EUROPEAN TYRE & RUBBER manufacturers' association

REACH

Identification of Uses for the Rubber Sector
TYRE

Version 1.1
Brussels, 6 November 2009

Introduction and Downstream User Expectations

In accordance with EC Regulation 1907/2006 Registration, Evaluation, and Authorisation of Chemicals (REACH) Article 37(2), a downstream user (DU) has the right to make a use known in writing to the manufacturer, importer, downstream user or distributor who supplies him with a substance on its own or in a preparation (registrant), making this an Identified Use. This aims to ensure that the registrants of the substance represent these uses in accordance with REACH Article 10(a) (iii) and, if applicable, Article 14(4).

On behalf of ETRMA members as downstream users (DU) of chemicals, this document provides identification of uses within the tyre industry. The formulation/industrial use of these chemicals during the manufacturing process, and the professional use and service life cycle stages when used in finished articles are identified in this document.
In making the use known, it is expected that sufficient information shall be provided to prepare an exposure scenario (ES), or if appropriate a use and exposure category, for that downstream use in the registrants chemical safety assessment (CSA). Communication of data to support the preparation of an ES will be provided by ETRMA later this year, as an integration to this communication. The update will be intended to provide sufficient information to perform a CSA, including all necessary information for Tier 1 assessment, but also other information for higher Tier assessment. If further iteration is required, ETRMA members recommend that registrants work with ETRMA through industry groups or consortia, to assure consistency and to minimize communications.

Document validity

This document is composed based on currently available ECHA guidance and it is subject to change following any future guidance revision or available information. For the most recent version of this document please refer to ETRMA website (www.etrma.org).

For further information with respect to the above and future communications for use identification and exposure scenario generation for chemicals for tyre manufacturing, please contact ETRMA:

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Use Descriptors Communication

In accordance with REACH *Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system* (Draft Version 2.0, 2009), the below table summarizes the use descriptors valid for substances used in the tyre manufacturing sector, including tyre service life, making these Identified Uses.

SU - Sector of use

Main user groups	
SU 3	Industrial use: uses of substances as such or in preparations at industrial site

Sectors of end-use	
SU 11	Manufacture of rubber products

AC - Substances in articles

AC 10	Rubber articles

PC - Chemical product categories

	Substance categories												
	01-Mastication Agents	02- Vulcanisation Agts	03- Antidegradants	04- Fillers and Pigments	05- Plasticisers	06-1- Lubricants	06-2- Tackifier	06-4- Filler Activator	06-6- Bonding Agents	07-03 - Emulsifiers	07-12- Reinforcing Agents	07-5- Solvents	09- Release Agts
PC 9A												X	
PC 18										X		X	
PC 24						X							X
PC 32		X	X	X	X	X	X	X	X		X		

PROC - Process Categories

PROC 5	X	X	X	X	X		X	X	X		X		
PROC 7										X		X	X
PROC 8b	X	X	X	X	X		X	X	X		X	X	X
PROC 9	X	X	X	X	X	X	X	X	X	X	X	X	X
PROC 10		X	X	X	X	X				X	X	X	X
PROC 14		X	X	X	X	X	X	X	X		X		X
PROC 21		X	X	X	X		X	X	X	X	X	X	

ERC - Environmental release categories (To be used for Tier 1 assessment

Formulation and industrial use													
ERC 3			X	X	X	X	X	X	X		X		
ERC 4										X		X	X
ERC 6d	X	X											

Tyre service life													
ERC 10b		X*	X	X	X	X*	X				X*		

*Uses identified. However, still to be determined whether present or not in tread compound for service life assessment.

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Substances and Classification Groups

A large number of substances are used in the tyre sector and these have been grouped according to the TGD/OECD Classifications shown in the Table 1 below. This communication covers the majority of substances commonly used by ETRMA tyre members.

Table 1: TGD Classes of Substances used in the Tyre Sector

TGD Class / Subclass	Description	Example Substances
01	Mastication Agents and Peptisers	N,N'-dithiodi-o-phenylenedibenzamide
02	Vulcanisation Agents	CBS, DPG
03	Antidegradants	6PPD, Wax
04	Fillers and Pigments	Carbon Black, Silica, TiO2
05	Plasticisers	Oils – TDAE, MES, etc
06-1	Lubricants and Flow Improvers	Fatty Acids
06-2	Tackifiers	Hydrocarbon Resins
06-4	Filler Activator	Silane Coupling agents
06-6	Bonding Agents	Cobalt salts
07-3	Emulsifiers	Sulfates
07-5	Solvents	Naphtha, Hexane
07-12	Reinforcing Agents	HMMM
9	Release agents	Silicones

In case of difficulties in identifying individual substances' categories, please refer to ETRMA or directly to your customer REACH contact for clarifications.

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Rubber Sector Process Schemes (tyres)

In support of the Uses communication, to illustrate the steps involved during DU usage of subject chemicals during the formulation/industrial use stage, a high level schematic of tyre manufacturing processes and activities for all substances is shown in Table 2 below.

Table 2: Schematic of Tyre/retreading Manufacturing Process (Life Cycle Stage: Formulation and Industrial Use)

	Process Phase	PROC	Description	Substances involved	Brief exposure overview
TYRE PRODUCTION	Storage	8b 9	*Storage of raw materials in original packaging (drums, big bags, pigments bags) or (underground)tanks/silos*	All raw materials	- Potential dust/vapour emission associated to material transfer between packaging and storage place. - Substance has the same physical form and concentration as supplied by the manufacturer.
	Weighing	9	*Substances are weighed and transferred into small plastic bags according to compound production needs.*	Mastication agents, Vulcanisation agents, Antidegradants, Fillers, Tackifiers, Filler activators, Bonding agents, Reinforcing agents, Hardeners, lubricants	- Potential dust emission associated to material transfer, manual or automatic, between substance packaging and plastic bag. - Substances have the same physical form and concentration as supplied by the manufacturer.
	Mixing	5 8b 9	*Raw materials are transfered into the mixing chamber (liquid raw materials are directly injected into the chamber). Once mixed, the compound batch is extruded into a cooling bath.*	Mastication agents, Vulcanisation agents, Antidegradants, Fillers, Tackifiers, Filler activators, Bonding agents, Reinforcing agents, Lubricants, Plasticizers, Rubber,	**Mixer loading:** dermal contact with raw polymers (pigments are contained in the plastic bags) **Mixing:** Potential environmental exposure due to emission of dust and organic vapours. **Batch release:** emission of hot organic vapours. Substance are now bound in the rubber matrix. Concentration is defined by compound recipe.
	Cement preparation	9	*Certain compounds are dissolved into the solvent in order to obtain a liquid mixture called "cement" used as a "glue" between rubber components.*	Vulcanisation agents, Antidegradants, Fillers, Plasticizers, Lubricants, Emulsifiers, Reinforcing agents, Solvent	**Compound transfer in the vessel:** dermal contact with compounds **Solvent loading:** air emission **Mixture preparation:** emission to the air of solvents vapours **Cement transfer into small containers:** potential dermal contact and workers exposure to solvents vapours Substances are now bound in a liquid mixture. Concentration is defined by cement recipe.
	Shaping = Extrusion + Milling + Building + Precuring + Filling (only retreading)	7 10 14 21	*Compounds are given a specific shape and combined to build up a complex articles (eg "green tyres"), ready to be cured.* *For retreading: see specific production phases*	Vulcanisation agents, Antidegradants, Fillers, Plasticisers, Lubricants, Tackifiers, Emulsifier, Filler activators, Bonding agents, Reinforcing agents, Solvent, Release agents	- Dermal contact with rubber blends and exposure to solvents/vapours Substances are bound in the rubber matrix. Concentration is defined by compound recipe.
	Curing	14	*Most of the substances react to give a three-dimensional polymer network (final article). Non-reacting substances remain bound in the matrix with reduced mobility.* *For retreading: see specific production phases*	Remaing substances after curing: antidegradants, Plasticizers	- Generation of fumes (C6-C12 hydrocarbons > 99%) deriving from the curing of the rubber compounds. Substance concentration as per compound recipe.
	Final treatment	10	*Articles undergo further treatment for quality control purpose, to enhance their appearance, or for mounting into multi-component articles.* *For retreading: see specific production phases*	Lubricants, solvents	- Dermal contact with final article, lubricant residues and exposure to solvents from cement used for repairing/appearance (when the case). Lubricants are in the physical form and concentration as provided by the manufacturer.
RETREADING	Casing inspection	21	*Carcasses are selected and cleaned*	Lubricants	- Dermal contact with tyre and lubricants. Substance in the tyre are entiangled in the matrix. Lubricants are in the form and concentration as supplied by the manufacturer.
	Buffing/skiving = Casing buffing + grunding +	21	*Part of rubber and rusted cords are removed from casing; casing cleaning*	Cured rubber compounds and steel cords	- Contact with fugitive buffing rubber swarfs and steel cords.
	Cementing /filling = case cementing + filling	14	*Spray application and wiping cement. Skived cavities are filled with extruded rubber (Preparation of cement and extruded rubber follow the above tyre process phases)* *The repaired carcass is coupled with new tread compound and cured to produce final article (refer to the above tyre production scheme).*	Vulcanisation agents, Antidegradants, Fillers, Plasticisers,Lubricants,Tackifiers, Emulsifier, Filler activators, Bonding agents, Reinforcing agents, Solvent, anti-tack agents	Dermal contact with compounds air emission of solvents vapours. Cement transfer into small containers: potential dermal contact and workers exposure to solvents vapours Substances into a liquid mixture,concentration according to mixture recipe. Filling material: potential dermal contact.

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Table 3 below shows a schematic for finished tyre and retread usage, including professional use and service life.

Table 3: Schematic of finished Tyre and Retread Usage (Life Cycle Stage: Professional Use and Service Life)

	Process Phase	PROC	Description	Substances involved	Brief exposure overview
Professional use	Tyre mounting	21	*Tyres are mounted on the wheel by specialists in the course of their professional activities.*	Antidegradants, plasticizers, lubricants	*Dermal contact with tyre and lubricants. Substance in the tyre are entlangled in the matrix. Lubricants are in the form and concentration as supplied by the manufacturer*
Service life	Tyre rolling on roads	n/a	*Tyres roll on the road surface. As a result of the friction with pavement surface, tread wear particles (TWP) are generated form the tyre tread compound*	Tread substances.	Environmental exposure to TWP and substances therein.
Professional use	Tyre dismounting	21	*Tyres are separated from the wheel and sent to either a retreading route or scrapped as waste.*	Antidegradants, plasticizers	*Dermal contact with tyre and lubricants. Substance in the tyre are entlangled in the matrix. Lubricants are in the form and concentration as supplied by the manufacturer*

Disclaimer

The information contained in document is intended for guidance only whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user ‘s own risk.

No representations or warranties are made with regards to its completeness or accuracy and no liability will be accepted for damages of any nature whatsoever resulting from the use of or reliance on the information.

ANNEX (ECHA GUIDANCE)

Full list of Use Descriptors (according to ECHA Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor *system* - Draft Version 2.0, 2009.

	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)	

	Sectors of use [SU] – sectors of end-use	**NACE[1] 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
	Manufacture of wood and wood products	C 16
SU6	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
	Other	
http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html		

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

Chemical Product Category (PC)[2]		
	Category for describing market sectors (at supply level) regarding all uses (workers and consumers)	Examples and explanations
PC0	Other products	
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	
PC9c	Face and 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	

[2] The remark in the right column refers to consumer product (= preparation) categories particularly addressed in the ConsExpo exposure estimation tool (1) or in the TRA exposure estimation tool (2).

Chemical Product Category (PC)[2]		
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	
	Other (use UCN codes: see last row)	
http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp http://195.215.251.229/fmi/xsl/spin/SPIN/guide/menuguide.xsl?-db=spinguide&-lay=overview&-view#		

Process categories [PROC]		
	Process categories	**Examples and explanations**
PROC 1	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.
PROC 2	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 expose will arise e.g. through maintenance, sampling and equipment breakages
PROC 3	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
PROC 4	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.
PROC 5	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.
PROC 6	Calendering operations	Processing of product matrix Calendering at elevated temperature an large exposed surface
PROC 7	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.
PROC 8a	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.
PROC 8b	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.
PROC 9	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
PROC 10	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.
PROC 11	Non industrial spraying	Air dispersive techniques Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting

Process categories [PROC]		
	Process categories	**Examples and explanations**
		Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls;
PROC 12	Use of blowing agents in manufacture of foam	
PROC 13	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 dying, 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
PROC 14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation	
PROC 15	Use as laboratory reagent	Use of substances at small scale laboratory (< 1 l or 1 kg). Larger laboratories and R+D installations should be treated as industrial processes.
PROC 16	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.
PROC 17	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. The metal working fluid may form aerosols or fumes due to rapidly moving metal parts;
PROC 18	Greasing at high energy conditions	Use as lubricant where significant energy or temperature is applied between the substance and the moving parts.
PROC 19	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.
PROC 20	Heat and pressure transfer fluids in dispersive, professional use but closed systems	Motor and engine oils, brake fluids Also in these applications, the lubricant may be exposed to high energy conditions and chemical reactions may take place during use. Exhausted fluids need to be disposed of as waste. Repair and maintenance may lead to skin contact.
PROC 21	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, rubber fumes, metal fumes or dust;
PROC 22	Potentially closed processing operations with minerals/metals at elevated temperature Industrial setting	Activities at smelters, furnaces, refineries, coke ovens. Exposure related to dust and fumes to be expected. Emission from direct cooling may be relevant.
PROC 23	Open processing and transfer operations with minerals/metals at elevated	Sand and die casting, tapping and casting melted solids, drossing of melted solids, hot dip galvanising, raking of

Process categories [PROC]		
	Process categories	**Examples and explanations**
	temperature	melted solids in paving; Exposure related to dust and fumes to be expected.
PROC 24	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.
PROC 25	Other hot work operations with metals	Welding, soldering, gouging, brazing, flame cutting Exposure is predominantly expected to fumes and gases.
PROC 26	Handling of solid inorganic substances at ambient temperature (*no corresponding TRA entry)*	Transfer and handling of ores, concentrates, raw metal oxides and scrap; packaging, un-packaging, mixing/blending and weighing of metal powders or other minerals;
PROC 27	Production of metal powders (*no corresponding TRA entry*)	Production of metal powders by hot (atomisation, dry dispersion) and wet (electrolysis, wet dispersion) metallurgical processes
	Other process or activity, please specify;	

ERC NUMBER	Name	Description
ERC 1	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
ERC 2	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.
ERC 3	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.
ERC 4	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
ERC 5	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)..

ERC NUMBER	Name	Description
ERC 6A	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.
ERC 6B	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.
ERC 6C	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
ERC 6D	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 7	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.
ERC 8A	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.
ERC 8B	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.
ERC 8C	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.
ERC 8D	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.
ERC 8E	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)

ERC NUMBER	Name	Description
ERC 8F	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.
ERC 9A	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.
ERC 9B	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.
ERC 10A	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 10B	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).
ERC 11A	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)
ERC 11B	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.
ERC 12	Industrial processing of articles with abrasive techniques (high release)	Substances included into or onto articles and materials are released from the article matrix as a result of processing by workers. These are processes typically related to PROC 21, 24, 25, were the removal of material is intended. For example metal cutting in engineering industries or centralised paint stripping in aircraft industry
	Other environmental characteristics; please specify	

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		
AC 1	Vehicles	**86-89**
	Trucks, passenger cars and motor cycles, bicycles, tricycles and associated transport equipment Other vehicles: Railway, aircraft, vessels, boats	
AC 2	Machinery, mechanical appliances, electrical/electronic articles	**84/85**
	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	
AC 3	Electrical batteries and accumulators	8506/07
Categories of material based articles		
AC 4	Stone, plaster, cement, glass and ceramic articles	**68/69/70**
	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.	
AC 5	Fabrics, textiles and apparel	**50-63**, 94/95
	Clothing Bedding, mattress Curtains, upholstery, carpeting/flooring, car seats Textile Toys	
AC 6	Leather and fur articles	**41-43,** 64**,** 94
	Gloves, purse, wallet, Foot wear Furniture	
AC 7	Metal articles	71**, 73-83**, 95
	Cutlery, cooking utensils, pots, pans,	
	Jewellery	
	Toys	
	Furniture	
	Construction articles	
AC 8	Paper articles	**48-49**
	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	

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
	Wallpaper	
AC 10	Rubber articles	**40,** 64, 95
	Rubber tyres Rubber flooring Rubber gloves Rubber footwear Rubber toys	
AC 11	Wood and straw articles	**44-46**, 94/95
	Wooden flooring Wooden furniture Wooden toys Wooden construction articles	
AC 13	Plastic articles	**39**, 94/95, 85/86
	Plastic dinner ware, food storage, food packaging, baby bottles Plastic flooring Plastic toys Plastic furniture Small plastic articles of daily use e.g. ball pen, PC, mobile phone Plastic construction articles	
	Other (use TARIC codes: see last row)	
	http://ec.europa.eu/taxation_customs/dds/tarhome_en.htm	

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[3]
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