, maximum and typical concentration, shall be reported in the appropriate fields in IUCLID.

For the other constituents to be reported under a generic description, a generic chemical name describing the group of constituents, generic molecular and structural information (if applicable), as well as the minimum, maximum and typical concentration, shall be reported in the appropriate fields in IUCLID.

Further technical details on how to report the composition of UVCB substances in IUCLID are available in the Manual "How to prepare registration and PPORD dossiers" on the ECHA website.

You shall ensure that the reported composition is consistent with the description of the process used for the manufacturing of the registered substance, including the identity of the starting materials used. You shall also ensure that the composition is verifiable and therefore supported by a description of the analytical methods for the identification and quantification of the constituents required to be reported, as required under Annex VI, Section 2.3.7.

3. Partition coefficient n-octanol/water (Annex VII, Section 7.8.)

Pursuant to Articles 10(a) and 12(1) of the REACH Regulation, a technical dossier registered at more than 1000 tonnes per year shall contain as a minimum the information specified in Annexes VII to X of the REACH Regulation.

"Partition coefficient n-octanol/water" is a standard information requirement as laid down in Annex VII, Section 7.8 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.

This physicochemical property is a key parameter to define environmental fate properties and toxicokinetic behaviour of the registered substance.

You have provided an experimental study performed according to OECD TG 117. You have also stated that the test material used in this study was the registered substance and provided two values for logKow corresponding to the two main constituents of the substance, i.e. [redacted] In addition, you have chosen 2.71 as the value to be used in the chemical safety assessment. ECHA notes that although you state in that study that "[redacted]" the composition you reported for the registered substance contains more constituents which might account for large proportion of the substance considering the typical concentrations and concentration ranges you have provided in the current registration dossier.

However, no partition coefficient n-octanol/water values have been obtained or reported for those constituents and consequently. Therefore, it is not possible to conclude whether the partition coefficient n-octanol/water value used in the chemical safety assessment is representative for the registered substance.

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.

In the comments according to Article 50(1) of the REACH Regulation you state:
"*The Notifier agrees that the current dossier presents partition coefficient values only for the main constituents of the substance. The n-octanol-water partition coefficient study was conducted according to OECD Guideline 117 and the chromatogram provides data for the other peaks as well. The log Pow values for the smaller constituents will therefore be added into Section 4.7 of IUCLID (Partition coefficient) and in the Chemical Safety Report (CSR). Please note that the highest log Pow value identified corresponded to 3.11, for a constituent representing only 7.78% of the substance.*"

ECHA acknowledges your agreement to the request.

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: Partition coefficient n-octanol/water. Guidance for determining appropriate test methods for the partition coefficient n octanol/water is available in the ECHA Guidance on information requirements and chemical safety assessment R.7a, chapter R.7.1.8.3 (July 2015).

Note to the registrant: You indicated in your comments the existence of a non-identified constituent with a value for K_{ow} of >3. ECHA reminds you that, as indicated in Section 2 "composition of the substance" above, you need to identify this constituent and include the constituent in the consideration of the formation of degradation products addressed in Section 5 "identification of degradation products" below. According to Annex XIII, fifth introductory paragraph, you also need to take account of this constituent in the PBT-assessment of the registered substance.

4. In vivo mammalian alkaline comet assay (Annex X, Section 8.4., column 2)

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

"Mutagenicity" is an information requirement as laid down in Annex VIII, Section 8.4. of the REACH Regulation. Column 2 of Annex X, Section 8.4. provides that "If there is a positive result in any of the *in vitro* genotoxicity studies in Annexes VII or VIII, a second *in vivo* somatic cell test may be necessary, depending on the quality and relevance of all the available data."

Information provided

With respect to the endpoint "*in vitro* gene mutation" (Annex VIII, Section 8.4.2.) the

technical dossier contains an "*in vitro* mammalian cell gene mutation test" (MLA test; [redacted] 1979), performed according to a method equivalent or similar to OECD Guideline 476, that shows positive results. You also provided information on an *in vitro* HPRT test ([redacted] 2014) with a negative result. You provided the following justification: "*Experience with several similar types of acrylates has shown that these tend to produce positive results in the mouse lymphoma forward mutation assay when the TK locus is used as endpoint. However, PETIA and all other acrylates tested are negative in the same assay for the HPRT locus and are also negative in in vivo testing. The results from the mouse lymphoma forward mutation assay (TK locus) are therefore considered to be false positives*".

With respect to the endpoint "*in vitro* cytogenicity" (Annex VIII, Section 8.4.2.) ECHA notes that you did not provide an *in vitro* test that appropriately investigates the clastogenic potential of the registered substance. The technical dossier contains two *in vivo* studies "mammalian erythrocyte micronucleus test" (or micronucleus test) performed according to a method equivalent or similar to OECD Guideline 474 with administration of the substance by the dermal route ([redacted] 2005). One of those studies was performed in genetically modified mice and shows positive results. The other study was performed in B6C3F1 mice and shows negative results.

In your comments on the draft decision according to Article 50(1) of the REACH Regulation you comment that "*acrylated substances are prone to cause false positives in the MLA assay. This is discussed in a publication by [redacted] (2008), which shows non-genotoxic and non-tumorigenic activity in a series of rodent bioassays conducted with acrylic acid and several acrylate esters. In a further publication by [redacted] (1989)[3] , the authors tested nine acrylate/methacrylate esters for the induction of mutations, aberrations and micronuclei in L5178Y mouse lymphoma cells without exogenous activation. The results for pentaerythritol triacrylate (PETIA) are positive, in line with those obtained in the MLA assay of [redacted] (1979). From this study, the increase in colonies appears to have been linked to small colonies, which hints to clastogenicity rather than gene mutation as an effect.*" and "*Data from other studies supports the argument that PETIA has no gene mutation potential:*

- *Several AMES tests are included in the dossier [redacted] 1987; [redacted], 1976; [redacted] 1979)[4]. All of these have a negative outcome*
- *The updated dossier of May 17th, 2016 comprises a new HPRT study ([redacted], 2014)[5] conducted according to the most recent guideline and under GLP. The outcome is also negative.*"

You further confirm that you adapted the information requirement for the *in vitro* cytogenicity test based on the two *in vivo* micronucleus studies performed in the frame of the US NTP program by the dermal route. You note that in those *in vivo* studies "*no evidence of exposure to the bone marrow is reported. Therefore a clastogenic potential for PETIA cannot be totally excluded based on this study*".

With your comments on the draft decision, you have also provided copies of the two publications Dearfiled et al. (1989) and Johannsen et al. (2008).

ECHA's evaluation

ECHA acknowledges that the negative results in the Ames tests and the HPRT test support the assumption that the registered substance does not lead to gene mutations. However, ECHA considers that the provided information is not sufficient to demonstrate that the

registered substance does not have any genotoxic potential. On the contrary, as you mentioned above, the results in the MLA test indicate that the registered substance leads to clastogenic effects rather than to gene mutations. This conclusion is supported by the publication Dearfield et al. (1989) demonstrating clastogenic effects for the tested acrylates/methacrylates, including the registered substance.

You also indicate that in the publication Johannsen et al. (2008), the relevance of the positive *in vitro* results are questioned based on *in vivo* studies addressing the same endpoint. However, ECHA observes that the *in vivo* study with the registered substance (NTP 2007), which is cited in the publication Johannsen et al. (2008), might be the same *in vivo* study by the dermal route performed by NTP as provided in the registatration dossier ([redacted] 2005).

ECHA notes that the provided *in vivo* studies have shortcomings: due to the local reactivity and the limited absorption of the registered substance, the target tissue (bone marrow) might not be reached by the substance or its metabolites to a sufficient extent following dermal administration. In your comments on the draft decision you confirm this conclusion. Moreover, the provided studies are not suitable to clarify a concern for clastogenicity with respect to local genotoxicity at the site of contact.

Hence, ECHA concludes that the provided information is not sufficient or appropriate to clarify the genotoxic potential of the registered substance. To (i) clarify the positive result in the *in vitro* gene mutation test (MLA test) and (ii) to clarify the genotoxic potential of the registered substance at the site of contact, an appropriate *in vivo* test is necessary to meet the information requirements. Consequently, there is an information gap and it is necessary to provide information.

Test method and species

According to the ECHA *Guidance on information requirements and chemical safety assessment* (version 5.0, December 2016) Chapter R.7a, section R.7.7.6.3, the *in vivo* mammalian alkaline comet assay ("Comet Assay", OECD TG 489) is suitable to follow up positive *in vitro* result for gene mutation and cytogenicity. Furthermore, the comet assay allows to identify genotoxicity *at the site of direct contact*. Hence, ECHA considers this test to be most appropriate for the substance subject to the decision.
In your comments on the draft decision according to Article 50(1) of the REACH Regulation, you claim that "*The Comet assay is not relevant for the registered substance due to:*
- *The absence of alerts for gene mutations in the in vitro assays,*
- *The absence of target organ toxicity in the repeated dose study,*
- *The absence of a carcinogenicity alert, and,*
- *The absence of relevant positive results in the in vitro assays requesting a second type of in vivo study.*"

However, ECHA notes that even if there is no alert for gene mutation, the positive result from the MLA test (as also mentioned by you) indicates a concern for clastogenicity. The Comet Assay is a suitable test to follow up this concern. Secondly, the Comet Assay is designed to investigate local effects at the site of contact, and does not require proof of systemic availability or target organ toxicity. Thirdly, it neither requires carcinogenicity alerts. Fourth and lastly, and as referred to above, ECHA observes positive results from an *in vitro* MLA test, which requires subsequent clarification through an appropriate *in vivo* study.

In your comments on the draft decision according to Article 50(1) of the REACH Regulation, you are proposing to perform an *in vivo* micronucleus study by using the intravenious (i.v.) route of administration. You provided the following justification: "*The Notifier recognizes that this route is not relevant for humans, however an in vivo micronucleus study by the dermal route (the most relevant route of exposure) is already available and this showed no clastogenic effects. The aim of the new study is to confirm the absence of clastogenic effects when bone marrow is exposed. The use of the i.v. route will lead to the most direct systemic exposure as compared to dermal or oral exposure. No analytical work will be required, which would in any case be a huge challenge for this complex UVCB substance*".

ECHA acknowledges that an *in vivo* micronucleus study may be an appropriate study to follow up clastogenic effects observed *in vitro* if it can be demonstrated that the bone marrow will be reached. By using the *i.v.* route of administration, the bone marrow might be reached. However, this is a route of administration that is not appropriate for newly requested tests under the dossier evaluation process of the REACH Regulation (Annex VIII, section 8.4.2 and Annex IX, section 8.6.2). Furthermore, *i.v.* administration of a highly irritating substance is expected to lead to suffering of animals, which should be avoided.

Hence, ECHA considers that, as explained above, the *in vivo* Comet Assay (OECD TG 489) with oral administration of the registered substance, is the most appropriate test to follow up the concern for clastogenicity which can be investigated systemically in the liver and also at the site of contact.

According to the test method OECD TG 489, the test shall be performed in rats. Having considered the anticipated routes of human exposure and adequate exposure of the target tissue(s), performance of the test by the oral route is appropriate.

According to the test method OECD TG 489, the test should be performed by analysing tissues from liver, as primary site of xenobiotic metabolism, glandular stomach and duodenum as site of direct contact. There are several expected or possible variables between the glandular stomach and the duodenum (different tissue structure and function, different pH conditions, variable physico-chemical properties and fate of the substance, and probable different local absorption rates of the substance and its possible breakdown product(s)). In light of these expected or possible variables, it is necessary to sample both tissues to ensure a sufficient evaluation of the potential for genotoxicity at the site of contact in the gastro-intestinal tract.

Conclusion

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: *In vivo* mammalian alkaline Comet Assay (test method: OECD TG 489) in rats, oral route, on the following tissues: liver, glandular stomach and duodenum.

Notes for your consideration

You are reminded that according to Annex X, Section 8.4., column 2 of the REACH Regulation, if positive results from an *in vivo* somatic cell study are available, "the potential for germ cell mutagenicity should be considered on the basis of all available data, including toxicokinetic evidence. If no clear conclusions about germ cell mutagenicity can be made,

additional investigations shall be considered".

Therefore, you may consider examining gonadal cells in addition to the other afore-mentioned tissues, as it would optimise the use of animals. ECHA notes that a positive result in whole gonads is not necessarily reflective of germ cell damage since gonads contain a mixture of somatic and germ cells. However, such positive result would indicate that the substance and/or its metabolite(s) have reached the gonads and caused genotoxic effects. This type of evidence may be relevant for the overall assessment of possible germ cell mutagenicity including classification and labelling according to the CLP Regulation.

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

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

The identification of the degradation products is a standard information requirement according to column 1, Section 9.2.3. of Annex IX of the REACH Regulation. Column 2 of Section 9.2.3. of Annex IX further states that the information does not need to be provided if the substance is readily biodegradable.

ECHA notes that based on information provided in the registration dossier the registered substance is not readily biodegradable. You have identified in section 5.1.2 of the IUCLID dossier (Hydrolysis) that following the hydrolysis of the substance five hydrolysis products are formed. However, those substances have not been considered during the CSA nor PBT assessment. Furthermore, ECHA notes that consideration should be given whether substance can be also biologically degraded to form products of concern. However, ECHA observes that there is no information provided in the registration dossier on the identity of degradation products formed following biodegradation of the registered substance.

ECHA further notes that you have not provided any justification in your chemical safety assessment or in the technical dossier for why there is no need to identify the degradation products. ECHA notes that information on degradation products is required for the PBT/vPvB assessment as Annex XIII of the REACH Regulation explicitly requires that PBT/vPvB properties of degradation products need to be taken into account. Information on degradation products shall also be taken into account for the exposure assessment (Annex I 5.2.4. of the REACH Regulation) and for the hazard assessment (e.g. column 2 of Annex X 9.4 and Annex X 9.5.1 of the REACH Regulation). Finally, ECHA further points out that information on degradation products is required for the preparation of Section 12 of the safety datasheet (Annex II of the REACH Regulation).

In your comments on the draft decision according to Article 50(1) of the REACH Regulation, you note that the main constituents of the substance "*are expected to degrade mainly via nucleophilic substitution, i.e. breaking of the ester-bond and re-forming of the original functional groups (-OH and -COOH) under alkaline or neutral conditions*". Furthermore, you explain that based on modelling results the products from biotic degradation of constituents of the substance "*are comparable to those resulting from hydrolysis : in both cases the final degradation products are pentaerythritol and acrylic acid, which do not hydrolyse but are*

readily biodegradable according to the information published on the REACH registered substances portal".

Summarising, you expect that "*under environmentally relevant conditions with a pH of ca. 7, the half-life of the substance is expected to be 55 days or less*". In addition, you claim that due to UVCB nature of the substance and specific arrangements necessary for the degradation testing of such substances, "*the additional effort is not proportional to the outcome of the study from which new information is not expected*".

ECHA notes that the information provided in your comments is not currently available in the registration dossier. Furthermore, pursuant to Annex XI, section 1.3. results obtained from valid qualitative or quantitative structure-activity relationship models should be supported by adequate and reliable documentation of the applied method which would allow independent and transparent assessment of the used model and provided results. Such documentation was neither provided with your comments nor is available in the registration dossier. Furthermore, ECHA observes that in your comments you refer to certain robust study summaries regarding biodegradation products by another registrant published on the ECHA dissemination site.

ECHA reminds you that pursuant to Article 10 of the REACH Regulation, the robust study summaries and study summaries may only be used for the purpose of registration where the registrant is in legitimate possession of the corresponding full study reports or has permission to refer to the corresponding full study reports.

ECHA notes further that you indicated in your comments the existence of a non-identified constituent with a value for K_{ow} of >3 (*c.f.* Section 3 above). ECHA reminds you that, as indicated in Section 2 "composition of the substance" above, you need to identify this constituent and include the constituent in the consideration of the formation of degradation products. According to Annex XIII, fifth introductory paragraph, you also need to take account of this constituent in the PBT-assessment of the registered substance.

As explained above, the information provided on this endpoint for the registered substance in the technical dossier is not complete. Consequently there is an information gap and it is necessary to provide more information for this endpoint. Moreover, due to the missing information indicated above it is not possible to conclude that requested information is not needed for the comprehensive chemical safety assessment of the substance.

Regarding appropriate and suitable test method, the methods will have to be substance-specific. When analytically possible, identification, stability, behaviour, molar quantity of metabolites relative to the parent compound should be evaluated. In addition degradation half-life, log Kow and potential toxicity of the metabolites may be investigated.

Aerobic mineralisation in surface water – simulation biodegradation (test method EU C.25. / OECD TG 309) is a validated standard international test laid down in the Test Methods Regulation 440/2008 (Sections C.25) and, therefore meets the requirements of Article 13(3) of the REACH Regulation. It is also noted that the OECD 309 Test Guideline features the formation and identification of the degradation products. This test shall be performed to determine the nature and rates of formation and decline of transformation products.

Therefore, pursuant to Article 41(1)(a) and (3) of the REACH Regulation, you are requested to submit the following information derived with the registered substance subject to the present decision:

Identification of the degradation products (Annex IX, Section 9.2.3.) using the following test method: Aerobic mineralisation in surface water – simulation biodegradation (test method EU C.25. / OECD TG 309).

Notes for your consideration

Before providing the above information you are advised to consult the ECHA *Guidance on information requirements and chemical safety assessment* (version 3.0, February 2016), Chapter R.7b., Sections R.7.9.2.3 and R.7.9.4. These guidance documents explain that the data on degradation products is only required if information on the degradation products following primary degradation is required in order to complete the chemical safety assessment. Section R.7.9.4. further states that when substance is not fully degraded or mineralised, degradation products may be determined by chemical analysis.

In accordance with Annex I, Section 4, of the REACH Regulation you should revise the PBT assessment when results of the test detailed above is available. You are also advised to consult the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.11, on PBT assessment for the integrated testing strategy for persistency assessment in particular taking into account the degradation products of the registered substance.

6. Exposure assessment and risk characterisation (Annex I, Sections 5. and 6.) for human health

Pursuant to Articles 10(b) and 14(1) of the REACH Regulation, the registration shall contain a chemical safety report (CSR) which shall document the chemical safety assessment (CSA) conducted in accordance with Article 14(2) to (7) and with Annex I of the REACH Regulation.

Annex I, Section 5. of the REACH Regulation indicates that the objective of the exposure assessment shall be to make a quantitative or qualitative estimate of the dose/concentration of the substance at which humans [...] are or may be exposed. The exposure assessment shall consider all stages of the life-cycle of the substance resulting from the manufacture and identified uses and shall cover any exposures that may relate to the identified hazards.

Further, Annex I, Section 6.5. of the REACH Regulation states that "*for those human effects and those environmental spheres for which it was not possible to determine a DNEL or a PNEC, a qualitative assessment of the likelihood that effects are avoided when implementing the exposure scenario shall be carried out.*"

ECHA notes that the registered substance is classified for human health as Acute Tox. 4 (oral), Skin Irrit. 2, Eye damage 1 and Skin Sens. 1. Considering that no dose descriptors are available for irritation or sensitisation effects it is not possible to make a quantitative assessment for those effects and consequently, a qualitative assessment of the likelihood

that those effects are avoided when implementing the exposure scenario should have been carried out according to Annex I, Section 6.5. of the REACH Regulation as mentioned above.

ECHA notes that you have identified in the exposure scenarios that the substance is a skin sensitiser, it is considered to belong to the high-hazard band. In Section 9.0.3 of the CSR you have included a list of general operational conditions and risk management measures recommended to protect workers. You are applying the same general recommendations to all activities from closed systems (PROC 1) to transfer of chemicals at non-dedicated facilities (PROC 8a) and for roller application or brushing (PROC 10). Within the guidance on safe use you have provided further information. You state e.g.:

> Body protection:
> Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to DIN-EN14605 in case of splashes or EN ISO 13982 in case of dust).
>
> General safety and hygiene measures:
> Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

ECHA notes that, within the exposure assessment, you identify a wide range of contributing scenarios (for examples PROCs 1, 2, 3, 5, 8a, 8b, 9, 10, 13, 15,) which may be associated with varying degrees of potential exposure. The exposure scenarios and contributing scenarios are not further described in terms of operational conditons and any specific or targeted risk management measures.

ECHA also notes the registered substance is identified by you as a liquid and that the exposure scenarios refer to dry processes.

ECHA notes, that the qualitative assessment you provided is missing essential exposure scenario specific information and is therefore insufficient.

The advice you provide in Section 9.0.3 of the CSR is generic and gives no indication of the extent to which the measures you identify are required to ensure safe use. Clearly not all the measures are needed all the time.

ECHA notes that you have not described in sufficient detail the operational conditions and the risk management measures that are required for each contributing scenario. There is no indication of the concentration of the registered substance in each scenario nor of the measures that may be in place to prevent exposure to the extent effects are avoided. ECHA concludes all uses would need workers to wear full body and respiratory protection throughout all uses of the registered substance and this is not realistic nor an approach supported by the application of the measures proposed within Article 6 (2) of Council Directive 98/24/EC, the ChemicaL Agents Directive.

For the different uses you have identified, and associated contributing scenarios, you have provided no information beyond the name of the scenario and the process categories. For a sufficient qualitative assessment it is necessary to provide information relating to the

operational conditons and then proposing the specific risk management measures you consider are required to prevent the effect.

ECHA notes, that the qualitative assessment should be carried out according to ECHA's *Guidance on information requirements and chemical safety assessment* (version 2.0, November 2012), Chapter E, Risk characterisation, section E.3.4, pages 18 to 32. Further advice is provided in Practical Guide 15 (November 2012), How to undertake a qualitative human health assessment and document it in a chemical safety report. In a qualitative assessment it is essential to define operational conditions (OCs) and risk management measures (RMMs) which lead to a conclusion the likelihood of effects is avoided.

Further, you have provided no quantified estimates of potential exposure, which is considered an important part of the qualitative assessment as this assists in the targeting proposals for suitable and adequate risk management measures given the conditions of use. For dermal exposure, the specific measures you propose to ensure containment to the extent necessary and to prevent spread of contamination are missing and should be provided. For local effects, such as skin sensitisation the likelihood of effects being expressed is increased through loss of containment and this presenting opportunity for exposure through contact with contaminated surfaces.

In the comments according to Article 50(1) of the REACH Regulation you agreed to the information request.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation, you are requested to revise the exposure assessment demonstrating the likelihood that effects for skin and eye irritation and skin sensitisation are avoided for all identified uses and to document in appropriate detail the operational conditions and risk management measures.

7. Exposure assessment and risk characterisation (Annex I, Sections 5. and 6.) for environment

Pursuant to Articles 10(b) and 14(1) of the REACH Regulation, the registration shall contain a chemical safety report (CSR) which shall document the chemical safety assessment (CSA) conducted in accordance with Article 14(2) to (7) and with Annex I of the REACH Regulation.

Pursuant to Annex I, Section 5.2.1 of the REACH Regulation the exposure estimation entails three elements: emission estimation, assessment of chemical fate and pathways and estimation of exposure levels. Emission estimation shall be performed under the assumption that the risk management measures (RMMs) and operational conditions (OCs) described in the exposure scenario (ES) have been implemented. These RMMs and OCs should be included in the ESs provided in a CSR. According to Annex I, section 5.1.1., exposure scenarios shall include, where relevant, a description of the duration and frequency of emissions of the substance to the different environmental compartments and sewage treatment systems and the dilution in the receiving environmental compartment.

According to the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.16 (version: 3.0, 2016) the exposure scenario (ES) should contain information about operational conditions (OCs) and risk management measures (RMMs) which ensure that the risks are controlled. Exposure assessment without providing more

specific information on the conditions of use is considered insufficient to meet the REACH requirements. It is indicated in this Guidance that sector specific environmental release categories (SpERCs) developed by industrial sector organisations can be used in place of the conservative default environmental release categories (ERCs) of ECHA guidance. As far as possible, SpERCs have to be linked to the applied RMMs and OCs driving the release estimation.

ECHA also notes that the use of release factors from A and B tables of the Technical Guidance Document (TGD) on Risk Assessment PART II (EC, 2003) alone is not acceptable, unless the use of these is justified with additional and specific information on RMMs/OCs and the link of these RMMs/OCs to the used release factors is established. Otherwise, they are considered insufficient to meet the REACH requirements. Furthermore, it is noted in the Guidance that "*when using another source of information in an assessment it is essential that the release factors are well connected to their related set of conditions of use. Detailed explanations on the origin of the release factors are to be provided in the CSR.*"

Firstly, ECHA observes that the environmental exposure assessment for the five exposure scenarios (ESs) reported in the CSR is fully or partly based on non-default ERC release factors. ECHA notes further that it is not possible to conclude if emission estimations have been adequately estimated for Exposure Scenario1 since you have not provided further information how the release factors applied for exposure estimation for this scenario were derived. Moreover, as noted above, when release factors from other sources (SpERCs, A and B tables of the TGD or OECD Emission Scenario Documents) are applied for the exposure assessment of a substance with specific ESs, the relevance of chosen release factors for that specific substance and ES(s) should be sufficiently justified (supported by OC's and RMM's and detailed enough to understand whether or not it is applicable for the respective scenarios). ECHA notes that such justification is missing for the release factors used for exposure assessment for ES2, ES3, ES4 and ES5. It is not clear whether the chosen release factors are applicable to the specific ESs provided in the CSR nor how RMMs/OCs/substance properties support the use of such release factors.

Therefore, ECHA considers that an adequate and detailed justification (e.g. based on RMMs and/or OCs and/or substance properties) of release factors used in exposure estimation is not provided in the CSR.

Secondly, ECHA notes, that in line with Annex I, section 5.1.1., one of the OCs which should be included in the ESs provided in the CSR, is the dilution in the receiving environmental compartment, which depends on the receiving surface water (e.g. river) flow rate. According to ECHA Guidance on information requirements and chemical safety assessment, Chapter R.16: Environmental Exposure Estimation (version 3.0, 2016) the default receiving water flow rate is 18000 m3/d (corresponding to a dilution factor of 10). The flow rate or dilution factor can be changed according to the site specific data, which you have done. ECHA notes that, according to the above mentioned Guidance, in case of site-specific assessments the dilution factor, which is applied for calculation of the local concentration in surface water, should not be greater than 1000.

ECHA notes that in this case the exposure estimation for the ES1 is based on the non-default local receiving water flow rate of 293760 m3/day. You did not provide a reference for the value of the receiving water flow rate used nor any justification (detailed enough to understand whether or not it covers the relevant scenario) for the value used.

Therefore, ECHA considers that an adequate and detailed justification of the used river flow rate is not provided in the CSR.

Thirdly, ECHA notes, that in line with Annex I, section 5.1.1., one of the OCs which should be included in the ESs provided in the CSR, is the emission days.

ECHA Guidance on information requirements and chemical safety assessment, Chapter R.16: Environmental Exposure Estimation (version 3.0, 2016) provides the default value for emission days depending on the life-cycle stage and tonnage used. The emission days can be changed according to the site specific data.

ECHA notes that in this case the exposure estimation for some exposure scenarios (ES1, ES2, ES3 and ES4) is based on non-default emission days (e.g. 168 days/year for ES1). You did not provide a reference for the values of emission days used nor any justification (detailed enough to understand whether or not it covers the relevant scenario) for the values used.

Therefore, ECHA considers that an adequate and detailed justification of the used emission days is not provided in the CSR.

In the comments according to Article 50(1) of the REACH Regulation you state "*The Notifier agrees that the current dossier uses certain release factors, emission days and dilution factors that are not the default values, without providing sufficient justification. The Notifier will update the dossier and include additional information to justify deviations from the default factors. The risk characterization will be revised accordingly. The updated dossier of May 17th, 2016 addresses part of the issues brought up in the draft decision:*

- *ES2 as such is no longer supported by the registrant and has been integrated in a more generic way into the updated "Formulation" scenario*
- *ES4 and ES6 as such are no longer supported by the registrant and have been integrated in a more generic way into the updated "Industrial" scenarios*
- *The updated "Formulation" and "Industrial" scenarios provide additional justifications for the use of non-default factors."*

ECHA notes your agreement to the request. Furthermone, as noted under Appendix 2 below, ECHA took into account the dossier update of 17 May 2016 and amended the requests accordingly.

Therefore, pursuant to Article 41(1) and (3) of the REACH Regulation you are requested to revise environmental exposure assessment accordingly:

- revise exposure assessment using ERCs default release factors and revise the risk characterisation accordingly for exposure scenarios 1, 2, 3, 4 and 5 *or* provide a detailed justification for not using the default release factors, for instance based on risk management measures, operational conditions or substance properties;
- revise exposure assessment using default local freshwater dilution factor for ES 1 and revise the risk characterisation accordingly *or* provide a detailed justification for the non-default dilution factor used in the exposure estimation;
- revise exposure assessment using default emission days in ES1, ES2, ES3 and ES4 and revise the risk characterisation accordingly *or* provide a detailed justification for the non-default emission days used in the exposure estimation.

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 this draft decision was notified to you (09 December 2016) under Article 50(1) of the REACH Regulation.

The compliance check was initiated on 30 March 2016.

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

On 17 May 2016 you updated the registration dossier (submission number [redacted]).

This decision replaces the draft decision sent on 26 May 2016 by ECHA, which had been based on the previous registration dossier (submission number [redacted] of 03 July 2015).

ECHA notified you of the initial draft decision on 26 May 2016 and invited you to provide comments. ECHA took into account your comments and the dossier update and amended the requests in the replacement draft decision, sent 09 December 2016.

ECHA notified you of this draft decision on 09 December 2016 and invited you to provide comments.

ECHA took into account your comments and did not amend the request(s).

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 request(s) in this decision, or to fulfil otherwise the information requirement(s) with a valid and documented adaptation, will result in a notification to the enforcement authorities of your Member State.

3. In carrying out the test(s) required by the present decision it is important to ensure that the particular sample of substance tested 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. If the registration of the substance covers different grades, the sample used for the new test(s) must be suitable to assess these. Furthermore, there must be adequate information on substance identity for the sample tested and the grade(s) registered to enable the relevance of the test(s) to be assessed.