

Descriptors and explanation of categories according to ECHA documentation

<b>Sectors of use</b>	
<b>SU 0-1</b>	Other activity related to manufacturing of chemical products ( NACE Code to be used only; see last row )
<b>SU 0-2</b>	Other activities related to manufacture and services ( NACE Code to be used only: see last row)
<b>SU1</b>	Agriculture, forestry, fishery
<b>SU2</b>	Mining, (including offshore industries)
<b>SU3</b>	Industrial Manufacturing (all)
<b>SU4</b>	Manufacture of food products
<b>SU5</b>	Manufacture of textiles, leather, fur
<b>SU6</b>	Manufacture of pulp, paper and paper products
<b>SU7</b>	Printing and reproduction of recorded media
<b>SU8</b>	Manufacture of bulk, large scale chemicals (including petroleum products)
<b>SU9</b>	Manufacture of fine chemicals
<b>SU10</b>	Formulation [mixing] of preparations and/or re-packaging
<b>SU11</b>	Manufacture of rubber products
<b>SU12</b>	Manufacture of plastics products, including compounding and conversion
<b>SU13</b>	Manufacture of other non-metallic mineral products, e.g. plasters, cement
<b>SU14</b>	Manufacture of basic metals
<b>SU15</b>	Manufacture of fabricated metal products, except machinery and equipment
<b>SU16</b>	Manufacture of computer, electronic and optical products, electrical equipment
<b>SU17</b>	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment.
<b>SU18</b>	Manufacture of furniture
<b>SU19</b>	Building and construction work
<b>SU20</b>	Health services
<b>SU21</b>	Private households (= general public = consumers)
<b>SU22</b>	Public domain (administration, education, entertainment, services, craftsmen)
<b>SU23</b>	Recycling

\* Codes according to ECHA Guideline

<b>Code</b>	<b>Product Category</b>	<b>Product Subcategory</b>
<b>PC 0</b>	Other products	
<b>PC 1</b>	Adhesives, Sealants	Glues, hobby use
		Glues DIY-use (carpet glue, tile glue, wood parquet glue)
		Glue from spray
		Sealants
<b>PC 2</b>	Adsorbens	
<b>PC 3</b>	Air care products	Aircare, instant action (aerosol sprays)
		Aircare, continuous action (solid & liquid)

<b>PC 4</b>	Anti-Freeze and De-icing products	Removers (paint-, glue-, wall paper-, sealant-remover)
<b>PC 5</b>	Artists Supply and Hobby preparations	Finger paint, face paint
		Glues, hobby use
		Glue from spray
		Modelling clay
<b>PC 6</b>	Automotive Care Products	
<b>PC 7</b>	Base metals and alloys	
<b>PC 8</b>	Biocidal Products (e.g. Disinfectants, pest control)	
<b>PC 9</b>	Coatings and Paints, Fillers, Putties, Thinners	Waterborne latex wall paint
		Solvent rich, high solid, water borne paint
		Aerosol spray can
		Hardened dried paint
		Finger paint, face paint
		Fillers and putty
		Plasters and floor equalizers
		Removers (paint-, glue-, wall paper-, sealant-remover)
<b>PC10</b>	Building and construction preparations not covered elsewhere	Plasters and floor equalizers
		Removers (paint-, glue-, wall paper-, sealant-remover)
<b>PC11</b>	Explosives	
<b>PC12</b>	Fertilizers	Fertilizer
<b>PC13</b>	Fuels	Liquids
<b>PC14</b>	Metal surface treatment products, including galvanic and electroplating products	
<b>PC15</b>	Non-metal-surface treatment products	
<b>PC16</b>	Heat Transfer Fluids	
<b>PC17</b>	Hydraulic Fluids	
<b>PC18</b>	Ink and Toners	
<b>PC19</b>	Intermediate	
<b>PC20</b>	Products such as ph-regulators, flocculants, precipitants, neutralization agents, other unspecific	
<b>PC21</b>	Laboratory Chemicals	
<b>PC22</b>	Lawn and Garden Preparations,	Fertilizer

	including fertilizers		
<b>PC23</b>	Leather tanning, dye, finishing, impregnation and care products		
<b>PC24</b>	Lubricants, Greases and Release Products		Liquids
			Pastes
			Sprays
<b>PC25</b>	Metal Working Fluids		
<b>PC26</b>	Paper and Board dye, finishing and impregnation products		
<b>PC27</b>	Plant Protection Products		
<b>PC28</b>	Perfumes, Fragrances		
<b>PC29</b>	Pharmaceuticals		
<b>PC30</b>	Photochemicals		
<b>PC31</b>	Polishes and Wax Blends		Polishes, wax / cream (floor, furniture, shoes)
			Polishes, spray (furniture, shoes)
<b>PC32</b>	Polymer Preparations and Compounds		
<b>PC33</b>	Semiconductor		
<b>PC34</b>	Textile dyes, finishing and impregnating products		
<b>PC35</b>	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)
<b>PC36</b>	Water softeners		
<b>PC37</b>	Water treatment chemicals		
<b>PC38</b>	Welding and soldering products, flux products		
<b>PC39</b>	Cosmetics		
<b>PC40</b>	Extraction agents		

Process categories based on TRA categories for workers		Examples and explanations	
<b>PROC 0</b>	Other Process or activity		

<b>PROC 1</b>	Use in closed process, no likelihood of exposure	Industrial setting	Use of the substances in high integrity contained system where little potential exists for exposures, e.g. any sampling via closed loop systems.	
<b>PROC 2</b>	Use in closed, continuous process with occasional controlled exposure (e.g. sampling)	Industrial setting	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 brakings
<b>PROC 3</b>	Use in closed batch process (synthesis or formulation)	Industrial setting	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	
<b>PROC 4</b>	Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial setting	Use in batch manufacture of a chemical where significant opportunity for exposure arises, e.g. during the charging, the sampling or discharge of material, and when the nature of the design is likely to result in exposure.	
<b>PROC 5</b>	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	Industrial setting	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.	
<b>PROC 6</b>	Calendering operations	Industrial setting	Processing of product matrix Calendering at elevated temperature an large exposed surface	

<b>PROC 7</b>	Spraying in industrial settings and applications	Industrial setting	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;
<b>PROC 8</b>	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Industrial or non-industrial setting	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.	
<b>PROC 9</b>	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Industrial setting	Filling lines specifically designed to for both, capturing vapour and aerosol emissions and minimise spillage	
<b>PROC 10</b>	Roller application or brushing of adhesive and other coating	Industrial or non-industrial setting	Low energy spreading,	Including cleaning of surfaces. Substance can be inhaled as vapours, skin contact through droplets, splashes, working with wipes and handling of treated surfaces
<b>PROC 11</b>	Spraying outside industrial settings or applications	non-industrial setting	Air dispersive techniques (OU9) Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting; (also includes manufacture of foam, including blowing operations)	Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls; in case of coating, overspray may lead waste water and waste.
<b>PROC 12</b>	Use of blow agents in manufacture of foam	Industrial setting		
<b>PROC 13</b>	Treatment of articles by dipping and pouring	Industrial or non-industrial	Immersion operations (OU5) Treatment of articles by dipping, pouring, immersing, soaking, washing out or washing in	Substance is applied to a surface by low energy techniques as dipping the article into a bath or pouring a

		trial setting	substances; including cold formation or resin type matrix. Includes handling of treated objects (e.g. after dyeing, plating,).	preparation onto a surface
<b>PROC 14</b>	Production of preparations or articles by tableting, compression, extrusion, pelettisation	Industrial setting		
<b>PROC 15</b>	Use a laboratory reagent	Non-industrial setting	Use of substances at small scale laboratory (< 1 l or 1 kg). Larger laboratories and R+D installations should be treated as industrial processes.	
<b>PROC 16</b>	Using material as fuel sources, limited exposure to unburned product to be expected	Industrial or non-industrial setting	Covers the use of material as fuel sources (including additives) where limited exposure to the product is its unburned form is expected. Does not cover exposure as a consequence of spillage or combustion.	
<b>PROC 17</b>	Lubrication at high energy conditions and in partly open process	Industrial or non-industrial setting	Lubrication at high energy conditions (temperature, friction) between moving parts and substance; significant part of process is open to workers or to the environment	The metal working fluid may form aerosols or fumes due to rapid moving metal parts; exhausted cutting fluids need to be disposed off as waste
<b>PROC 18</b>	Greasing at high energy conditions	Industrial or non-industrial setting	Use as lubricant where significant energy or temperature is applied between the substance and the moving parts.	
<b>PROC 19</b>	Hand-mixing with intimate contact and only PPE available.	Non-industrial setting.	Addresses occupations where intimate and intentional contact with substances occurs without any specific exposure	

			controls than PPE.	
<b>PROC 20</b>	Heat and pressure transfer fluids in dispersive 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. Leakage during use may lead to environmental exposure.
<b>PROC 21</b>	Low energy manipulation of substances bound in materials and/or articles		Manual cutting, rolling or assembly of material/article, possibly resulting in the release of fibres or rubber fumes;	
<b>PROC 22</b>	Potentially closed processing operations (with minerals) 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.
<b>PROC 23</b>	Open processing and transfer operations (with minerals) at elevated temperature		Sand and die casting, tapping and casting melted solids, raking melted solids paving;	Exposure related to dust and fumes to be expected. Emission from direct cooling may be relevant.
<b>PROC 24</b>	High (mechanical) energy work-up of substances bound in materials and/or articles		Substantial thermal or kinetic energy applied to substance by grinding, mechanical cutting, drilling or sanding. Release of solids (dust) or fumes to be expected	
<b>PROC 25</b>	Hot work operations with metals		Welding, soldering, gouging, brazing, flame cutting Exposure due to the release of fumes to be	

			expected.	
*	<a href="http://guidance.echa.europa.eu/public-2/getdoc.php?file=prioritisation_evaluation_en">http://guidance.echa.europa.eu/public-2/getdoc.php?file=prioritisation_evaluation_en</a>			

ERC #	Name	Description	NOTES
<b>ERC1</b>	Production of chemicals	Production 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-urpose equipment, either technically controlled or operated by manual interventions	<b>1</b>
<b>ERC2</b>	Formulation of preparations	Mixing and blending of substances in (chemical) preparations in all types of industries such as paints and do-it-yourself products, pigment paste, fuels, household products (cleaning products), lubricants etc.	<b>2</b>
<b>ERC3</b>	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 products. For instance a plasticizers or stabilizers in pvc-master batches or products, crystal growth regulator in photographic films etc.	<b>2</b>
<b>ERC4</b>	Industrial use of processing aids	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	<b>3,4</b>
<b>ERC5</b>	Industrial use resulting in inclusion into or onto a matrix	Industrial use of substances (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, dyeing of textile fabrics and leather products, metal plating and galvanizing.	<b>3</b>
<b>ERC6 A</b>	Industrial 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.	<b>4</b>

<b>ERC6 B</b>	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.	<b>4</b>
<b>ERC6 C</b>	Production of plastics	Industrial use of monomers in the production of plastics (thermoplastics), polymerization processes. For example the use of vinyl chloride monomer in the production of pvc	<b>4</b>
<b>ERC6 D</b>	Production of resins/rubbers	Industrial use of chemicals (cross-linking agents, curing agents) in the production of thermosets and rubbers, polymerization processes. For instance the use of styrene in polyester production or vulcanization agents in the production of rubbers	<b>4</b>
<b>ERC 7</b>	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.	<b>5</b>
<b>ERC8 A</b>	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, 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.	<b>3,5, 6</b>
<b>ERC8 B</b>	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	<b>4,6</b>
<b>ERC8 C</b>	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.	<b>3,6</b>
<b>ERC8 D</b>	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.	<b>3,6, 7</b>
<b>ERC8 E</b>	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)	<b>4,6</b>

<b>ERC8 F</b>	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.	<b>3,6</b>
<b>ERC9 A</b>	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.	<b>5,6</b>
<b>ERC9 B</b>	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.	<b>5,6</b>
<b>ERC1 0A</b>	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 from outdoor use, such as metal, wooden and plastic construction and building materials (gutters, drains, frames etc.)	<b>6,8</b>
<b>ERC1 0B</b>	Wide dispersive outdoor use of long-life articles and materials with high or intended release	Substances included into or onto articles and materials with high or intended release during their service life from outdoor use. Such as tires, 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.	<b>6,7, 9</b>
<b>ERC1 1A</b>	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)	<b>6,8</b>
<b>ERC1 1B</b>	Wide dispersive indoor use of long-life articles and materials with high or intended release	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	<b>6,7, 8</b>
	<b>Notes</b>		
	<b>General note on Emission factors #</b>		
	For each environmental release class the emission factors are based on the highest emission factors available for representative use patterns. A use pattern represents the use of a chemical that has its specific function during a process within a certain type of industry or sector or has a specific function in a material or article. The highest emission factors have been selected from general release information from		

	EC (2003) for selected representative cases. In the design of the ERCs it is assumed that no risk management measures are included.	
	<b>General note on regional and local scale</b>	
	For industrial production, formulation and use only the local scale is considered. The highest emissions and concentrations are to be expected at the local scale for these applications. In addition to the compartments air and water, soil is also taken into account on the regional scale for the scenarios that refer to wide dispersive and outdoor use (ERC 8d-f, 9b, 10a and 10b).	
	For wide dispersive use (large number of small point sources) to the contrary the regional scale is the most relevant as emissions result from the use by the public at large, i.e. households or small scale professional use. For local release to waste water ('the standard town' scenario), the sewage treatment plant (STP) has to be considered as well. Therefore a general local release is defined, which should be applied to all release classes covering wide dispersive use and emissions to waste water (ERC 8-11).	
	<b>1) Production of chemicals</b>	
	The emission factors are based on the information for the production of basic chemicals and chemicals used in synthesis (including monomers and catalysts). Besides basic (organic) chemicals both the production of chemicals in petrochemical industry and metal extraction and refining industry are included. Emission factors are derived from the general emission factors for the production of chemicals provided by (EC, 2003).	
	<b>2) Formulation</b>	
	For the life cycle stage formulation a distinction is made between mixing en blending of substances (processing aids) in preparations like liquids, pastes or (compressed) gases for instance in aerosol cans, and on the other hand processes of mixing, which result into inclusion on a matrix, for instance in the plastics industry. To meet the requirements of specific applications for plastics materials the polymers are blended or mixed with various types of additives, including fillers, pigments, plasticizers etc. In the polymers industry this process of compounding takes place before conversion of the plastic material into finished arte facts. Often the process of compounding and conversion are performed as successive process steps at the same facility. Also the production of master batches, which are made up to contain high concentrations of specific additives, are also considered as a process of mixing and blending resulting in inclusion into or onto a matrix. The production of photographic films is also considered as formulation into a matrix. Emission factors are derived from the general emission factors for formulation from the (EC, 2003). The highest emissions factors for formulation resulting in inclusion into or onto a matrix have been selected for mixing of plastic additives, pigments, fillers and plasticizers with the polymer matrix (compounding) and the production of photographic films (EC, 2003).	
	<b>3) Processing aids</b>	

	<p>Processing aids are substance facilitating a process and will usually not be consumed (reacted) or included into or onto a matrix. It should be stressed though that processing aids might be converted at high temperature processes like metal cutting and combustion of fuels (fuel additives). Processing aids are for instance detergents in fabric washing products, which facilitate the washing process and will be directly released to waste streams after use. Pigments or fillers in paints on the other hand will be included in the paint layer (matrix) after the painting process. Emission factors for industrial use of processing aids have been derived from the emission factor tables for industrial use of processing aids (processing). For each compartment the highest emission factors for this specific use pattern are taken from EC (2003) Besides the specific use of chemicals as processing aids, chemicals are also processed with the specific goal to be included into or onto a matrix (filler in paint or a dye of colouring textile). The highest emission factors for air and water for this specific type of use have been taken from EC (2003). In addition to industrial use emission factors have been derived for the use by the public at large (households) Emission factors for wide dispersive use of processing aids have been derived from EC (2003) for the sector personal or domestic use. For air the emission factor is set at 100% for instance to represent the use of propellants in aerosol cans and for water the emission factor is also set a 100% for instance for the use of cleaning and washing agents and surface-active agents in all kinds of cleaning products. The emission of these type of chemicals is assumed to be complete to either air or water.</p>	
	<p><b>4) Substances reacting on use</b></p>	
	<p>Substances reacting on use have been categorized into intermediates, reactive processing aids and monomers used in the polymers industry.</p>	
	<p>Reactive processing aids so far have not been covered in the default emission factors from the Guidance Document (EC, 2003). Several assumptions have been made to provide emission rates for air and water. Generally this type of substances are highly soluble in water and therefore release to air has been considered to be negligible and an emission factor of 0.1% has been assumed. A default halve life of 10 minutes has been assumed. For industrial use a residence time of 4 hours in a recirculation system has been assumed. For wide dispersive use a residence time of 1 hour has been assumed in the sewer (once-through system). Furthermore a distinction has been made between polymerization processes for the production of thermoplastics and thermosetting resins and polymer processing of rubbers and thermosetting resins (prepolymers) for the polymers industry. The emission factors for intermediates have been taken from available emission factors for the chemical industry and the specific use of intermediates in the synthesis of other chemicals. Emission factors for the use of monomers in the polymers industry have also been taken from EC (2003) for this specific type of use (polymerization processes). Emissions to air and water from the processing of rubbers and thermosetting resins are provided by EC (2003) (polymer processing) for the following type of chemicals; curing agents and cross-linking agents.</p>	
	<p><b>5) Release from closed systems</b></p>	

	<p>The emission factors have been based on leakage of cooling liquids from refrigerators and leakage of engine oil from cars. A leakage rate of 5% percent per year to air is assumed based on Matthijsen and Kroeze (1996) and Folkert and Peek (2001). The leakage rates include losses from recharging or filling of machinery but in general this is negligible compared to the annual losses (about 0.2% to air and 0,1% to water). Emission to soil and water is based on leakage rates for engine oil as this is thought to be a representative case for this type of use. Based on an average leakage rate, annual number of kilometres travelled per vehicle and the amount of engine oil per vehicle the emission factor can be calculated:</p>
	<p>A leakage rate of 10 mg/km and a mileage of 20,000 km per year and 4 litres of engine oil per vehicle results in an emission factor of about 5% per year. The figures have been taken from Klein et al. (2004) and are in line with the figures provided by OECD (2004a). For hydraulic fluids leakage rates are very similar, they vary from 1% up to about 15% per year (two applications) for soil. For water leakage rates are somewhat lower about 0,5 up to 7 percent (OECD, 2004a). Because of the possible spills during use to (waste) water also for indoor use the emission to water has been accounted for.</p>
	<p><b>6) Indoor and outdoor use</b></p>
	<p>Industrial activities are primarily considered to be indoor processes, though many processes also may be executed outdoors. Therefore direct release to soil has not been considered for industrial use. Another reason for not considering soil for industrial activities is that industrial soil is not directly a protection goal in the risk assessment of chemicals. For the regional scale though besides the compartments air and water, soil is also taken into account for the scenarios that refer to wide dispersive and outdoor use in order to perform a proper estimation of the back ground concentration. Emission factors for the soil compartment for outdoor use of reactive processing aids refer to use by the public at large of cleaning products. For outdoor use of processing aids the emission factor for soil refers to private use (consumers) of solvents. For the outdoor use of substances, which results in inclusion into or onto a matrix, the emission factors have been taken for the private use of paints and specifically refers to substances like fillers and pigments</p>
	<p><b>7) Complete release to air and water</b></p>
	<p>As substance properties have not been accounted for in the environmental release classes, complete release for both the air and water compartment has been assumed. At two extremes a substance might either be highly soluble in water or very volatile to air. In case of highly soluble substance 100% release to water might be assumed, the same holds for non-water soluble and non-volatile compounds discharged to waste water. For very volatile substances 100% release to air might be assumed. Very volatile substances have a vapour pressure = 1000 Pa. Without taking into account substance properties and disposal routes, the distribution between air and water can not substantiated and therefore the highest values for release to both air and water have been taken. This does not only hold for the release classes with 100% release to both air and water but for all environmental release classes.</p>
	<p><b>8) Release from articles/materials during service life, low release</b></p>

	<p>Emission factors are taken from the OECD emission scenario document on plastic additives. The service life time has already been accounted for in the emission factors assuming a steady-state situation. For new substances recently placed on the market, there is no steady-state situation. Also the annual tonnage will change in the future depending on the growth-curve, before steady-state will be finally reached. For outdoor use the emission factor to air is 0.05% over the service life period, for water the emission factor is 0.16%* <i>Tservice life</i> over the service life time period. Thus for air the release does not depend on the service life time period but for soil the service life time period has to be taken into account. For the soil compartment the same emission factor as for water is used for outdoor use. The reasoning behind this assumption is that release might either occur to water or to soil for outdoor applications. For indoor use the emission factors are also taken from the OECD emission scenario document on plastic additives (OECD, 2004b).</p>
	<p><b>9) Release from articles/materials during service life, high release</b></p>
	<p>Emission factors are taken from the emission scenario document for textile processing industry, industrial category (IC) 13. The service life time has to be accounted for in determining the emission factors for soil and water. For outdoor use the emission factor to air is set at 100% per year (steady state situation), for water and soil the emission factor is also set at 100% assuming steady state and total release to the environment during the service life time period following the emission scenario document for the textile processing industry, IC 13 (EC, 2003). For the soil compartment the same emission factor as for water is used for outdoor use. The reasoning behind this assumption is that release might either occur to water or to soil for outdoor applications. For indoor use the same emission factors can be used for air and water. The soil compartment is considered not to be relevant.</p>