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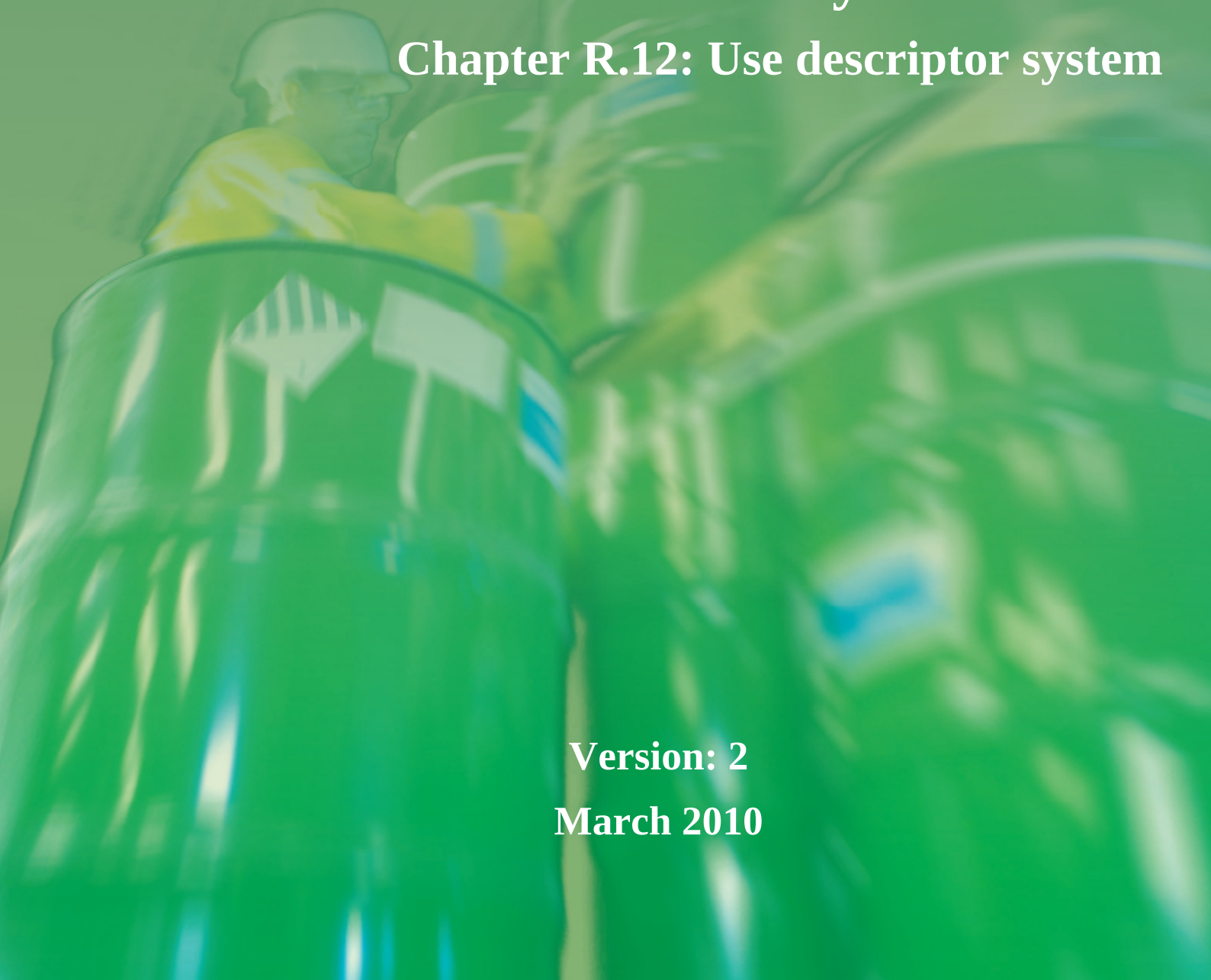
# Guidance on information requirements and chemical safety assessment

## Chapter R.12: Use descriptor system



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March 2010

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***Guidance on information requirements and chemical safety assessment***
***Chapter R.12: Use descriptor system***

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# PREFACE

This document describes the information requirements under REACH with regard to substance properties, exposure, uses and risk management measures, and the chemical safety assessment. It is part of a series of guidance documents that are aimed at helping all stakeholders with their preparation for fulfilling their obligations under the REACH regulation. These documents cover detailed guidance for a range of essential REACH processes as well as for some specific scientific and/or technical methods that industry or authorities need to make use of under REACH.

The guidance documents were drafted and discussed within the REACH Implementation Projects (RIPs) led by the European Commission services, involving stakeholders from Member States, industry and non-governmental organisations. After acceptance by the Member States Competent Authorities the guidance documents had been handed over to ECHA for publication and further maintenance. Any updates of the guidance are drafted by ECHA and are then subject to a consultation procedure, involving stakeholders from Member States, industry and non-governmental organisations. For details of the consultation procedure, please see:

http://echa.europa.eu/doc/FINAL_MB_30_2007_Consultation_procedure_on_guidance.pdf

The guidance documents can be obtained via the website of the European Chemicals Agency

http://echa.europa.eu/reach_en.asp

Further guidance documents will be published on this website when they are finalised or updated.

This document relates to the REACH Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006[1].

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1 Corrigendum to Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006); amended by Council Regulation (EC) No 1354/2007 of 15 November 2007 adapting Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) by reason of the accession of Bulgaria and Romania (OJ L 304, 22.11.2007, p. 1).

**Document History**

| Version | Comment | Date |
|---|---|---|
| Version 1 | First edition | May 2008 |
| Version 1.1 | – The process categories (PROC) related to processing of metals and other minerals were included into the PROC numbering system<br>– SU 10 has been slightly re-phrased<br>– "PC 39, personal care products" have been added<br>– Pulp has been added in SU 6 and a subdivision has been made related to "other" production or services (0-1 for "other economic activities related to chemicals" and 0-2 for "other economic activities, not related to chemicals")<br>– The numbering system of the article categories has been technically streamlined<br>– All "other" has been moved from the last position in the pick-list to the first position | July 2008 |
| Version 1.2 | – Correction of numbering from PROC 22 in Appendix R.12-3.<br>– Moving the misplaced *cameras and video cameras* from AC 9 to AC 3-4 in Appendix R.12-4.<br>– Adaptation of the numbering system in Appendix R.12-4 to the structure of the categories. | October 2008 |
| Version 2 | – Improving clarity and consistency of the introduction with regard to the purpose of the use descriptor system.<br>– Making more explicit references to Article 37 (DU makes use known to supplier) and section 3.5 of IUCLID in section R.12.1<br>– Inclusion of clarifications and definitions in R.12.2<br>o Streamlining the terminology regarding "chemical products" (= substances as such and in mixtures) and articles<br>o Dried/cured mixtures are covered by Article Categories since they have a defined shape and surface.<br>– Inclusion of updated examples on how to work with the descriptor system: See Section R.12.4 and R.12.5.<br>– Introduction of a new table R.12.1 in order to better explain the relationship between use description and Tier 1 exposure estimates.<br>– Adding a short paragraph in section 12.2.1 regarding the different actors in the life cycle of a substance.<br>– Harmonisation of the structure of section 12.3.1 to 12.3.5. Inclusion of 3 subsections: definition and scope of the descriptor; guidance on assigning a suitable category; link to Tier 1 assessment.<br>– Splitting of the *Sector of Use* descriptor list into two types of information: *Main User Groups* in the life cycle of a substance as key descriptor (SU 3, 21, 22) and *Sector of End-Use (all entries)* as supplementary descriptor, see Appendix R.12-1.<br>– More clearly distinguishing of the two functions of *the Chemical* | March 2010 |

| Version | Comment | Date |
|---|---|---|
| | *Product Category* (PC) in section R.12.3.2: (i) describing the sectors formulating mixtures by mixture type and (ii) consumer product types that can be assessed with the ECETOC Targeted Risk Assessment for consumers (see Appendix R.12-2.2).<br>– More clearly distinguishing between the two functions of the *Article Category* (AC) in section 12.3.5: (i) Type of article related to service life and subsequent waste life stage of the substance (handling of article by workers and/or consumers) and (ii) consumer article types that can be assessed with the TRA. See Appendix R.12-5.1 and R.12-5.3.<br>– Inclusion of a list of product sub-categories addressed in the ECETOC Targeted Risk Assessment (TRA) for Consumers, see Appendix R.12-2.2 and Appendix R.12-5.3, Explaining the link between use description and Tier 1 exposure estimates in section R.12.3.2 and R.12.3.5.<br>– Removal of the reference to industrial or professional setting from most of the process categories. The choice can be made in the exposure estimation itself. At use description level, SU 3 or SU 22 indicate, whether a use is expected to occur under an industrial or non industrial setting.<br>– Inclusion of examples related to processing of articles by workers into section R.12.3.5. Restructuring of the AC list to allow consistent links to the TARIC system. Removal of definitive subcategories in the AC list in order to leave it to the registrant and the downstream users to define the level of detail required to describe the service life stage of the substance. The previous subcategories have been converted into examples illustrating which kind of articles may be covered under the broad categories.<br>– Introduction of the *Environmental Release Category* (ERC) as an additional descriptor (see section R.12.3.4). Explanation on the role of SPERCs in this context.<br>– Introduction of a new category ERC 12 addressing processing of articles with abrasive techniques by workers in industrial setting. Expanding ERC 10b/11b to also cover removal of substances from article surfaces.<br>– Inclusion of a list of substance function categories (for section 1.2 of the eSDS and reporting in IUCLID) in Appendix R.12-6. The purpose of this list is explained in a short paragraph in section R.12.3.6<br>– Introduction of a new section R.12.5 with explanation of how the descriptor system can support i) the mapping of uses as the starting point for the CSA, ii) the building of titles for exposure scenarios and iii) the reporting on identified uses in IUCLID section 3.5.<br>– Refinements in the pick-lists.<br>o Include i) scientific research and ii) electricity, steam, gas, water supply and sewage treatment into the SU list.<br>o Split out fillers and putties from PC 9 into PC 9b<br>o Split out finger paint from PC 9 into PC 9c.<br>o Clarification that PC14 refers to substances reacting with | |

| Version | Comment | Date |
|---|---|---|
| | the metal surface<br>o Remove automotive care products (PC6), artist's supplies (PC5), lawn and garden products (PC22) since it largely duplicates other categories<br>o Remove PC10 since this is covered under "others" anyway.<br>o Clarification that PC20 refers to processing aids used in the chemical industry<br>o Inclusion of bleaches and other processing aids into PC 26 and PC 34<br>o Covering metals and other minerals in PROC 21 to 25 plus adaptation of description<br>o Splitting PROC 8 into PROC 8a and 8b<br>o Introduction of PROC 26 and 27a and 27b referring to processes particularly relevant for the metal industry.<br>o Remove AC12 from the AC list since it leads to major inconsistencies with the material based categorisation and creates problems in compatibility with the TARIC system .<br>- Editorial adaptation of the text to the changes listed above | |

## GUIDANCE FOR IMPLEMENTING THE UPDATES

Most of the update in this guidance is of explanatory nature. Also a number of changes have been made to the pick-lists containing the different descriptor elements.

Appendix R.12.7 provides a short guidance to assist companies that have carried out data collection on uses based on the use descriptor pick-lists in earlier versions of the current guidance. For each of the pick-lists it is explained how already collected data can be converted into a form matching i) the pick-lists of the new version 2 of the guidance (stable since 9.11.09) and ii) the entries of the related TRA consumer exposure estimates. The new descriptor list for the environment (Environmental Release Categories) did not exist in Version 1 of the guidance, and thus these data need to be added to any use description carried out before summer 2009.

**Convention for citing the REACH regulation**

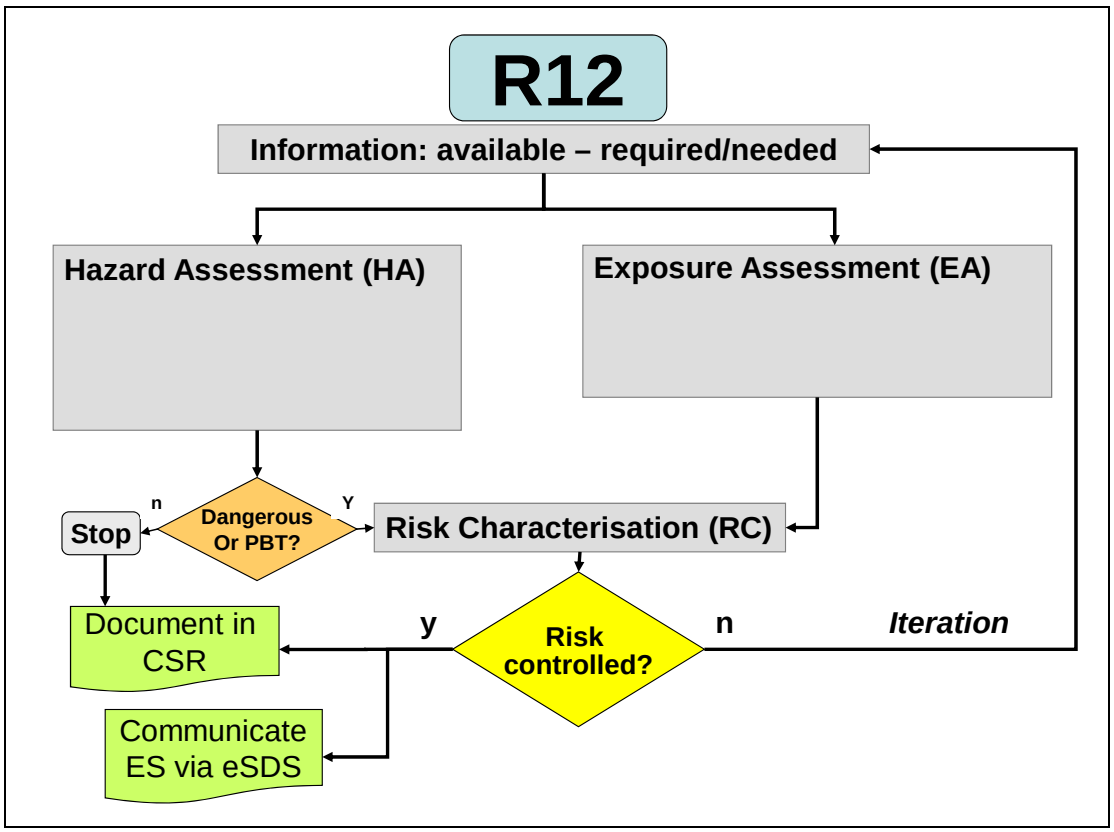
Where the REACH regulation is cited literally, this is indicated by text in italics between quotes.

**Table of Terms and Abbreviations**

See Chapter R.20

**Pathfinder**

The figure below indicates the location of chapter R.12 within the Guidance Document



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# R.12. USE DESCRIPTOR SYSTEM

## R.12.1. Aim of this module

Under REACH each manufacturer and importer of substances which require an exposure assessment will have to develop, assess and communicate exposure scenarios, covering the entire life cycle of the substance. For these purposes he needs to map out all the uses of his substance. Such a mapping of uses within a market sector can often be reused for a range of substances, or can even be collectively created by several manufacturers/importers. It is therefore important to standardise the mapping of uses and to enable linking to exposure scenarios.
Exposure scenarios will be communicated down the supply chains with the extended safety data sheet. For downstream users it is essential to receive standardised short titles of exposure scenarios (meant to flag the scope and applicability of an ES) for the relevant applications of the substances in their sector, and not a wide range of different scenarios from different suppliers.

This guidance therefore provides a system of use descriptors to standardise the description of the use of substances. This will facilitate:

- the identification of uses to be provided in the registration dossiers
- the building of an ES by suppliers, based on communication up and down the supply chain
- the building of *short titles* for exposure scenarios

The use descriptors will help suppliers and users to structure their communication with each other. Based on the short titles, the DU should be able to quickly establish whether a received exposure scenario may cover his uses. Also vice versa, the use descriptors may also help the downstream user to describe in a structured way a use that he wishes to make known to the supplier (see Article 37(2)). NOTE: In order to build appropriate exposure scenarios, in many cases the registrant will need more information on the conditions of use than just a list of use descriptors.

Each registrant is also obliged to include a *brief general description of all identified uses* in his Technical Dossier (see chapter 3.5 of IUCLID)[2] and in Section 2 of the CSR. It is recommended to base the *brief general description of use* on the descriptor system in this guidance, and to make a reference in section 3.5 of IUCLID to the exposure scenarios contained in the CSR (if relevant). This is to ensure that the description of identified uses and the title and content of the exposure scenarios are ***consistent*** with each other. Note: This consistency between the brief general description of the identified uses and the short titles of the exposure scenario in the CSR is a legal requirement laid down in section 5.1.1 of Annex I of REACH.

Some of the use descriptors reflect exposure related use characteristics. They can therefore be used as input parameters to some of the existing exposure estimation tools.

This chapter aims to explain in more detail the background and the application of the descriptor system. The pick-lists with the categories for briefly describing the use are contained in Appendix R.12-1 to R.12-6.

[2] See article 10 (a) (iii) of REACH in connection with section 3.5 of Annex VI

# R.12.2.The Use Descriptor system

## R.12.2.1. Description of the system

Seven main groups of actors play a role during **the life cycle** of the substance: Manufacturers and importers of chemical substances (including metals and minerals), companies mixing and blending chemicals (formulators) to produce mixtures, distributors[3], industrial end-users, professional end-users and consumers. Importing and distributing are not further addressed in this guidance.
The **use descriptor system** is based on five separate descriptor-lists which in combination with each other form a brief description of use or an exposure scenario title:

- The *sector of use category* (SU) describes in which sector of the economy the substance is used. This includes mixing or re-packing of substances at formulator's level as well as industrial, professional and consumer end-uses[4].
- The *chemical product category* (PC) describes in which types of chemical products (= substances as such or in mixtures) [5] the substance is finally contained when it is supplied to end-uses (by industrial, professional or consumer users).
- The *process category* (PROC) describes the application techniques or process types defined from the occupational perspective
- The *environmental release category* (ERC) describes the broad conditions of use from the environmental perspective.
- The *article category* (AC) describes the type of article into which the substance has eventually been processed. This also includes mixtures in their dried or cured form (e.g. dried printing ink in newspapers; dried coatings on various surfaces).

Please also note: In order to achieve harmonisation across the markets, the number of categories in the 5 descriptor lists should be kept limited. Sector organisations or single registrants may be well advised to only define additional categories if the existing ones really do not fit for a type of process, product or sector to be briefly described. If further relevant details of an activity need to be described, they can also be addressed within the exposure scenario itself.

## R.12.2.2. Link to exposure estimation tools

In addition to their description function, some of the descriptor-lists support identification of the suitable exposure estimation entry in one of the available Tier 1 exposure estimation tools (see Section D.5 in Guidance Chapter D)[6]. Table R.12.1 provides an overview of the different elements of the use descriptor system and their relationship to entries for Tier 1 exposure estimates.

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[3] Distribution as such is not a *use* under REACH. However, if distribution includes substance transfers (e.g. refilling) it is a use.

[4] The *end-use* of a substance as such or in a preparation is the last use before the substance becomes part of an article matrix, reacts on use (and hence disappears) and/or enters into waste, waste water or air emission. Uses which exclusively aim at making the substance a component in a preparation [mixture] are not end-uses. This differentiation is made in order to prevent that each stage of mixing in a longer chain of preparation-makers to be described separately.

[5] The term *chemical product* covers both substances as such or in a preparation [mixture]. This is meant to allow for both description of supplied products only containing a substance as such, as well as for products being preparations. In the context of this guidance, the term also covers metals (including alloys) in their primary form (e.g. ingots, powder).

[6] Tier 1 exposure estimation means a modelled, conservative exposure prediction, based on substance properties and a few easily accessible and easy to interpret input parameters. Various tools exist to carry out such estimates. One of these is the *Targeted Risk Assessment* Tool for occupational exposure and consumer exposure developed by ECETOC (update published in July 2009, http://www.ECETOC.org ). For the environment, the environmental release categories (ERCs) can be used to drive a tier 1 release estimate. Those release estimates enable exposure estimation based on

**Table R.12-1**: Use description and tier 1 exposure estimates

| | Name of descriptor list | Aspect of use described | Categories matching the entries of one of the available Tier 1 tools for exposure estimation |
|---|---|---|---|
| SU | Sector of use category | Three main user groups (first rows in Appendix R.12-1), relevant for all uses of the substance. | Targeted Risk Assessment for worker exposure (TRA) |
| | | Industry and service sectors of use | |
| PC | Chemical product category[7] | Chemical product type in which the substance is supplied to end use. These categories can also be used to describe the market sectors (formulating sectors) to which the manufacturer potentially supplies his substance. | |
| | | Consumer product categories, for which a Tier 1 exposure estimate can be generated. | TRA for consumer exposure for selected product types |
| PROC | Process category | Application techniques or process types defined from the occupational perspective | TRA for worker exposure |
| ERC | Environmental release category | Broad conditions of use defined from the environmental perspective, relevant for all uses of the substance and the subsequent service life in articles | Environmental release categories (ERC) |
| AC | Article Category | Article types in subsequent service and waste life, potentially relevant for consumers, workers and environment exposure. | |
| | | Consumer article types for which Tier 1 exposure estimates can be generated. | TRA for consumer exposure for selected article types. |

**Please note**: When a certain use description category serves as an entry to a Tier 1 exposure estimation tool (e.g. PROCs for occupational exposure estimation), the exposure estimation also depends on other parameters not reflected in the category description itself (e.g. availability of local exhaust ventilation, concentration of substance, duration of use, application of PPE). Thus one PROC may relate to various exposure scenarios and the related exposure estimations. The same applies to consumer mixture/article categories and the environmental release categories.

## R.12.3. Definition of the five descriptor-lists

### R.12.3.1. Sector of use [SU]

Definition and scope

Appendix R.12-1 provides a list of *Sectors of Use*. The 3 main user groups as the key descriptors are listed at the top of the table. They represent the minimum level of detail a registrant is expected to provide in describing the sector of use, and they are important to the assessor as they help in directing the exposure assessment (e.g. selecting the appropriate tools). The reporting on uses in IUCLID and in the CSR is structured according to these main groups.

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EUSES. The release calculation module required for this will be described in the updated Guidance Chapter R.16 on environmental exposure estimation.

[7] The same product category can fulfil both functions of PC described here (see R.12.3.2 for more details).

Appendix R.12-1 also contains a selection of internationally harmonized NACE (Nomenclature générale des Activités économiques dans les Communautés Européennes) categories for classifying activities in industry and services. These categories are meant to support a Manufacturer/Importer (M/I) in mapping his market beyond his direct customers in the formulating sectors[8]. Such a map may help to develop suitable exposure scenarios covering all end-uses of the substance as such or in mixtures, and the subsequent life-cycle stages. It may for example be relevant to flag the sectors of industry for which an ES is applicable, e.g. "closed processing of gases *in the semiconductor industry*" or "immersion [dipping] operations *in textile finishing*". Linking a certain application process (PROC) or environmental release category (ERC) to a certain sector (SU) may in particular be useful in the following situations: A higher tier exposure assessment is needed to demonstrate control of risk, and the conditions of use in the exposure scenario are specifically related to a process in a certain industry. Also, the sector of use can be a reference to "advise against" certain uses.

Guidance on assigning the relevant category

The number of categories has been limited to broad sectors known to represent the largest users of chemicals. If a manufacturer or importer considers it necessary to describe the use in more detail or to describe uses in a sector not listed, he should apply NACE codes (and the corresponding phrasing), accessible via the internet link at the bottom of Appendix R.12-1. Using the NACE codes/terminology has the advantage that it is harmonised and well known to companies across Europe. If a manufacturer or importer considers that it is sufficient to be less specific regarding the use in industry, he may assign the main user group only, e.g. *industrial use*, indicating that the substance is meant to be broadly used in industry under the conditions specified in the exposure scenario. When the user decides to describe his use in more detail by assigning a sector of end-use, he should select a category of Appendix R12-1 in addition to a category describing the main user group.

Please note: Manufacturing of substances (e.g. SU8, SU9, SU14) or formulating mixtures (SU10) is meant to describe end-uses of a substance (e.g. intermediate or processing aid). For describing manufacture or formulation into a mixture as such, it is not needed to assign a sector of end-use.

Link to Tier 1 exposure estimation

The main user groups "industrial use" (SU 3) and "professional use" (SU 22) can be used as an input parameter to Tier 1 exposure estimation in the TRA for workers. The other categories do not directly link to available exposure estimation tools. However, for many sectors of industry OECD *Emission Scenario Documents* are available, describing the conditions of use of certain types of chemicals (and corresponding release factors) from the environmental perspective.

### R.12.3.2. Chemical product category [PC]

Definition and scope

A manufacturer or importer can identify the main uses of a substance based on his customer database or the market sectors he supplies. In many cases his direct customers will be formulators and/or re-packers[9], or distributors supplying various downstream users. However, it may also occur that the substance manufacturer himself produces mixtures and/or supplies his substance as such or in a mixture directly to larger end-use customers.

[8] The sectors producing (= formulating = mixing) preparations [= mixtures = chemical products] can be better described by the type of chemical product than by the NACE code, since the NACE system does not allow for sufficient differentiation.

[9] Re-packers are companies transferring substances as such or in preparations from large containers into smaller containers for end-use. This activity is considered a "use" under REACH.

The *Chemical Product Category* characterizes the use of a substance by the type of end-use product (e.g. lubricant, cleaner, adhesive) in which the substance is known to be used. It does not aim to characterise the specific technical function of the substance as such (e.g. UV stabilizer, corrosion inhibitor, pigment, flame retardant). The reason for this is that the product category includes more information on potential exposure than the substance function as such. It will, for example, make a difference in terms of exposure whether a substance (e.g. solvent) is used in air-care products (PC3) or in cleaning products (PC35). The product categories are useful for mapping supply chains. This includes, for example, following the mass flow of a substance through the market for the purpose of environmental assessment.

Appendix R.12-2.1 provides a list of product categories[10]. The categories listed are meant to structure the market of a substance according to product types.

Guidance on assigning the relevant category

Based on in-house knowledge and possibly additional information from customers, the M/I assigns one or more product categories reflecting the type of end-use mixtures in which the substance is known to be used. Uses the manufacturer is not aware of, for example those supplied through distributors or a longer chain of formulators, may be communicated to him from downstream during the REACH implementation process. Several downstream user associations have mapped the main areas of use and published tables of uses on their websites (e.g. CEPE, A.I.S.E., COLIPA, FEICA). This is also a useful reference for the M/I.

If the M/I or the DU is unable to identify a suitable product category in Appendix 12-2.1, the use could be described under “others”. If possible, a code (and the corresponding phrasing) from the UCN system should be selected to describe such use (see internet link at the bottom of Appendix R.12-2).

It is also possible that one of the product or article sub-categories used as entries to the TRA is more suitable, and hence is described under “others”.

Link to Tier 1 exposure estimation

For a number of selected product categories the ECETOC TRA tool provides Tier 1 exposure estimates for consumers.

Appendix R.12-2.2 gives an overview of these product categories and product sub-categories. Besides the product (sub) category itself other input parameters may be needed as well, like for example the concentration of the substance in the product, or the amount of product used per event.

It should be noted that also other tools exist to generate exposure estimates for consumers (see Guidance chapter R.15).

### R.12.3.3. Process category [PROC]

Definition and scope

Application techniques or process types have a direct impact on the exposure to be expected and hence on the risk management measures needed. Appendix R.12-3 provides a list of process categories reflecting the general occupational exposure potential of the techniques and processes covered. The categorization is driven by i) the amount and form of energy applied in a process (e.g. heat, mechanical energy, radiation) ii) the surface of the substance available for exposure (dustiness of material or thickness of layers of material), and iii) the principal level of containment and engineering controls to be expected.

[10] The list has been derived on the basis of the existing UC 55 system, the Nordic UCN system, the product categories used in the TRA as well as ConsExpo. Basically, the most frequently used categories based on data from the Nordic Product Registers have been used.

Guidance on assigning the relevant category

Once the registrant and/or the downstream users have mapped out the uses and conditions of use of a substance, the suitable process categories can be assigned to the identified processes and application techniques. Please note that it requires sufficient expertise in occupational hygiene to identify the best fitting PROC for a given process or application technique. It is advisable to briefly describe the identified processes and techniques in sector specific terminology before assigning a category, in order to keep the category selection transparent.

If none of the activity/process categories seems applicable, the manufacturer, importer or downstream user may describe the nature of the application process in his own words, instead of assigning one of the defined categories. It may however be useful to include an explanation in the CSR, which of the existing categories in Appendix R.12-3 were considered and why these did not cover the particular case. Such explanation would enable modification of existing categories or the definition of additional categories in the next guidance update.

Link to Tier 1 exposure estimation

With two exceptions only, all process categories listed in Appendix R.12-3 can be used as an input parameter to the ECETOC TRA tool[11] to derive a Tier 1 exposure estimation for workers. Besides the process category itself other input parameters are needed as well, for example: the concentration of the substance in products used by workers, whether the use takes place under industrial conditions, the duration of exposure, or the presence or absence of local exhaust ventilation.

## R.12.3.4. Environmental Release Category (ERC)

Definition and scope

Environmental release categories [ERC] label the characteristics of a use based on six aspects relevant from the environmental perspective, including those characteristics enabling mass flow analysis along the life cycle of a substance:

a) The intended technical fate (purpose) of the substance during use determines to what extent a substance is consumed on use, is expected to be released with discharges, air emissions or waste, or is expected to enter into the next life cycle stage. In general, there are three possibilities:
   - The substance is intended to become part of an article (including dried/cured mixtures), either because it has a function in the article or because it remains (from a preceding life cycle stage) in the article without function.
   - The substance is meant to react on use, thus it is no longer available for further life cycle steps or emission to the environment.
   - The substance is meant to act as a processing aid, and as such is released from an industrial process (e.g. surfactant in textile finishing, solvent from spray painting) or a non industrial use (e.g. solvents or surfactants from cleaners) to waste water, air emission and/or waste.

b) The life cycle stage at which a use takes place (manufacture, formulation or end-use), determines the extent to which minimisation of losses can be expected (driven by the economic interest of the actor not to loose products he could sell, and the use of specialised equipment to process chemicals).

c) The dispersiveness of use (use at industrial sites [point sources] and/or wide dispersive use in professional and consumer applications) determines the distribution of emissions in time and space.

[11] Targeted Risk Assessment by ECETOC, revised version published in July 2009 (www.ecetoc.org/tra)

d) Contained application systems during end-use (e.g. hydraulic systems with the contained functional fluids; closed systems for textile or metal parts cleaning) limit the potential releases to air and water.

e) Indoor or outdoor use of a substance determines to which extent releases to air and water can be potentially captured for treatment, and to which extent weathering conditions increase the release of substances from articles.

f) For articles used under release-promoting conditions (such as abrasion from tyres or brake pads) it can be expected that the fraction released to the environment is relatively high. This also applies to articles where the release of substances is even intended (e.g. from scented articles). Also processing of articles with abrasive techniques (e.g. sanding or high pressure decoating) is covered under this criterion.

The listed characteristics give a first indication of the potential of the substance to be released to the environment. Appendix 12-4.2 provides an overview of which of the different combinations of the six aspects correspond to each *Environmental Release Category* (ERC). Appendix R.12-4.1 provides a list of 23 *Environmental Release Categories* including the corresponding narrative definitions. These categories cover manufacture, formulation and use of the substance in industrial sites (ERC 1 to 7), wide dispersive indoor or outdoor use (ERC 8 and ERC 9) and service life (ERC 10 to ERC 12). The service life categories also include activities by workers leading to releases from processing of articles (ERC 10b, 11b and 12 a/b).

Guidance for assigning the relevant category

Once the registrant has mapped out the uses and conditions of use of a substance (including the subsequent service life in articles), the corresponding environmental release categories can be assigned to the uses relevant for the different life cycle stages and main user groups. The environmental release categories, together with the product categories, may help the registrant to break down the market volume to groups of uses at a sufficient level of detail.

If none of the activity/process categories seems applicable, the manufacturer, importer or downstream user may describe the environmental characteristics of the use in his own words, instead of assigning one of the defined categories. It may however be useful to include an explanation in the CSR, which of the existing categories in Appendix R.12-4 were considered and why these did not cover the particular case. Such explanation would enable modification of existing categories or the definition of additional categories in the next guidance update.

Link to Tier 1 release estimation

For all environmental release categories it is possible to derive a Tier 1 default (worst case) release estimate (to air, water, soil) based on the release calculation module and the default release factors defined in Table R.16-22 of Guidance Chapter R.16, Appendix 1. The calculated release can be converted into an exposure estimate at local and regional level (see Guidance R.16.3).

It is expected that various sectors of industry will develop more specific descriptions of the conditions of use related to the environment (*Specific Environmental Release Categories* [SPERCs]), resulting in refined release factors. Once available, the SPERCs can be used to derive sector or pro-duct specific release estimates. Appendix R.12.4-3 provides an overview on available SPERCs (to be included once industry has completed the first set of SPERCs).

### R.12.3.5. Article Categories [AC]

Definition and scope

A chemical safety assessment shall cover not only the uses of a substance, but also the subsequent life cycle stages of substances incorporated into or onto an article matrix. Thus, for dangerous substances processed into articles, the manufacturer or importer of the substance may find it necessary to specify which types of articles are covered in the CSA and the ESs. Two examples may illustrate the relevance of the service life stage: i) For consumer and environmental exposure it makes a difference whether a substance is used in textile-finishing of clothes (dermal contact, frequent washing) or as a component in insulation sheets for construction purposes. ii) For worker

and environmental exposure it will make a difference whether a substance enters into the coated surface of a ship or outdoor steel constructions (dust formation during paint removal by outdoor abrasive techniques as a regular maintenance activity), or whether it becomes part of the coated surface of household appliances (paint removal at end of service life takes place in an industrial milling process).

Appendix R.12-5.1 provides a list of broad article types with no intended release, including examples of which articles may be covered under the broad category. The focus is on material based characterisation. In order to also enable description of service life in complex multi-material articles, categories for vehicles and machinery have been included into the list as well. The article categories correspond to specific categories of the TARIC [12] system, and thus further specification within the CSA can be made based on the TARIC catalogue, if the registrant or downstream user sees the need for this. Also, some of the article types listed as examples may help to describe articles from which particular exposure of workers may occur, e.g. wearing of leather and rubber gloves, articles for abrasive polishing works, removal of coatings from large vehicles, wearing of impregnated protective clothing.

Appendix R.12-5.2 provides a list of examples of articles with intended release. Substances intended for release are to be registered under REACH and thus have a specific status in the use descriptor systems. This list is open to additions during the REACH implementation process, it is however expected that it will remain a relatively short list of specific cases.

Guidance for assigning the relevant category

Based on in-house knowledge and possibly additional information from customers, the M/I assigns one or more article categories reflecting the type of articles in which the substance is known to be included on end-use (by the last downstream user in the chain or by consumers). If a substance is not expected to be included into articles during use, no article category is to be assigned (e.g. for solvents, cleaners, laundry detergents).

It will not be possible or necessary to list in detail all article types in which the substance may end up. However, the registrant needs to assess in his CSA potential risks from the substance during article service life (and subsequent waste life stages), and he may need to communicate down the supply chain measures to limit releases/exposure from articles, e.g. releases of dying and finishing chemicals from textiles. Thus the registrant will need to develop exposure scenario information for representative article types relevant for his substance.

If the M/I or the DU is unable to identify a suitable article category in Appendix 12-5.1 or wishes to be more specific, the use could be described under “others”. If possible, a code (and the corresponding phrasing) from the TARIC system should be selected (see internet link at the bottom of Appendix R.12-5.1.

Link to Tier 1 release estimation

For a number of article categories it is possible to derive a Tier 1 exposure estimate for the consumers based on the ECETOC TRA consumer exposure estimation tool. Appendix R.12-5.3 specifically lists those article categories that can be assessed with the ECETOC TRA tool.

### R.12.3.6. Specifying the technical function of a substance for the safety data sheet

Specifying the technical function of the substance as such (*what it actually does*) is required for section 1.2 of the Safety Data Sheet for substances meeting the criteria for classification as dangerous. For this, the registrant may make use of the substance types listed in Appendix R.12-6.

[12] Categories/codes for groups of goods under the integrated customs tariff database of the European Communities (Taric); http://ec.europa.eu/taxation_customs/dds/tarhome_en.htm

Such specification may also be useful for flagging that an exposure scenario (or a series of exposure scenarios) has been worked out for a particular substance type (e.g. solvent, pigment). According to Annex II of REACH, uses are also to be indicated for mixtures. It should be noted that it is not required to indicate the technical function of each single substance in a mixture. In a safety data sheet for a mixture, only the use of the mixture as a whole is to be described.

## R.12.4. Exemplification

### R.12.4.1. Examples for assigning uses to a category of the descriptor system

Table R.12-2 illustrates for a number of processes/activities which category to assign and which generic characteristics of the use conditions the category encodes. The example is related to workers' indoor uses (industrial or professional), and covers substances i) included into articles or ii) not included. The examples show that various types of activities can be expressed by one category for workers' exposure and one category for environmental exposure.

**Table R.12-2**: Examples for assigning categories to workers' indoor uses

| Examples for process/activity | Process category from Appendix R.12-3 and environmental release category from Appendix R.12-4 | Pattern of exposure "encoded" in the process category and the environmental release category. |
|---|---|---|
| Spraying of paints, cleaners, lubricants, adhesives | Air dispersive techniques, like e.g. Spraying (PROC 7 or PROC 11)<br>Industrial use or wide dispersive professional use of substance intended to become part of an article (ERC 5/ ERC 8c) or not ERC 4/ ERC 8a) | Substances can be inhaled as vapour and aerosols. The energy of the aerosol particles may require particular exposure controls; in case of coating, overspray may lead to waste water and waste solvent may be emitted to air. |
| Dying and finishing of textiles, leather or paper | Immersion operations such as dipping and pouring (PROC 13)<br>Industrial use of substances intended to become part of an article or not (ERC 4 or 5) | Substance is applied to a surface by dipping the article into a bath and is intended to become part of the article. Formation of dust and aerosols usually low, releases can be easily controlled. Discharge or waste disposal of waste water and/or exhausted baths may be relevant. |
| Coating of floors, painting walls by brushing or rolling, cleaning/polishing of surfaces by wiping | Low energy spreading such as rolling, brushing (PROC 10)<br>Wide dispersive professional use (ERC 8a or 8c) | Exposure during spreading of the substance is mainly driven by the substance properties (e.g. vapour pressure) or direct skin contact. Formation of dust and aerosols unlikely; cleaning of devices and machinery may lead to waste water and/or waste. Solvents may be emitted to air. |
| Mechanical cutting, grinding drilling or sanding of articles | High mechanical work up of massive metals, substances bound in materials or articles (PROC 24).<br>Industrial or dispersive processing of articles by workers under release promoting conditions (ERC 11b or 12) | Substantial thermal or kinetic energy applied to substance by grinding, mechanical cutting, drilling or sanding. Release of solids (dust) or fumes to be expected. Fall-out to be disposed of as waste. |
| Mixing of solids and liquids in batch formulation of coatings, cleaners, plastic compounds, textile dyes | Use in closed batch process (PROC 3) or mixing and blending in batch process (multistage and/or significant contact) (PROC 5); related transfers of substances (PROC 8a, 8b and 9)<br>Formulation of/into mixtures (ERC2 or ERC 3) | Predominant handling in contained manner (e.g. through enclosed transfers), but some opportunity of contact (e.g. during sampling)<br>Solid or liquid materials can be released as vapour or dust, significant contact possible.<br>Waste or waste water from equipment cleaning to be expected. |

### R.12.4.1.2. Example for systematically describing the uses of a substance

Table R.12-3 illustrates the descriptor system from a life cycle perspective. In the example, the substance is a pigment used in paints for wooden articles (indoor and outdoor uses). The paint (including the pigment) is produced in a multistage batch process. It is applied by workers through spraying and brushing. Consumers also use paints containing the pigment. Eventual removal of paint for renovation purposes is also covered in this example. Table R.12-3 lists a sequence of questions a registrant may need to answer when mapping the uses of his substance.

**Table R.12-3**: Example for briefly describing some uses of a pigment

| Questions for briefly describing a use in general terms | Category | Exemplification for a pigment |
|---|---|---|
| Which sectors of the formulating industry buy the substance? In which categories of chemical products is it used? | PC 9a | Paints and coatings |
| Which processes are applied during mixing/formulation of substance? | PROC 3, 8b, 9<br>ERC 2 | Mixing of liquid mixture in closed batch process, incl. transfers of substance |
| Is the substance as such or in mixtures used by industrial workers, professionals or consumers? | SU 3, 21, 22 | Industrial workers, professionals outside industrial sites, and consumers |
| In which type of processes is the substance applied on end-use (worker perspective)?<br><br>What are the broad environmental characteristics of these uses: indoor/outdoor use; use at industrial site or wide dispersive use; substance intended to become part of an article matrix or intended to serve as a processing aid or intended to react on use? | PROC 7 , 10, 11, 13<br><br>ERC 5<br>ERC 8c/f | Spraying, brushing, dipping<br><br>Industrial sites and wide dispersive use, in-door and outdoor uses. Substance becomes part of articles. |
| In which consumer products is the substance used? What are the broad environmental characteristics of these uses? | PC 9a<br>ERC 8c/f | Paints and coatings for consumer use |
| If substance becomes part of an article: In which articles is it contained during service life (and subsequent waste life stage)? | AC 11 | Wooden articles |
| If substance becomes part of an article: What are the broad environmental characteristics of the substance during service life: indoor/outdoor use of the article; low or high release of substance from the article? | ERC 10a/11a | Indoor and outdoor use, low release of substance from article |
| If the substance becomes part of an article: Are there foreseeable activities with the article that lead to removal of substances from the surface on processing or maintenance by abrasive techniques (e.g. paint stripping) | ERC 10b/11b | Indoor and outdoor use, high release of substance from article |

## R.12.5. Describing identified uses and forming exposure scenario titles

The use descriptor system can support the description of identified uses in section 3.5 of IUCLID (as part of the Registration Dossier), the corresponding description of uses in section 2 of the CSR, and the inclusion of harmonised, structured information into the short title of exposure scenarios. ECHA's CSA tool *Chesar*[13] includes a use description module, providing a standard life-cycle tree structure to map the uses of a substance (see Figure R.12-1)

[13] ECHA is at the moment developing a tool, called *Chesar* (Chemical Safety Assessment and Reporting tool) to support registrants preparing their CSA and CSR. ECHA aims at releasing a first version of that tool early 2010.

### R.12.5.1. Mapping uses based on the life cycle structure

Documenting the activities during manufacture and use of a substance in a hierarchical life-cycle-"tree"-structure facilitates reporting and communication in a supply chain perspective, and it enables the connection of uses to the mass flows of the substance (necessary for environment assessment). The "tree" *roots* in manufacturing of the substance and *branches* out into formulation of various chemical products. The uses in one category of chemical products branch again out into various industrial, professional and consumer uses, which are potentially followed by service life in articles.
The use descriptor system supports documentation in a hierarchical structure such that it basically represents 8 combinations between life cycle **stages** (manufacture, formulation, end-use or service life) and main **user groups (**industrial workers, professionals or consumers)[14].

In addition, the formulating sectors to which M/I supplies a certain substance can be specified as **market sectors** (such as lubricants, cleaners, adhesives, coatings, plastic compounds).

At *stage* level, the appropriate environmental release category can be assigned, which then applies to all workers or consumer uses listed below that stage. Under a *stage* all the relevant activities (*uses*) with the substance by workers and consumers can be listed and described by assigning a PROC (workers activities) or PC (consumer products). Please note: The pick-list for product categories (PC) also includes products that are not relevant for consumer uses.

**Manufacture/Import**
- **Manufacturing stage** [by ERC] [1]
  - *Processes during manufacturing [by PROC]*
- **Market sector** [by PC]
- **Formulation stage** [by ERC] [2]
  - *Uses for formulation [by PROC]*
- **Industrial end- use stage [by ERC and SU] [3]**
  - *Industrial uses [by PROC]*
- **Professional end-use stage [by ERC and SU] [4]**
  - *Professional uses [by PROC]*
- **Consumer end-use stage [by ERC] [5]**
  - *Consumer use[by PC]*
- **Service life stage (consumer) [by ERC and AC] [6]**
  - *Article "uses" (by consumers)[by AC]*
- **Service life stage (industrial workers) [by ERC, AC, SU] [7]**
  - *Article "uses"1 (by industrial workers)1[by AC and PROC]*
- **Service life stage (professional workers) [by ERC, AC, SU] [8]**
  - *Article "uses" (by professional worker)[by AC and PROC]*

**Figure R.12-1**: Default structure of tree representation of the identified uses

[14] "Uses" are defined by workers' activities or consumers' activities with a substance (including processes during manufacture of substance and handling of articles in which a substance is contained). "Stages" include one or more uses at a certain life cycle stage which are being characterised by similar conditions of use with i) regard to the environment and ii) the main user group. There are 3 main user groups and 4 stages. For the stages "manufacture" and "formulation" it is assumed that they always take place under industrial conditions.

A registrant may structure his market according to his customers in the different formulating sectors (by type of product these sectors produce) or end-use sectors (by sector of economy finally using the substance as such or in a mixture)[15]. He may make use of the PC and SU pick-lists for this. If he directly sells the substance to end-users, the market sector and the formulation stage may be left out. It is recommended to start with a description of market sectors (by PC), for which the uses are to be described in the subsequent process.

For describing manufacture or formulation into a mixture as such, assigning a sector of end-use is not needed.

If it turns out that the environmental conditions of use differ widely between sectors within one life cycle stage, the assessor can create the same life cycle stage again for a different sector of industry. Thus combination of ERC and SU at the end-use stage may support the identification and description of conditions of use related to the environment characteristic for certain sectors of industry.

If it turns out that the occupational conditions related to workers' uses differ widely between sectors within one life cycle stage, the assessor can create the same life cycle stage again for a different sector of industry.

The service life *stage* can be characterised with environmental release categories (ERC) and the relevant article categories (AC).

Under the service life stages, activities of workers and consumers with certain articles can be described. These activities are not "uses" in the meaning of REACH (and thus no downstream user duties are connected with these), however the registrant is obliged to describe the conditions during service life in his CSR. Consumer "use" of articles can be described with an AC, while workers' activities with articles would be described as a combination between a process category (PROC) and the relevant article categories (AC)

If it turns out that the environmental conditions during service life differ widely between different types of articles, the assessor can create the same life cycle stage again for a different article (or group of articles). Thus combination of ERC and AC at the service life stage may support the identification and description of conditions related to the environment characteristics for certain (groups of) articles.

**Please note**: Experience shows that the description of uses based purely on the use descriptor system is usually insufficient for building and communicating exposure scenarios. Thus, further explanations will usually also be needed as a complementary element in the description of uses.

Figure R.12-2 illustrates the uses of a substance described in a life cycle tree structure

**Figure R.12-2**: Exemplification of use description in a life cycle tree view

*To be included at a later stage*

## R.12.5.2. Building titles of exposure scenarios

The registrant will give each exposure scenario contained in the CSR and attached to the extended safety data sheet a short title, indicating which uses are covered in the ES. Since exposure

[15] The sectors producing (= formulating = mixing) preparations [= mixtures = chemical products] can be better described by the type of chemical product than the NACE code, since the NACE system does not allow for sufficient differentiation among the formulating sectors.

scenarios can be broad (covering various uses) or specific (covering only one or few uses), the title of the ES may vary accordingly:

- One use (as defined by the registrant) may take place under very different conditions in different sectors of the market, thus different exposure scenarios may be needed. In such cases, different exposure scenarios may include the same PROC and the same ERC in the title, each combined with a different sector of use (SU). For the same category of consumer products (PC), different exposure scenarios may be needed, if the exposure assessment indicates for example that the concentration of the substance needs to be limited to a lower concentration in certain consumer products within the same category[16].

- Different uses (as defined by the registrant) can potentially be addressed in the same exposure scenario, if the same operational conditions and risk management measures apply to all these uses. In such case the ES title would list various process categories, product categories, article categories and/or environmental release categories.

- For communication purposes the registrant may choose to list all the activities with a substance relevant in a particular supply chain in one exposure scenario only. Thus the ES may contain different sets of operational conditions and risk management measures related to the different activities. However it needs to be ensured that such a document is still understandable and relevant for each downstream user.

**Table R.12-4**: Title section of an exposure scenario addressing workers activities[17]

| Exposure Scenario Format (1) addressing uses carried out by workers | |
|---|---|
| **1. Title** | |
| **Free short title** | |
| **Systematic title based on use descriptor** | |
| **Processes, tasks activities covered** | |

## R.12.5.3. Description of identified uses in IUCLID

Each registrant is obliged to include a *brief general description of all identified uses* in his Technical Dossier (see chapter 3.5 of IUCLID)[18] and in Section 2 of the CSR. It is recommended to base the *brief general description of use* on the descriptor system in this guidance, and to make a reference in section 3.5 of IUCLID to the exposure scenarios contained in the CSR (if relevant). This is to ensure that the description of the identified uses is **consistent** with the titles and the content of the exposure scenarios. Note: This consistency is a legal requirement laid down in section 5.1.1 of Annex I of REACH.

The CSA tool *Chesar* will include a functionality to report the identified uses and the related exposure scenarios after the assessments have been finalised and the exposure scenarios have been built. Such a *reporting view* of the uses can be included in section 2 of the CSR and in section 3.5 of IUCLID. The information reported in section 3.5 of IUCLID will differ in one aspect from what is included into the CSR: The description of subsequent life cycle stages (service life and waste life stage) will not be part of IUCLID 3.5. The reason is that Annex VI of REACH refers to identified uses but not to subsequent service life.

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[16] See product subcategories that can be assessed with the ECETOC TRA for consumers.

[17] See draft update of section D.2.2 (Exposure Scenario Format) in Part D of the Guidance on Information Requirements and Chemicals Safety Assessment.

[18] see article 10 (a) (iii) of REACH in connection with section 3.5 of Annex VI

The information to be reported in IUCLID 3.5 is the brief general description of the identified uses and an indication whether subsequent service-life in articles takes place.

Reporting of identified uses in the IUCLID structure will be based on the following principles:

- The report on identified uses is split into three blocks, in line with the main user groups: workers in industrial settings (industrial use); workers in non-industrial settings (professional use), consumers (consumer use).

- A unique name/title of the identified use[19] is to be reported per line. Each identified use is characterised by a number of use descriptors.

    - For each identified use, a process category (PROC) for workers, or a product category (PC) for consumers is to be reported. It is possible to report several process categories (PROC) or product categories (PC) per line. This may for example be reasonable if a sequence of processes is covered by one exposure scenario and one exposure estimate (based on a set of measured data) that corresponds to such sequence of processes. It is nevertheless recommended to only report one category per line in most cases, in order to ensure consistency with the exposure estimation and risk characterisation in the chemical safety assessment.

    - For each identified use, one or more environmental release categories (ERC) are to be reported. If, for example, no relevant differences between indoor and outdoor use are identified, both ERCs may be covered under one use. It is nevertheless recommended to only report one category per line in most cases, in order to ensure consistency with the exposure estimation and risk characterisation in the chemical safety assessment.

    - If the market sector(s) constitutes an element in the exposure scenario title, also this descriptor needs to be reported (single or multiple in each line). In addition, each identified use can be described by one or more “sector of end uses” (SU) if needed. As a consequence, multiple entries for market sector (described by type of chemical product, [PC]) and sector of end-use (SU) are allowed.

- When an identified use leads to the inclusion of a substance into an article (and/or a substance remains in a dried mixture), this will be flagged as this leads to the need to assess the service life of the relevant articles (or dried or cured mixtures). The expected article categories (AC) for the subsequent service life can be reported. Further description of service life conditions is not needed in the report on identified uses[20].

- For each identified use, it is possible to make a reference to the exposure scenario number or the free short title (one or more ES) relevant for that use. This link ensures that all identified uses are covered by at least one ES, when relevant.

Table R.12-5 presents the columns available in section 3.5 of IUCLID to describe the identified uses of a substance with regard to industrial workers’ activities. Two similar tables are available for workers in non industrial conditions (professional use) and consumers.

[19] “Free-text” name of the use

[20] Note: The service life stage of a substance in articles and the waste life stage are not “uses” in the context of REACH.

**Table R.12-5**: Table to report identified uses related to industrial workers in IUCLID

| IU no | Identi-fied use name | Proc-ess cate-gory (PROC) | Envi-ron-mental Re-lease Cate-gory (ERC) | Sub-stance supplied to that use in form of .. | Market sector by type of chemical product (PC) | Sector of End Use (SU) | Subse-quent service life rele-vant for that use? | Article category (AC) re-lated to subse-quent service life | Expo-sure sce-nario refer-ence in the CSR |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *substance*<br>*mixture* | | | *yes/no* | | |
| | | | | | | | | | |

**Appendix R.12-1**: Descriptor-list for sectors of use (SU)

| | Key descriptor: Main user groups | |
|---|---|---|
| SU 3 | Industrial uses: Uses of substances as such or in preparations* at industrial sites | |
| SU 21 | Consumer uses: Private households (= general public = consumers) | |
| SU 22 | Professional uses: Public domain (administration, education, entertainment, services, craftsmen) | |
| | **Supplementary descriptor: Sectors of end-use** | **NACE[21] codes** |
| SU1 | Agriculture, forestry, fishery | A |
| SU2a | Mining, (without offshore industries) | B |
| SU2b | Offshore industries | B 6 |
| SU4 | Manufacture of food products | C 10,11 |
| SU5 | Manufacture of textiles, leather, fur | C 13-15 |
| SU6a | Manufacture of wood and wood products | C 16 |
| SU6b | Manufacture of pulp, paper and paper products | C 17 |
| SU7 | Printing and reproduction of recorded media | C 18 |
| SU8 | Manufacture of bulk, large scale chemicals (including petroleum products) | C 19.2+20.1 |
| SU9 | Manufacture of fine chemicals | C 20.2-20.6 |
| SU 10 | Formulation [mixing] of preparations and/or re-packaging (excluding alloys) | C 20.3-20.5 |
| SU11 | Manufacture of rubber products | C 22.1 |
| SU12 | Manufacture of plastics products, including compounding and conversion | C 22.2 |
| SU13 | Manufacture of other non-metallic mineral products, e.g. plasters, cement | C 23 |
| SU14 | Manufacture of basic metals, including alloys | C 24 |
| SU15 | Manufacture of fabricated metal products, except machinery and equipment | C 25 |
| SU16 | Manufacture of computer, electronic and optical products, electrical equipment | C 26-27 |
| SU17 | General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment | C 28-30,33 |
| SU18 | Manufacture of furniture | C 31 |
| SU19 | Building and construction work | F |
| SU20 | Health services | Q 86 |
| SU23 | Electricity, steam, gas water supply and sewage treatment | C 35-37 |
| SU24 | Scientific research and development | C72 |
| SU0 | Other | |
| http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html | | |

[21] European Commission, Competition: List of NACE Codes (2007.11.19); http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html

## Chapter R.12: Use Descriptor System

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”

**Appendix R.12-2.1**: Descriptor-list for Chemical Product Category (PC)

| Chemical Product Category (PC) | | |
|---|---|---|
| | **Category for describing market sectors (at supply level) regarding all uses (workers and consumers)** | **Examples and explanations** |
| PC1 | Adhesives, sealants | |
| PC2 | Adsorbents | |
| PC3 | Air care products | |
| PC4 | Anti-Freeze and de-icing products | |
| PC7 | Base metals and alloys | |
| PC8 | Biocidal products (e.g. Disinfectants, pest control) | PC 35 should be assigned to disinfectants being used as a component in a cleaning product |
| PC9a | Coatings and paints, thinners, paint removers | |
| PC9b | Fillers, putties, plasters, modelling clay | |
| PC9c | Finger paints | |
| PC11 | Explosives | |
| PC12 | Fertilizers | |
| PC13 | Fuels | |
| PC14 | Metal surface treatment products, including galvanic and electroplating products | This covers substances permanently binding with the metal surface |
| PC15 | Non-metal-surface treatment products | Like for example treatment of walls before painting. |
| PC16 | Heat transfer fluids | |
| PC17 | Hydraulic fluids | |
| PC18 | Ink and toners | |
| PC19 | Intermediate | |
| PC20 | Products such as ph-regulators, flocculants, precipitants, neutralization agents | This category covers processing aids used in the chemical industry |
| PC21 | Laboratory chemicals | |
| PC23 | Leather tanning, dye, finishing, impregnation and care products | |
| PC24 | Lubricants, greases, release products | |
| PC25 | Metal working fluids | |
| PC26 | Paper and board dye, finishing and impregnation products: including bleaches and other processing aids | |
| PC27 | Plant protection products | |
| PC28 | Perfumes, fragrances | |
| PC29 | Pharmaceuticals | |
| PC30 | Photo-chemicals | |
| PC31 | Polishes and wax blends | |
| PC32 | Polymer preparations and compounds | |
| PC33 | Semiconductors | |
| PC34 | Textile dyes, finishing and impregnating products; including bleaches and other processing aids | |

| Chemical Product Category (PC) | | |
|---|---|---|
| | **Category for describing market sectors (at supply level) regarding all uses (workers and consumers)** | **Examples and explanations** |
| PC35 | Washing and cleaning products (including solvent based products) | |
| PC36 | Water softeners | |
| PC37 | Water treatment chemicals | |
| PC38 | Welding and soldering products (with flux coatings or flux cores.), flux products | |
| PC39 | Cosmetics, personal care products | |
| PC40 | Extraction agents | |
| PC0 | Other (use UCN codes: see last row) | |
| http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp<br>http://195.215.251.229/fmi/xsl/spin/SPIN/guide/menuguide.xsl?-db=spinguide&-lay=overview&-view# | | |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”

**Appendix R.12-2.2**: Consumer products addressed in the *ECETOC* Targeted Risk Assessment

| Product (Preparation) Category | | Product (Preparation) –Subcategory |
|---|---|---|
| **PC1**:Adhesives, sealants | | Glues, hobby use |
| | | Glues DIY-use (carpet glue, tile glue, wood parquet glue) |
| | | Glue from spray |
| | | Sealants |
| **PC3**:Air care products | | Air care, instant action (aerosol sprays) |
| | | Air care, continuous action (solid & liquid) |
| **PC9a**:Coatings, paints[22], thinners, re-movers | | Waterborne latex wall paint |
| | | Solvent rich, high solid, water borne paint |
| | | Aerosol spray can |
| | | Removers (paint-, glue-, wall paper-, sealant-remover) |
| **PC9b:** Fillers, putties, plasters, model-ling clay | | Fillers and putty |
| | | Plasters and floor equalizers |
| | | Modelling clay |
| **PC9c**: Finger paints | | Finger paints |
| **PC12**: Fertilizers | | Lawn and garden preparations |
| **PC13**: Fuels | | Liquids |
| **PC24**: Lubricants, greases, release products | | Liquids |
| | | Pastes |
| | | Sprays |
| **PC31**:Polishes and wax blends | | Polishes, wax / cream (floor, furniture, shoes) |
| | | Polishes, spray (furniture, shoes) |
| **PC35**:Washing and cleaning products (including solvent based products) | | Laundry and dish washing products |
| | | Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners ) |
| | | Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”

[22] Consumer exposure from dried/cured paint on articles is included in the TRA exposure estimates related to wooden articles (see Appendix R.13-5.3). This also includes an exposure estimate for releases from dried wall paints.

**Appendix R.12-3**: Descriptor-list for process categories (PROC)

| Process categories [PROC] | | |
|---|---|---|
| | **Process categories** | **Examples and explanations** |
| PROC1 | Use in closed process, no likelihood of exposure | Use of the substances in high integrity contained system where little potential exists for exposures, e.g. any sampling via closed loop systems |
| PROC2 | Use in closed, continuous process with occasional controlled exposure | Continuous process but where the design philosophy is not specifically aimed at minimizing emissions<br>It is not high integrity and occasional expose will arise e.g. through maintenance, sampling and equipment breakages |
| PROC3 | Use in closed batch process (synthesis or formulation) | Batch manufacture of a chemical or formulation where the predominant handling is in a contained manner, e.g. through enclosed transfers, but where some opportunity for contact with chemicals occurs, e.g. through sampling |
| PROC4 | Use in batch and other process (synthesis) where opportunity for exposure arises | Use in batch manufacture of a chemical where significant opportunity for exposure arises, e.g. during charging, sampling or discharge of material, and when the nature of the design is likely to result in exposure |
| PROC5 | Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact) | Manufacture or formulation of chemical products or articles using technologies related to mixing and blending of solid or liquid materials, and where the process is in stages and provides the opportunity for significant contact at any stage |
| PROC6 | Calendering operations | Processing of product matrix Calendering at elevated temperature an large exposed surface |
| PROC7 | Industrial spraying | Air dispersive techniques<br>Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting<br>Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls; in case of coating, overspray may lead to waste water and waste. |
| PROC8a | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities | Sampling, loading, filling, transfer, dumping, bagging in non- dedicated facilities. Exposure related to dust, vapour, aerosols or spillage, and cleaning of equipment to be expected. |
| PROC8b | Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Sampling, loading, filling, transfer, dumping, bagging in dedicated facilities. Exposure related to dust, vapour, aerosols or spillage, and cleaning of equipment to be expected. |
| PROC9 | Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage |

| Process categories [PROC] | | |
|---|---|---|
| | Process categories | Examples and explanations |
| PROC10 | Roller application or brushing | Low energy spreading of e.g. coatings<br>Including cleaning of surfaces. Substance can be inhaled as vapours, skin contact can occur through droplets, splashes, working with wipes and handling of treated surfaces. |
| PROC11 | Non industrial spraying | Air dispersive techniques<br>Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting<br>Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls. |
| PROC12 | Use of blowing agents in manufacture of foam | |
| PROC13 | Treatment of articles by dipping and pouring | Immersion operations<br>Treatment of articles by dipping, pouring, immersing, soaking, washing out or washing in substances; including cold formation or resin type matrix. Includes handling of treated objects (e.g. after dying, plating,).<br>Substance is applied to a surface by low energy techniques such as dipping the article into a bath or pouring a preparation onto a surface. |
| PROC14 | Production of preparations* or articles by tabletting, compression, extrusion, pelletisation | Processing of preparations and/or substances (liquid and solid) into preparations or articles. Substances in the chemical matrix may be exposed to elevated mechanical and/or thermal energy conditions. Exposure is predominantly related to volatiles and/or generated fumes, dust may be formed as well. |
| PROC15 | Use as laboratory reagent | Use of substances at small scale laboratory (< 1 l or 1 kg present at workplace). Larger laboratories and R+D installations should be treated as industrial processes. |
| PROC16 | Using material as fuel sources, limited exposure to unburned product to be expected | Covers the use of material as fuel sources (including additives) where limited exposure to the product in its unburned form is expected. Does not cover exposure as a consequence of spillage or combustion. |
| PROC17 | Lubrication at high energy conditions and in partly open process | Lubrication at high energy conditions (temperature, friction) between moving parts and substance; significant part of process is open to workers.<br>The metal working fluid may form aerosols or fumes due to rapidly moving metal parts. |
| PROC18 | Greasing at high energy conditions | Use as lubricant where significant energy or temperature is applied between the substance and the moving parts |
| PROC19 | Hand-mixing with intimate contact and only PPE available | Addresses occupations where intimate and intentional contact with substances occurs without any specific exposure controls other than PPE. |
| PROC20 | Heat and pressure transfer fluids in dispersive, professional use but closed systems | Motor and engine oils, brake fluids<br>Also in these applications, the lubricant may be exposed to high energy conditions and chemical reactions may |

| Process categories [PROC] | | |
|---|---|---|
| | Process categories | Examples and explanations |
| | | take place during use. Exhausted fluids need to be disposed of as waste. Repair and maintenance may lead to skin contact. |
| PROC21 | Low energy manipulation of substances bound in materials and/or articles | Manual cutting, cold rolling or assembly/disassembly of material/article (including metals in massive form), possibly resulting in the release of fibres, metal fumes or dust |
| PROC22 | Potentially closed processing operations with minerals/metals at elevated temperature<br>Industrial setting | Activities at smelters, furnaces, refineries, coke ovens.<br>Exposure related to dust and fumes to be expected. Emission from direct cooling may be relevant. |
| PROC23 | Open processing and transfer operations with minerals/metals at elevated temperature | Sand and die casting, tapping and casting melted solids, drossing of melted solids, hot dip galvanising, raking of melted solids in paving<br>Exposure related to dust and fumes to be expected |
| PROC24 | High (mechanical) energy work-up of substances bound in materials and/or articles | Substantial thermal or kinetic energy applied to substance (including metals in massive form) by hot rolling/forming, grinding, mechanical cutting, drilling or sanding. Exposure is predominantly expected to be to dust. Dust or aerosol emission as result of direct cooling may be expected. |
| PROC25 | Other hot work operations with metals | Welding, soldering, gouging, brazing, flame cutting<br>Exposure is predominantly expected to fumes and gases. |
| PROC26 | Handling of solid inorganic substances at ambient temperature | Transfer and handling of ores, concentrates, raw metal oxides and scrap; packaging, un-packaging, mixing/blending and weighing of metal powders or other minerals[23] |
| PROC27a | Production of metal powders (hot processes) | Production of metal powders by hot metallurgical processes (atomisation, dry dispersion)[24] |
| PROC27b | Production of metal powders (wet processes) | Production of metal powders by wet metallurgical processes (electrolysis, wet dispersion)[25] |
| | | |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”.

[23] *no corresponding TRA entry*
[24] *no corresponding TRA entry*
[25] *no corresponding TRA entry*

**Appendix R.12-4.1**: Description for Environmental Release Categories (ERC)

| ERC NUMBER | Name | Description |
|---|---|---|
| ERC1 | Manufacture of substances | Manufacture of organic and inorganic substances in chemical, petrochemical, primary metals and minerals industry including intermediates, monomers using continuous processes or batch processes applying dedicated or multi-purpose equipment, either technically controlled or operated by manual interventions |
| ERC2 | Formulation of preparations* | Mixing and blending of substances into (chemical) preparations in all types of formulating industries, such as paints and do-it-yourself products, pigment paste, fuels, household products (cleaning products), lubricants, etc. |
| ERC3 | Formulation in materials | Mixing or blending of substances which will be physically or chemically bound into or onto a matrix (material) such as plastics additives in master batches or plastic compounds. For instance a plasticizers or stabilizers in PVC master-batches or products, crystal growth regulator in photographic films, etc. |
| ERC4 | Industrial use of processing aids in processes and products, not becoming part of articles | Industrial use of processing aids in continuous processes or batch processes applying dedicated or multi-purpose equipment, either technically controlled or operated by manual interventions. For example, solvents used in chemical reactions or the 'use' of solvents during the application of paints, lubricants in metal working fluids, anti-set off agents in polymer moulding/casting. |
| ERC5 | Industrial use resulting in inclusion into or onto a matrix | Industrial use of substances as such or in preparations (non-processing aids), which will be physically or chemically bound into or onto a matrix (material) such as binding agent in paints and coatings or adhesives, dyes in textile fabrics and leather products, metals in coatings applied through plating and galvanizing processes. The category covers substances in articles with a particular function and also substances remaining in the article after having been used as processing aid in an earlier life cycle stage (e.g. heat stabilisers in plastic processing). |
| ERC6a | Industrial use resulting in manufacture of another substance (use of intermediates) | Use of intermediates in primarily the chemical industry using continuous processes or batch processes applying dedicated or multi-purpose equipment, either technically controlled or operated by manual interventions, for the synthesis (manufacture) of other substances. For instance the use of chemical building blocks (feedstock) in the synthesis of agrochemicals, pharmaceuticals, monomers, etc. |
| ERC6b | Industrial use of reactive processing aids | Industrial use of reactive processing aids in continuous processes or batch processes applying dedicated or multi-purpose equipment, either technically controlled or operated by manual interventions. For example the use of bleaching agents in the paper industry. |
| ERC6c | Industrial use of monomers for manufacture of thermoplastics | Industrial use of monomers in the production of polymers, plastics (thermoplastics), polymerization processes. For example the use of vinyl chloride monomer in the production of PVC. |
| ERC6d | Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers | Industrial use of chemicals (cross-linking agents, curing agents) in the production of thermosets and rubbers, polymer processing. For instance the use of styrene in polyester production or vulcanization agents in the production of rubbers. |

| ERC NUMBER | Name | Description |
|---|---|---|
| ERC7 | Industrial use of substances in closed systems | Industrial use of substances in closed systems. Use in closed equipment, such as the use of liquids in hydraulic systems, cooling liquids in refrigerators and lubricants in engines and dielectric fluids in electric transformers and oil in heat exchangers. No intended contact between functional fluids and products foreseen, and thus low emissions via waste water and waste air to be expected. |
| ERC8a | Wide dispersive indoor use of processing aids in open systems | Indoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment/sewage system, for example, detergents in fabric washing, machine wash liquids and lavatory cleaners, automotive and bicycle care products (polishes, lubricants, de-icers), solvents in paints and adhesives or fragrances and aerosol propellants in air fresheners. |
| ERC8b | Wide dispersive indoor use of reactive substances in open systems | Indoor use of reactive substances by the public at large or professional use. Use (usually) results in direct release into the environment, for example, sodium hypochlorite in lavatory cleaners, bleaching agents in fabric washing products, hydrogen peroxide in dental care products. |
| ERC8c | Wide dispersive indoor use resulting in inclusion into or onto a matrix | Indoor use of substances (non-processing aids) by the public at large or professional use, which will be physically or chemically bound into or onto a matrix (material) such as binding agent in paints and coatings or adhesives, dyeing of textile fabrics. |
| ERC8d | Wide dispersive outdoor use of processing aids in open systems | Outdoor use of processing aids by the public at large or professional use. Use (usually) results in direct release into the environment, for example, automotive and bicycle care products (polishes, lubricants, de-icers, detergents), solvents in paints and adhesives. |
| ERC8e | Wide dispersive outdoor use of reactive substances in open systems | Outdoor use of reactive substances by the public at large or professional use. Use (usually) results in direct release into the environment, for example, the use of sodium hypochlorite or hydrogen peroxide for surface cleaning (building materials) |
| ERC8f | Wide dispersive outdoor use resulting in inclusion into or onto a matrix | Outdoor use of substances (non-processing aids) by the public at large or professional use, which will be physically or chemically bound into or onto a matrix (material) such as binding agent in paints and coatings or adhesives. |
| ERC9a | Wide dispersive indoor use of substances in closed systems | Indoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of cooling liquids in refrigerators, oil-based electric heaters. |
| ERC9b | Wide dispersive outdoor use of substances in closed systems | Outdoor use of substances by the public at large or professional (small scale) use in closed systems. Use in closed equipment, such as the use of hydraulic liquids in automotive suspension, lubricants in motor oil and break fluids in automotive brake systems. |
| ERC10a | Wide dispersive outdoor use of long-life articles and materials with low release | Low release of substances included into or onto articles and materials during their service life in outdoor use, such as metal, wooden and plastic construction and building materials (gutters, drains, frames, etc.) |

| ERC NUMBER | Name | Description |
|---|---|---|
| ERC10b | Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing) | Substances included into or onto articles and materials with high or intended release during their service life from outdoor use. Such as tyres, treated wooden products, treated textile and fabric like sun blinds and parasols and furniture, zinc anodes in commercial shipping and pleasure craft, and brake pads in trucks or cars. This also includes releases from the article matrix as a result of processing by workers. These are processes typically related to PROC 21, 24, 25, for example: Sanding of buildings (bridges, facades) or vehicles (ships). |
| ERC11a | Wide dispersive indoor use of long-life articles and materials with low release | Low release of substances included into or onto articles and materials during their service life from indoor use. For example, flooring, furniture, toys, construction materials, curtains, footwear, leather products, paper and cardboard products (magazines, books, news paper and packaging paper), electronic equipment (casing). |
| ERC11b | Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing) | Substances included into or onto articles and materials with high or intended release during their service life from indoor use. For example: release from fabrics, textiles (clothing, floor rugs) during washing. This also includes releases from the article matrix as a result of processing by workers. These are processes typically related to PROC 21, 24, 25. For example removal of indoor paints. |
| ERC12a | Industrial processing of articles with abrasive techniques (low release) | Substances included into or onto articles and materials are released (intended or not) from the article matrix as a result of processing by workers. These processes are typically related to PROC 21, 24, 25. Processes where the removal of material is intended, but the expected release remains low, include for example: cutting of textile, cutting, machining or grinding of metal or polymers in engineering industries. |
| ERC12b | Industrial processing of articles with abrasive techniques (high release) | Substances included into or onto articles and materials are released (intended or not) from/with the article matrix as a result of processing by workers. These processes are typically related to PROC 21, 24, 25. Processes where the removal of material is intended, and high amounts of dust may be expected, includes for example: sanding operations or paint stripping by shot-blasting. |
| | Other environmental characteristics; please specify | |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”.

**Appendix R.12-4.2**: Use characteristics by the Environmental Release Categories

| ERC | Lifecycle Stage | Level of containment | Intended technical fate of substance | Dispersion of emission sources | Indoor/outdoor | Release promotion during service life |
|---|---|---|---|---|---|---|
| 1 | Manufacture | Open-closed | | Industrial | Indoor | n.a |
| 2 | Formulation | Open-closed | Not included into matrix | Industrial | Indoor | n.a. |
| 3 | Formulation | Open-closed | Inclusion into/onto matrix | Industrial | Indoor | n.a. |
| 4 | End use | Open-closed | Processing aid | Industrial | Indoor | n.a. |
| 5 | End use | Open-closed | Inclusion into/onto matrix | Industrial | Indoor | n.a. |
| 6a | End use | Open-closed | Intermediate | Industrial | Indoor | n.a. |
| 6b | End use | Open-closed | Reactive processing aid | Industrial | Indoor | n.a. |
| 6c | End use | Open-closed | Monomers for polymers | Industrial | Indoor | n.a. |
| 6d | End use | Open-closed | Monomers for rubbers or thermosets | Industrial | Indoor | n.a. |
| 7 | End use | Closed system | Processing aid | Industrial | Indoor | n.a. |
| 8a | End use | Open-closed | Processing aid | Wide dispersive | Indoor | n.a. |
| 8b | End use | Open-closed | Reaction on use | Wide dispersive | Indoor | n.a. |
| 8c | End use | Open-closed | Inclusion into/onto matrix | Wide dispersive | Indoor | n.a. |
| 8d | End use | Open-closed | Processing aid | Wide dispersive | Outdoor | n.a. |
| 8e | End use | Open-closed | Reaction on use | Wide dispersive | Outdoor | n.a. |
| 8f | End use | Open-closed | Inclusion into/onto matrix | Wide dispersive | Outdoor | n.a. |
| 9a | End use | Closed systems | Processing aid | Wide dispersive | Indoor | n.a. |
| 9b | End use | Closed systems | Processing aid | Wide dispersive | Outdoor | n.a. |
| 10a | Service life | Open | Inclusion into/onto matrix | Wide dispersive | Outdoor | Low |
| 10b | Service life | Open | Inclusion into/onto matrix<br>Removing from matrix | Wide dispersive | Outdoor | High |
| 11a | Service life | Open | Inclusion into/onto matrix | Wide dispersive | Indoor | Low |
| 11b | Service life | Open | Inclusion into/onto matrix<br>Removing from matrix | Wide dispersive | Indoor | High |
| 12a | Service life | Open-closed | Losses from matrix during article processing | Industrial | Indoor | Low |
| 12b | Service life | Open-closed | Losses with matrix during article processing | Industrial | Indoor | High |

**Appendix R.12-4.3**: Overview of available Specific Environmental Release Categories (SPERCs)

***To be included at a later stage***

**Appendix R.12-5.1:** Descriptor-list for substances in articles (AC)

| Article categories, no release intended (AC) | | |
|---|---|---|
| | **Article categories (and non exhaustive examples) for describing the type of article in which the substance is contained during service life and waste life** | **Suitable TARIC chapters** |
| **Categories of complex articles** | | |
| AC1 | Vehicles | **86-89** |
| | Examples: Trucks, passenger cars and motor cycles, bicycles, tricycles and associated transport equipment; other vehicles: Railway, aircraft, vessels, boats | |
| AC2 | Machinery, mechanical appliances, electrical/electronic articles | **84/85** |
| | Examples: Machinery and mechanical appliances; electrical and electronic articles, e.g. computers, video and audio recording, communication equipment; lamps and lightening; cameras; refrigerator, dish washer, washing machines | |
| AC3 | Electrical batteries and accumulators | 8506/07 |
| **Categories of material based articles** | | |
| AC4 | Stone, plaster, cement, glass and ceramic articles | **68/69/70** |
| | Examples: Glass and ceramic article: e.g. dinner ware, drinking glasses, pots, pans, food storage containers; construction and isolation articles; natural or artificial abrasive powder or grain, on a base of textile material, of paper, of paperboard or of other materials | |
| AC5 | Fabrics, textiles and apparel | **50-63**, 94/95 |
| , | Examples: Clothing, bedding, mattress, curtains, upholstery, carpeting/flooring, car seats, textile toys | |
| AC6 | Leather articles | **41-42,** 64**,** 94 |
| | Examples: Gloves, purse, wallet, foot wear, furniture | |
| AC7 | Metal articles | 71**, 73-83**, 95 |
| | Examples: Cutlery, cooking utensils, pots, pans, jewellery, toys, furniture, construction articles | |
| AC8 | Paper articles | **48-49** |
| | Examples: Paper articles: tissue, towels, disposable dinnerware, nappies, feminine hygiene products, adult incontinence products; paper articles for writing, office paper; printed paper articles: e.g. newspapers, books, magazines, printed photographs; wallpaper | |
| AC10 | Rubber articles | **40,** 64, 95 |
| | Examples: Tyres, flooring, gloves, footwear, toys | |
| AC11 | Wood articles | **44**, 94/95 |
| | Examples: Flooring, walls, furniture, toys, construction articles | |
| AC13 | Plastic articles | **39**, 94/95, 85/86 |
| | Examples: Plastic dinner ware, food storage, food packaging, baby bottles; flooring, toys, furniture, small plastic articles of daily use e.g. ball pen, PC, mobile phone construction articles | |
| | Other (use TARIC codes: see last row) | |
| | http://ec.europa.eu/taxation_customs/dds/tarhome_en.htm | |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

**Appendix R.12-5.2**: Articles with intended release of substances

| Use descriptor for articles with intended release of substances | |
|---|---|
| **Descriptor based on an indicative list of examples** | |
| AC30 | Other articles with intended release of substances, please specify[26] |
| AC31 | Scented clothes |
| AC32 | Scented eraser |
| AC33 | *Entry has been removed after the REACH CA meeting in March 2008* |
| AC34 | Scented Toys |
| AC35 | Scented paper articles |
| AC36 | Scented CD |
| AC38 | Packaging material for metal parts, releasing grease/corrosion inhibitors |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

[26] See previous footnote; please note that articles could also be relevant for occupational exposure, in particular with regard to abrasive processes (see PROC 21 and 24) and hot work operations (PROC 25). Electrodes for welding and soldering are listed under PC 38 as a preparation.

**Appendix R.12-5.3**: Consumer articles addressed in the *ECETOC* Targeted Risk Assessment

| Article Category | Article –Subcategory in TRA for consumer exposure |
|---|---|
| **AC5**: Fabrics, textiles and apparel | Clothing (all kind of materials), towel |
| | Bedding, mattress |
| | Toys (cuddly toy) |
| | Car seat, chair, flooring |
| **AC6**: Leather articles | Purse, wallet, covering steering wheel (car) |
| | Footwear (shoes, boots) |
| | Furniture (sofa) |
| **AC8**: Paper articles | Diapers |
| | Sanitary towels |
| | Tissues, paper towels, wet tissues, toilet paper |
| | Printed paper (papers, magazines, books) |
| **AC10**: Rubber articles | Rubber handles, tyres |
| | Flooring |
| | Footwear (shoes, boots) |
| | Rubber toys |
| **AC11**: Wood articles | Furniture (chair) |
| | Walls and flooring (also applicable for non-wood material) |
| | Small toys (car, train) |
| | Toys, outdoor equipment |
| **AC13**: Plastic articles | Plastic, larger articles (plastic chair, PVC-flooring, lawn mower, PC) |
| | Toys (doll, car, animals, teething rings) |
| | Plastic, small articles (ball pen, mobile phone) |

**Please note**: This list is not complete with regard to uses potentially to be described under REACH. Describe other uses as appropriate.

**Appendix R.12-6**: List of functional categories (optional, if needed)[27]

| List of technical functions a substance may have in a chemical product (preparation*) or article | | |
|---|---|---|
| | **Function** | **Explanation** |
| | Aerosol propellants | Compressed or liquefied gases within which substances are dissolved or suspended and expelled from a container upon discharge of the internal pressure through expansion of the gas |
| | Agents adsorbing and absorbing gases or liquids | Substances used to absorb or adsorb gases or liquids: filter materials/media; molecular sieves; silica gel, etc. |
| | Anti-condensation agents | Substances used to avoid condensation on surfaces and in the atmosphere: anti-dim agents; condensation removers |
| | Anti-freezing agents | Substances used to prevent and remove ice formation: antifreeze liquids; de-icing agents |
| | Anti-set off and adhesive agents | Substances used to prevent set-off and adhesion: spraying powder and anti-set-off additives for printing; oils and waxes for laths and shuttering; casting slip, etc. |
| | Anti-static agents | Substances used to prevent or reduce the tendency to accumulate electrostatic charges: anti-static additives; substances for surface treatment against static electricity |
| | Binding agents | Resin or polymer-substances in coatings and adhesives |
| | Biocide substances | |
| | Bleaching agents | Substances used to whiten or decolourise materials. Not: cosmetics; photographic bleaches; optical brighteners. |
| | Colouring agents, dyes | |
| | Colouring agents, pigments | |
| | Complexing agents | Substances used to combine with other substances (mainly metal ions) to form complexes |
| | Conductive agents | Substances used to conduct electrical current. Sub-categories electrolytes; electrode materials. |
| | Corrosion inhibitors and anti-scaling agents | Substances used to prevent corrosion: corrosion inhibiting additives; rust preventives |
| | Dust binding agents | Substances used to control finely divided solid particles of powdered or ground materials to reduce their discharge into the air |
| | Explosives | |

[27] This list has been derived by combining the list of ***function categories*** applied under previous system for notification of new substances in the EU (TGD for completion of summary notification dossier for a new chemical substance utilizing the structured notification interchange format (SNIF), Annex 3; http://ecb.jrc.ec.europa.eu/DOCUMENTS/New-Chemicals/SNIF_Guidance.pdf) and ***the list of industrial functions*** in appendix E of the Instructions for Reporting for the 2006 Partial Updating of the TSCA Chemical Inventory Database (www.epa.gov/iur/pubs/2006_inst_tsca_cheminv.pdf). All entries obviously describing chemical products (preparations) have been removed.

| List of technical functions a substance may have in a chemical product (preparation*) or article | | |
|---|---|---|
| | **Function** | **Explanation** |
| | Fertilisers | |
| | Fillers | Relatively inert, and normally non-fibrous, finely divided substances added to elastomers, plastics, paints, ceramics, etc., usually to extend volume |
| | Fixing agents | Substances used to interact with a dye on fibres to improve fastness |
| | Flame retardants | Substances incorporated into, or applied to the surface of, materials to slow down or prevent combustion |
| | Flotation agents | Substances used to concentrate and obtain minerals from ores: flotation oil; flotation, depressants |
| | Flux agents for casting | Substances used to promote the fusing of minerals or prevent oxide formation |
| | Foaming (blowing) agents | Substances used to form a foam or cellular structure in a plastic or rubber material: physically by expansion of compressed gases or vaporisation of liquid, or chemically by decomposition evolving a gas |
| | Food/feedstuff additives | |
| | Fuels and fuel additives | |
| | Heat transfer agents | |
| | Impregnation agents | Substances used to admix with solid materials, which retain their original form: impregnating agents for leather, paper, textile and wood. Not: flame retardants; conserving agents; biocides. |
| | Intermediates | |
| | Laboratory chemicals | Substances used in laboratories for analytical purposes |
| | Lubricants and lubricant additives | Substances entrained between two surfaces and thereby used to reduce friction: oils; fats; waxes; friction reducing additives |
| | Odour agents | Substances used to produce, enhance or mask odour. Not: food additives; cosmetics. |
| | Oxidizing agents | Substances that give up oxygen easily, remove hydrogen from other substances, or accept electrons in chemical reactions, and are used for such purposes |
| | Pharmaceutical substance | |
| | Photosensitive agents and other photochemicals | Substances used to create a permanent photographic image. Subcategories: desensitisers; developers; fixing agents; photosensitive agents; sensitizers; anti-fogging agents; light stabilisers; intensifiers. |
| | pH-regulating agents | |
| | Plant protection active substance | |
| | Plating agents and metal surface treating | |

| List of technical functions a substance may have in a chemical product (preparation*) or article | | |
|---|---|---|
| | **Function** | **Explanation** |
| | agents | |
| | Pressure transfer agents | |
| | Process regulators, other than polymerization or vulcanization processes | Substances used to regulate the speed of a (chemical) process, e.g. accelerators; activators; catalysts; inhibitors; siccatives; anti-siccatives; cross-linking agents; initiators; photo-initiators, etc. |
| | Process regulators, used in vulcanization or polymerization processes | Substances used to regulate the speed of a (chemical) process, e.g. accelerators; activators; catalysts; inhibitors; siccatives; anti-siccatives; Cross-linking agents; initiators; photo-initiators, etc. |
| | Processing aid, not otherwise listed | |
| | Reducing agents | Substances used to remove oxygen, hydrogenate or, in general, act as electron donors in chemical reactions |
| | Reprographic agents (Toners) | Substances used to reproduce a permanent image |
| | Semiconductors and photovoltaic agents | Substances having resistivities that are between those of insulators and metals, and are usually changeable by light, heat or electrical or magnetic field, or generate electromotive force upon the incidence of radiant energy |
| | Softeners | Substances used for softening materials to improve feel, to facilitate finishing processes or to impart flexibility or workability. Sub-categories: coalescing agents; bates (leather technology); de-vulcanising agents; emollients; swelling agents; water softeners; plasticisers. |
| | Solvents | Substances used to dissolve, thin, dilute and extract: extraction agents; solvents and thinners for paints, lacquers, adhesives and other materials |
| | Stabilisers | Substances used to prevent or slow down spontaneous changes in, and aging of, materials |
| | Surface active agents | Substances used to lower the surface and/or interfacial tension of liquids and promote cleaning, wetting, dispersion, etc. |
| | Tanning agents | Substances used for treating hides and skins |
| | Viscosity adjustors | Substances used to modify the flow characteristics of other substances, or preparations, to which they are added |
| | Other | |

*** Please note**: For the sake of consistency with the descriptor system in IUCLID 5.2, in these lists the term “preparation” has not been replaced by “mixture”

**Appendix R.12-7**: Guidance for converting description of uses based on previous descriptor pick-lists (in V1) into information compatible with the refined descriptor pick-lists

## Introduction

In the framework of the further development of the *Guidance on Information Requirements and Chemicals Safety Assessment,* ECHA has drafted an update of the Guidance Chapter R.12 (Use Descriptor System). This update had become necessary, in order to introduce a descriptor element to cover the environment, to better explain the practical use of the descriptor system and to more clearly structure the relationship between the use descriptors system and Tier 1 exposure estimates for workers, consumers and environment.

The follow short guidance aims to assist companies that have carried out data collection on uses based on the use descriptor pick-lists in earlier versions of the current guidance. For each of the pick-lists it will be explained how already collected data can be converted into a form matching i) the pick-lists of the draft V2 (9.11.09) and ii) the entries of the related TRA consumer exposure estimates.

The new descriptor list for the environment (Environmental Release Categories) did not exist in Version 1 of the guidance, and thus these data need to be added to any use description carried out before summer 2009. No further guidance on this is provided in the following tables.

**Table 1**: Descriptor-list for the sectors of use

| Changed entry | What is changed? | Adaptation potentially needed regarding already collected data on uses |
|---|---|---|
| SU20,23,24 | New entries | No adaptation needed |
| SU2 | SU2 has been split into 2a and 2b | No adaptation needed |
| SU6 and 6a | SU6a has been newly introduced and SU6 has been changed to SU6b | Convert SU6 to SU6b |

**Table 2**: Descriptor-list for the chemical product categories

| Changed entry | What is changed? | Adaptation potentially needed for already collected data on uses |
|---|---|---|
| PC9 | PC9 has been split into 9a, 9b, 9c; | Uses described with the previous entry PC9 are to be described as PC 9a, 9b and (if relevant) 9c. If no more specific information is available replace PC9 by all three new categories. |
| | Removers have been included into 9a | No changes needed regarding uses described under PC9 before |
| | Plasters and modelling clay have been included into PC9b | Modelling clay to be described with PC9b instead of PC5 |
| | Hardened dried wall paint has been moved to AC11 | No adaptation needed regarding uses described under PC9 before |
| PC4 | Entry not changed, but subcategory for TRA consumer exposure estimate deleted. | No TRA consumer exposure estimate for PC4 possible<br><br>TRA consumer exposure estimate for removers can be carried out through the subcategories under PC 9a |
| PC5 | PC5 deleted | Uses described under this entry are to be reassigned to PC1 (adhesives), PC9b (fillers, putties, modelling clay), PC9c (finger paints) |
| PC6 | PC6 deleted | Uses described under this entry are to be reassigned to PC31 (polishes and wax blends) or PC35 (washing and cleaning products) |
| PC10 | PC10 deleted | Describe use under “others”, additional data collection may be needed. TRA consumer exposure estimate for removers can be carried out through the subcategories under PC 9a. |
| PC22 | PC22 deleted | Uses described under this entry are to be reassigned to PC12 (Fertilizers) |

**Table 3**: Descriptor-list for the process categories

| Changed entry | What is changed | Adaptation potentially needed for already collected data on uses |
|---|---|---|
| PROC8 | PROC8 has been split in 8a and 8b | Uses described with the previous entry PROC8 are to be described as PROC 8a or 8b. If no more specific information is available replace PROC8 by PROC8a. |
| PROC22-25 | Correction of numbering against Version 1: PROC22=>23; PROC23=>24; PROC24=>25 | Content of categories has not changed. Correction of numbering against version 1 needed. |
| PROC26,27 | PROC26 and 27 have been newly introduced | No adaptation needed |
| All PROCs | For most PROCs, the differentiation between industrial and non-industrial setting has been removed. Choice now in the estimate itself. | No adaptation needed |

**Table 4**: Descriptor-list for the article categories

| Changed entry | What is changed | Adaptation potentially needed for already collected data on uses |
|---|---|---|
| AC2 | Electric and electronic articles included | No adaptation needed |
| AC3 | All articles moved to AC2 except for batteries and accumulators | Change use description to AC2 except for batteries and accumulators |
| AC4 | Articles made from stone, plaster, cement included | No adaptation needed |
| AC9 | AC9 has been deleted | Describe cameras and video cameras with AC2, and printed photos with AC8 |
| AC11 | The subcategories for the TRA consumer exposure estimates have been modified to:<br>– Furniture (chair)<br>– Wall and flooring (also applicable to non-wood material) | The second subcategory has become broader and allows assessing exposure from coatings on all kinds of large indoor surfaces. For already collected data it needs to be checked whether they refer to furniture or flooring. If no more detailed information is available carry out exposure estimates for both subcategories. |
| AC12 | AC12 has been deleted | Describe use under “others” (additional data collection may be needed) or describe use by the material based categories AC4, AC7, AC8, AC10, AC11, AC13 (assign all if no more specific information available) |
| All AC | Numbered subcategories have been removed and converted into a list of examples illustrating the scope of the article category | Uses described with a sub-category can also be described with the related AC. If the registrant or downstream user wishes to maintain the more detailed information and subcategory level they can do so.<br><br>For TRA consumer exposure estimates however description down to the subcategory level may still be needed. |

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