

Exposure scenarios – A descriptor system for describing applications.

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According to Attachment I to the REACH disposition, both manufacturers and importers are required to evaluate and record the fact, that risk factors connected with the use of imported or manufactured substances is appropriately monitored both during production and the use of such substances by individual consumers and furthermore that users on the latter stages of delivery chains are able to appropriately control such risk. Chemical safety evaluation prepared by the manufacturer concerns production and all identified methods of use. Such an evaluation created by the importer pertains to all known methods of use of a given substance. The evaluation includes the use of a given substance in its basic form, its use as a mixture ingredient and in articles according to identified methods of use, all stages of substance presence due to production and identified use, and is based upon comparisons drawn between potentially harmful consequences of use and recognised, as well as logically predictable, exposure of personnel and environment to the substance, taking into account both implemented and suggested risk control measures, as well as operating conditions. Substances, for which it can be considered probable, that their physicochemical, toxicological, or ecotoxicological properties are similar or display trends due to their structural similarities may be treated as a group or “category” of substances. In case the manufacturer or importer considers, that the chemical risk assessment concerning one substance is sufficient to evaluate and record the risk associated with use of another substance or group, “category”, of substance is appropriately controlled, he may use such an evaluation with respect to another substance, group of substances or substance category.

Evaluation of chemical safety of a substance established by the manufacturer or importer contains the following stages:

1. Evaluation of health risks.
2. Evaluation of health risks directly connected to physicochemical properties of the substance.

The main feature of the chemical safety report's exposure section contains a description of one or more exposure scenarios implemented by the manufacturer during manufacture, by the manufacturer or importer concerning registrant's own use and scenarios recommended by the manufacturer or importer pertaining all identified use.

An exposure scenario constitutes a set of conditions describing manufacture methods or use of the substance during stages of its life-cycle and methods for controlling exposure to people and the environment, which the manufacturer/importer implements or recommends to downstream users. Such sets of conditions contain descriptions of both risk control methods and operating conditions implemented by the manufacturer/importer or recommended for implementation by downstream users. If the substance is authorised for placement on the market, an appropriate scenario, or scenarios, of exposure, containing risk control methods and operating conditions, are added to the attachment to material safety data sheet (MSDS).

The level of detail required for describing an exposure scenario will substantially differ for each case and will depend on substance application, it's dangerous properties and the extent of information, to which the manufacturer/importer has access. Exposure scenarios may describe appropriate measures of risk control for a number of separate processes or substance applications. Therefore an exposure scenario

may describe a broad range of processes and applications. Exposure scenarios describing a broad range of processes and applications may be described as **exposure categories**.

Creating exposure scenarios

Exposure scenarios are a stage in the process of evaluating chemical safety. The chemical safety evaluation process may be carried out multiple times. The first evaluation will be based on the required minimum and all available information concerning risk and evaluated exposure, which correspond to initial conditions pertaining operating conditions and risk control measures (initial exposure scenario). If such initial conditions suggest risk factors resulting from inappropriate health and environmental risk control, it may be necessary to carry out the evaluation process multiple times while changing one or more parameters of risk evaluation or exposure to prove an appropriate level of control is established. Further specifying of risk evaluations may require generating additional information concerning the risk itself, appropriate modifications of operating conditions or risk control measures contained within the exposure scenario or a more precise evaluation of exposure. The exposure scenario being the most recent reevaluation (final exposure scenario) should be included in the chemical safety report and attached to the material safety data sheet according to art. 31 of REACH directive.

The final exposure scenario is shown in an appropriate location in the chemical safety report and is added to the MSDS attachment using a title being a short, general description of applications, according to section 3.5 of attachment VI. Exposure scenarios cover all production within the Union and all identified use. Specifically an exposure in appropriate cases contains a description of:

operating conditions: suitable processes, including the physical state, in which the substance is produced, processed or used, personnel activities connected to these processes as well as the length and frequency of their exposure to the substance, consumer activities and length and frequency of their exposure, length and frequency of substance emission to various elements of the environment and wastewater treatment systems as well as dilution in target environmental element;

risk control measures: risk control measures aimed at reducing or eliminating direct or indirect risk to people (including personnel and consumers) or various elements of the environment to substance exposure, waste treatment measures aimed at reducing or eliminating risk to people or the environment due to substance exposure during waste utilisation or recycling.

It is essential, from the standpoint of fulfilling legal requirements, that the registration documents contain identified use, which according to article 3 of REACH regulation refer to: “a use of a substance on its own or in a preparation, or a use of a preparation, that is intended by an actor in the supply chain, including his own use, or that is made known to him in writing by an immediate downstream user”.

Such identified use will later be taken into account by the manufacturer or importer while developing exposure scenarios- a set of conditions, including operating conditions and measures pertaining to risk

Sector of use descriptors (SU)

Key descriptor: Main user groups		NACE codes
SU3	Industrial uses: Uses of substances as such or in preparations at industrial sites	
SU21	Consumer uses: Private households (= general public = consumers)	
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
	Supplementary descriptor: Sectors of end-use	
SU1	Agriculture, forestry, fishery	A
SU2a	Mining, (without offshore industries)	B
SU2b	Offshore industries	B6
SU4	Manufacture of food products	C10,11
SU5	Manufacture of textiles, leather, fur	C13-15
SU6a	Manufacture of wood and wood products	C16
SU6b	Manufacture of pulp, paper and paper products	C17
SU7	Printing and reproduction of recorded media	C18
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)	C19.2 + 20.1
SU9	Manufacture of fine chemicals	C20.2 – 20.6
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)	C20.3-20.5
SU11	Manufacture of rubber products	C 22.1
SU12	Manufacture of plastics products, including compounding and conversion	C22.2
SU13	Manufacture of other non-metallic mineral products, e.g. plasters, cement	C23
SU14	Manufacture of basic metals, including alloys	C24
SU15	Manufacture of fabricated metal products, except machinery and equipment	C25
SU16	Manufacture of computer, electronic and optical products, electrical equipment	C26 – 27
SU17	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment	C28 – 30,33
SU18	Manufacture of furniture	C31
SU19	Building and construction work	F
SU20	Health services	Q86
SU23	Electricity, steam, gas water supply and sewage treatment	C35-37
SU24	Scientific research and development	C72
SU0	Other	

http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html

control, describing manufacture methods or applications during the substance's life-cycle as well as precautions undertaken by the manufacturer or importer to control exposure to people and the environment, or which he suggests to be undertaken by downstream users to control risk. Exposure scenarios may include one specific process or use, or multiple processes or uses, depending on the situation. It is acceptable to establish a category of use and exposure, and therefore an exposure scenario containing a large range of processes and applications, which relays information on processes or applications in the form of a short, general description of application. Information pertaining to manufacture and applications identified by the registering party are considered a part of registration documentation.

According to art. 31, p. 7 of REACH Regulation, each actor in the supply chain, that is required to prepare a material safety data sheet, appends appropriate exposure scenarios (in certain cases containing categories of use and exposure) concerning identified use to the material safety data sheet. During preparation of material safety data sheets for identified use each downstream user appends additional exposure scenarios and uses all information within the material safety data sheet he was supplied with.

According to Article 37, each downstream user obtains the right to inform in written form (either on paper or electronically) of substance use – in the form of a short, general description of its application – a manufacturer, importer, downstream user or distributor supplying said user with the substance on its own or in a preparation, so that such an application may become recognised as identified use. Information thus delivered should be sufficient to prepare an exposure scenario or, in certain cases, to ascertain category of use and exposure for such use in evaluation of chemical safety of the manufacturer, importer or downstream user.

Distributors pass on such obtained information to a previous actor or distributor in the supply chain. After obtaining such information a downstream user may evaluate an exposure scenario for given identified use, or pass on such information to the previous actor in the supply chain.

Descriptor system

To limit the number of exposure scenarios created, **Chapter 12 of Guidance on information requirements and chemical safety assessment** details a system constructed around five descriptors characterising categories, which combine to form a short description of application or a title of an exposure scenario:

Sector of use [SU]; chemical product category [PC]; process category [PROC]; environmental release category [ERC]; article categories [AC].

Work is continued to update chapter 12 since may 2008. At present on the ECHA page: http://guidance.echa.europa.eu/docs/guidance_document/draft_R12_update_revised_after_peg_clean_20091109.pdf entrepreneurs preparing descriptions of use can find the most recent document dated at 11th November 2009. This version takes into account feedback received from an Expert Group (Consultation of a Partner Expert Group -PEG) on the subject, and has been handed over to the Committee for consultation (Consultation of ECHA's Committees and/or Forum). Updates introduced in this version were marked deep blue (new appearances) and light blue (updated elements).

Sector of use [SU]

Descriptors of the sector of use provide information concerning, which sector of industry makes use of the substance. Table I presents a list of main user groups and selected categories of the NACE (Nomen-

Chemical product category descriptors (PC)

	Category for describing market sectors (at supply level) regarding all uses (workers and consumers)
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)
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
PC15	Non-metal-surface treatment products
PC16	Heat transfer fluids
PC17	Hydraulic fluids
PC18	Ink and toners
PC19	Intermediate
PC20	Products such as ph-regulators, flocculants, precipitants, neutralization agents
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
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

clature générale des Activités Economiques dans les Communautés Européennes) system classifying different actions in industry and the service sector. These categories are designed to help manufacturers/importers in demonstrating their respective market in formulation sector. Such a description can help create appropriate exposure scenarios, considering all end use of the substance on its own or in a preparation and scenarios for each stage of its life-cycle.

The number of categories is limited and should prove sufficient to create an appropriate exposure scenario. If the manufacturer or importer deems suitable to describe an application in more excessive detail, he should use corresponding NACE codes. If the manufacturer/importer considers a detailed specification concerning use unnecessary in his branch, he may choose not to ascribe a descriptor for end use, relying merely on ascribing a main group of applications, such as: *End use of substance in industry*, thus demonstrating, that the substance may be used by any sector, considering conditions mentioned in the exposure scenario are fulfilled.

Chemical product category [PC]

The manufacturer or importer may identify the main use of the substance based on the information received from the recipients or

based on the market sector they supply. In multiple cases the recipients are formulators and/or confectioners as well as distributors. It is also fairly common for the manufacturer to both produce and supply the end user with a substance in its own form or in a preparation.

Chemical product category [PC] specifies substance use *uzycie* through describing the use of a preparation (eg. lubricant, cleaning agent, adhesive), while not stating its function (e.g. stabiliser, inhibitor, fire retardant).

Based on his own knowledge and additional information received from his clients, the manufacturer/importer ascribes type of end use of articles, which include the substance. If the manufacturer is not aware of given use, due to the article's long supply chain, information gathered from the supply chain can be used according to REACH regulation. Additionally a descriptor PC0 „Other” may be simply applied. The list is not final.

Process category [PROC]

Due to the fact, that applying a specific technique or process type substantially influences exposure, it is necessary to introduce risk control measurements. It is therefore convenient in creating exposure scenarios, chemical safety evaluation or communicating up and down

Process category descriptors [PROC]

Process category [PROC]		
	Process category	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 It is not high integrity and occasional exposure 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
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
PROC7	Industrial spraying	Air dispersive techniques Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting; 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
PROC10	Roller application or brushing	Low energy spreading of e.g. coatings. 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 Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls
PROC13	Treatment of articles by dipping and pouring	Immersion operations 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 dyeing, plating.) 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 tableting, 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 pre-sent at workplace). Larger laboratories and R+D installations should be treated as industrial processes
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
PROC22	Potentially closed processing operations with minerals/metals at elevated temperature	Activities at smelters, furnaces, refineries, coke ovens. 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; Exposure related to dust and fumes to be expected.
PROC25	Other hot work operations with metals	Welding, soldering, gouging, brazing, flame cutting 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, unpackaging, mixing/blending and weighing of metal powders or other minerals
PROC27a	Production of metal powders (hot processes)	Production of metal powders by hot metallurgical processes (atomisation, dry dispersion)
PROC27b	Production of metal powders (wet processes)	Production of metal powders by wet metallurgical processes (electrolysis, wet dispersion)

Environmental release descriptors [ERC]

Numer ERC	Nazwa kategorii	Opis
ERC1	Manufacture of substances	Manufacture of organic and inorganic substances in chemical, petro-chemical, 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
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 brake 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.)

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, include for example: sanding operations or paint stripping by shot-blasting
	Other environmental characteristics; please specify	

Table 5

Article category descriptors [AC]

Article categories, no release intended [AC]	
AC1	Vehicles 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 Examples: Machinery and mechanical appliances; electrical and electronic articles, e.g. computers, video and audio recording, communication equipment; lamps and lighting; cameras; refrigerator, dish washer, washing machines
AC3	Electrical batteries and accumulators
AC4	Stone, plaster, cement, glass and ceramic articles 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 Examples: Clothing, bedding, mattress, curtains, upholstery, carpeting/flooring, car seats, textile toys
AC6	Leather articles Examples: Gloves, purse, wallet, foot wear, furniture
AC7	Metal articles Examples: Cutlery, cooking utensils, pots, pans, jewellery, toys, furniture, construction articles
AC8	Paper articles 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 Examples: Tyres, flooring, gloves, footwear, toys
AC11	Wood articles Examples: Flooring, walls, furniture, toys, construction articles
AC13	Plastic articles 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
AC0	Other

...

Articles with intended release of substances [AC]	
AC30	Other articles with intended release of substances, please specify
AC31	Scented clothes
AC32	Scented eraser
AC34	Scented Toys
AC35	Scented paper articles
AC36	Scented CD
AC38	Packaging material for metal parts, releasing grease/corrosion inhibitors

the supply chain to ascribe process categories appropriate actions/activities or manufacture processes appropriate to the given substance, especially for all employees engaged in such actions/activities (industrial/professional use).

Process category descriptors (PROC) are the most important from the standpoint of risk control, it should be therefore expected,

that the list will undergo expansion, and that present categories will undergo modification. The table below presents sample process category descriptors. The full list can be found at:

http://guidance.echa.europa.eu/docs/guidance_document/draft_R12_update_revised_after_peg_clean_20091109.pdf

Environmental release categories [ERC] describe use characteristic based on aspects important from the environmental standpoint:

1. Intended technical fate, which determines the extent, to which the substance is consumed during use, the character of its consumption, what amount can be expected to be released in discharges, air emissions, or become waste, and what amount of substance is expected to enter the next life cycle stage. There are generally three possibilities:

- The substance becomes part of an article, either because it has a function within the article, or remains in it (from the preceding life cycle stage) without function;

Example

QUERRIES	DESCRIPTION	CATEGORY
Which sectors of the formulating industry buy the sub-stance? In which categories of chemical products is it used?	Coatings and paint	PC9
Which processes are applied during mix-ing/formulation of substance?	Use in closed batch process (synthesis or formulation) Including transfer	PROC 3,8a,8b,9 ERC 2
Is the substance as such or in preparations used by industrial workers, professionals or consumers?	Industrial workers, professional use outside industry, consumers	SU 3, 21, 22
In which type of processes is the substance applied on end-use (worker perspective)?	Spraying, brushing, dipping	PROC 7,10, 11, 13
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 proc-essing aid or intended to react on use?	Industrial sites and broad common use, indoor and outdoor use. Substance becomes part of the article (e.g. wooden toys).	ERC 5 ERC 8a
In which consumer products is the substance used? What are the broad environmental characteristics of these uses?	Coatings and paint designed for consumer use	PC 9 ERC 8c/f
If substance becomes part of an article: In which arti-cles is it contained during service life (and subsequent waste life stage)?	Wooden articles	AC 11-3
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?	Indoor and outdoor use, low release of substance from article	ERC 10a/11a

- The substance is expected to fully react in a stage, it is therefore not present in latter stages or available for environmental emission;
 - The substance is expected to be used as processing aid and as such is expected to be removed from the industrial process (e.g. paint or coating solvent) to the environment.
2. General conditions of use including:
- Life cycle stage in which the substance is used (manufacture, formulation, end use);
 - Dispersiveness of use (use in at industrial sites [point source] and/ or broad spectrum of professional and consumer use);
 - Contained application systems during end use (e.g. hydraulic fluids);
 - Indoor or outdoor use;
 - Article used in release-promoting conditions (e.g. abrasion).

Article categories [AC]

For dangerous substances, being transformed into articles, the manufacturer or importer must determine, what types of articles were taken into account during chemical safety and exposure scenario evaluation. This can, in turn, influence exposure conditions, e.g. substance used as textile finish (skin contact, frequent laundering) or as a component of insulating layers in construction.

Table 5 contains a list of various articles lacking intended release based on consumer product categories within ECETOC TRA tools as well as a list of examples for articles with intended release, which despite remaining open, is expected to remain a list of singular cases.

Substances applied as processing aids or undergoing chemical reactions as part of their use, which will not become part of the final article (e.g. solvents, cleaning agents and laundry detergents) have no use for this descriptor.

Guidelines for descriptor ascription

Each use requires ascribing at least 2 [3] descriptors, so that both a general characteristic of use and the initial level of exposure evaluation can be determined. Therefore it should be noted:

Manufacture: ascribe process category (PROC) and environmental release category (ERC)

Formulation: ascribe process category (PROC) and environmental release category (ERC)

Personnel end use: ascribe process category (PROC) and environmental release category (ERC)

Consumer end use: ascribe product category (PC) and environmental release category (ERC)

Consumer use duration: ascribe article category (AC) and environmental release category (ERC)

Personnel use duration: ascribe article category (AC), process category (PROC) and environmental release category (ERC)

Evaluating exposure does not require ascribing the market sector. Ascribing such may however simplify choosing the appropriate environmental release category and may be beneficial for organising information transfer through the supply chain. If however, due to determining conditions within sectors of use or other article types, a necessity appears to describe use in further detail, appropriate descriptors may be used to this end.

Below a description of substance use, using the descriptor system, can be found based on an example for a pigment used for coating wooden toys (both indoors and outdoors). The paint may be applied by personnel of an industrial facility through spraying, by a craftsperson manually applying it with a brush or by consumers at home.

Substance life cycle includes manufacture, formulation of a preparation in various branches, end use of appropriate articles and stages of use duration. The paint (containing mentioned pigment) is manufactured in a contained application systems in an industrial facility. It is used by employees in spraying and manual brush coating. Consumers also use paint containing the pigment. The paint is applied to wooden toys (and most likely to other wooden articles) during indoor and outdoor use.

The Table 6 shows a list of queries, which the registrant must answer while evaluating a description of use for their substance.

This text uses a draft of Chapter 12 of Guidance on information requirements and chemical safety assessment as well as translations created by Bureau for Chemical Substances and Preparations in collaboration with National REACH Information Center and REACH information center of the Ministry of Economy. The full text of the guidebook can be found at: http://guidance.echa.europa.eu/docs/guidance_document/draft_R12_update_revised_after_peg_clean_20091109.pdf

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