

The Use Descriptor System

Seven main groups of actors play a role during **the life cycle** of the substance: Manufacturers and importers of chemical substances (including metals and minerals), companies mixing and blending chemicals (formulators) to produce preparations (mixtures), distributors¹, industrial end-users, professional end-users and consumers.

The **use descriptor system** is based on five separate descriptor-lists which in combination with each other form a brief description of use or an exposure scenario title:

- The *sector of use category* (SU) describes in which sector of the economy the substance is used. This includes mixing or re-packing of substances at formulator's level as well as industrial, professional and consumer end-uses².
- The *chemical product category* (PC) describes in which types of chemical products (= substances as such or in preparations [mixture])³ the substance is finally contained when it is supplied to end-uses (by industrial, professional or consumer users).
- The *process category* (PROC) describes the application techniques or process types defined from the occupational perspective
- The *environmental release category* (ERC) describes the broad conditions of use from the environmental perspective⁴.
- The *article category* (AC) describes the type of article into which the substance has eventually been processed. This also includes preparations [mixtures] in their dried or cured form (e.g. dried printing ink in newspapers; dried coatings on various surfaces).

¹ Distribution as such is not a *use* under REACH. However, if distribution includes substance transfers (e.g. refilling) it is a use.

² The *end-use* of a substance as such or in a preparation is the last use before the substance becomes part of an article matrix, reacts on use (and hence disappears) and/or enters into waste, waste water or air emission. Uses which exclusively aim at making the substance a component in a preparation [mixture] are not end-uses.

³ The term *chemical product* covers both substances as such or in a preparation [mixture]. This is meant to allow for both description of supplied products only containing a substance as such, as well as for products being preparations. In the context of this guidance, the term also covers metals (including alloys) in their primary form (e.g. bars, powder).

⁴ The ERCs are organics-oriented and very conservative codes. Specific ERCs (SPERCs) are in development.

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Codes for Exposure Scenarios

Powder Metallurgy Processes	Descriptor for sector of use [SU]	NACE codes	Product Category [PC]	Process categories for workers [PROC]⁵	Environmental Release Categories [ERC]	EPMA DU Use Form Example Nr.	List of Substances Example
Metal Powder Production	SU14	C24 C24.1 C25.5	PC7	27a or b, 8b	1,2	NA ⁶	NA ⁶
Powder Mixing	Powder Producer: SU14 PM Parts Maker: SU15	C25.5	PC7, PC24	[3, 4 or 5], 8b	2	1	List of Substances for Packed Powder Mixes
Cold Pressing	SU15	C25.5	PC7, PC24	8b, 14	2	2	List of Substances Pressing and Sintering
Hot Pressing	SU15	C25.5	PC7, PC24	8b, 14, 22	Other environmental characteristics		List of Substances Pressing and Sintering
Metal Powder Injection Moulding	SU15	C25.5	PC7, PC24	8b, 14	2	B1-4	List of substances for MIM Feedstocks
Sintering	SU15	C25.5	PC7, PC24	22	Other environmental characteristics	3	List of Substances Pressing and Sintering
Post-Sintering treatment	SU15	C25.5	PC7, PC24, P25	14, 22, 23, 24, 25	12 ⁷ or Other environmental characteristics		<i>List of Substances Post-Processing (tbd)</i>

⁵ To be decided by the industry ("Expert Judgment"). See PROC explanation below

⁶ Contact directly Metal Powders Producers (list on www.epma.com for EPMA members Metal Powders Producers)

⁷ For Processes related to PROC 21, 24 and 25 where the removal of material is intended. See ERC explanation below. Otherwise "Other environmental characteristics"

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Codes Glossary

1. Descriptor for sector of use [SU] for PM industry (Chapter R.12):

Codes	Sector of Uses
SU3	Industrial Manufacturing (all)
SU10	Chemical formulation and packaging
SU14	Manufacture of basic metals
SU15	Manufacture of fabricated metal products, except machinery and equipment
SU17	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

2. NACE codes ("Nomenclature Générale des Activités Economiques dans l'Union Européenne" /General Name for Economic Activities in the European Union) for PM industry:

http://ec.europa.eu/comm/competition/mergers/cases/index/nace_all.html (01/04/2009)

C24 - Manufacture of basic metals

C24.1 - Manufacture of basic iron and steel and of ferro-alloys

C28.4 - Manufacture of metal forming machinery and machine tools

C28.4.1 - Manufacture of metal forming machinery

C28.9.1 - Manufacture of machinery for metallurgy

C23.2 - Manufacture of refractory products

C25.5 - Forging, pressing, stamping and roll-forming of metal; powder metallurgy

C29.3.2 - Manufacture of other parts and accessories for motor vehicles

3. Category of chemical product for PM industry (Chapter R.12):

PC7	Base metals and alloys
PC14	Metal surface treatment products, including galvanic and electroplating products,
PC16	Heat Transfer Fluids
PC17	Hydraulic Fluids
PC24	Lubricants, Greases and Release Products
PC25	Metal Working Fluids

4. Process categories for workers [PROC] for PM Processes (Chapter R.12):

Process categories for workers [PROC]	PROC Description	Examples and explanations
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 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 14	Production of preparations or articles by tableting, compression, extrusion, pelettisation	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.
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,

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	temperature	raking of 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 pre-dominantly 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 (<i>no corresponding TRA entry</i>)	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 27a	Production of metal powders (hot processes)	Production of metal powders by hot metallurgical processes (atomisation, dry dispersion)
PROC 27b	Production of metal powders (wet processes)	Production of metal powders by wet metallurgical processes (electrolysis, wet dispersion)

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

5. Description for Environmental Release Categories [ERC] for PM Processes (Chapter R.12):

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 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, where the removal of material is intended. For example metal cutting in engineering industries or centralised paint stripping in aircraft industry.