



## Identified uses (IUCLID V Part 3.5)

### Information on uses

The CSR for Iron covers six forms of iron placed onto the market in seven identified use names. Ideally the principal driver of an analysis of uses should be the process rather than the form of the substance. However, because of the very large number of uses and applications of iron as well as its non-hazardous properties for the environment and human health, our analysis has been based on the form of iron rather than the process. Caution should therefore be exercised in using the use descriptors.

**Table 1: Iron Powders (Iron Powder made by sponge iron process, atomization processes (gas and water) and electrolysis)**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 1 PROC 2 PROC 3 PROC 4 PROC 5 PROC 7 PROC 8b PROC 14 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25 PROC 26 PROC 27a PROC 27b	ERC 1 ERC 2 ERC 5 ERC 6a ERC 6b ERC 12a ERC 12b	PC 7 PC 20 PC 14 PC 24 PC 25 PC 37 PC 38	SU 8 SU 9 SU 10 SU 14 SU 15	AC 7	not relevant as not classified

**Table 2: Carbonyl Iron Powders (Iron Powder uncoated, made by thermal decomposition of Iron pentacarbonyl)**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 1 PROC 2 PROC 3 PROC 4 PROC 5 PROC 6 PROC 7 PROC 8a PROC 8b PROC 9 PROC 10 PROC 12 PROC 13 PROC 14 PROC 15 PROC 16 PROC 17 PROC 18 PROC 19 PROC 20 PROC 21 PROC 22	ERC 1 ERC 2 ERC 3 ERC 4 ERC 5 ERC 6a ERC 6b ERC 8a ERC 8b ERC 8c ERC 8d ERC 8f ERC 10a ERC 10b ERC 11a	PC 7 PC 8 PC 9a PC 9b PC 15 PC 17 PC 18 PC 21 PC 29 PC 32 PC 34 PC 35 PC 37 PC 38	SU 2a SU 4 SU 5 SU 6a SU 6b SU 7 SU 9 SU 10 SU 11 SU 12 SU 13 SU 14 SU 15 SU 16 SU 17 SU 19 SU 20	AC 1 AC 2 AC 3 AC 5 AC 7 AC 8 AC 10	not relevant as only classified for physical chemical properties



Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 23 PROC 24 PROC 25					

**Table 3: Iron Furnace / Pig Iron**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 2 PROC 3 PROC 4 PROC 5 PROC 8b PROC 9 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25 PROC 26 PROC 27a PROC 27b	ERC 1 ERC 3 ERC 5 ERC 12a ERC 12b	PC 7 PC 38	SU 9 SU 14	AC 7	not relevant as no classified

**Table 4: Iron Furnace / DRI**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 2 PROC 3 PROC 5 PROC 8b PROC 14 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25 PROC 26 PROC 27a PROC 27b	ERC 1 ERC 3 ERC 5 ERC 12a ERC 12b	PC 7	SU 14	AC 7	not relevant as not classified

**Table 5: Iron Furnace / HBI**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 2 PROC 3 PROC 5 PROC 8b PROC 14 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25 PROC 26 PROC 27a PROC 27b	ERC 1 ERC 3 ERC 5 ERC 12a ERC 12b	PC 7	SU 14	AC 7	not relevant as not classified

**Table 6: Elemental Iron: production and use of steel and alloys in massive form**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 1 PROC 2 PROC 3 PROC 4 PROC 5 PROC 8b PROC 9 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25	ERC 1 ERC 2 ERC 3 ERC 5 ERC 12a ERC 12b	PC 7 PC 38	SU 10 SU 14 SU 15 SU 24	AC 7 AC1 AC2	not relevant as not classified

**Table 7: Elemental Iron: production and use of steel and alloys in powder form**

Process category	Environmental release category	Market sector by type of chemical product	Sector of end use	Article category related to subsequent service life	Exposure scenario reference in the CSR
PROC 1 PROC 2 PROC 3 PROC 5 PROC 7 PROC 8b PROC 9 PROC 14 PROC 21 PROC 22 PROC 23 PROC 24 PROC 25 PROC 26 PROC 27a PROC 27b	ERC 2 ERC 3 ERC 5 ERC 12b	PC 7 PC 14 PC 15 PC 38	SU 10 SU 7 SU 14 SU 15 SU 24	AC 7 AC1 AC2	not relevant as not classified

**Most common technical function of substance (what it does):**

- Intermediates
- Food/feedstuff additives
- Pharmaceutical substance
- Plating agents and metal surface treating agents
- Processing aid, not otherwise listed
- Laboratory chemicals
- Fillers
- Colouring agents, pigments
- other: Iron Furnace is used as feedstock for crude steel production and ferrous casting. Iron is used as alloys, steels, metal castings, catalyst, powder metallurgy, extenders, nutritional supplements and pharmaceutical applications.

**Process category list**

- PROC 1: Use in closed process, no likelihood of exposure  
 PROC 2: Use in closed, continuous process with occasional controlled exposure  
 PROC 3: Use in closed batch process (synthesis or formulation)  
 PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)  
 PROC 6: Calendering operations  
 PROC 7: Industrial spraying  
 PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities  
 PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC 10: Roller application or brushing  
 PROC 12: Use of blowing agents in manufacture of foam  
 PROC 13: Treatment of articles by dipping and pouring  
 PROC 14: Production of preparations or articles by tableting, compression, extrusion, pelletisation  
 PROC 15: Use as laboratory reagent  
 PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected  
 PROC 17: Lubrication at high energy conditions and in partly open process  
 PROC 18: Greasing at high energy conditions  
 PROC 19: Hand-mixing with intimate contact and only PPE available.  
 PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems  
 PROC 21: Low energy manipulation of substances bound in materials and/or articles  
 PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature.  
 PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles  
 PROC 25: Other hot work operations with metals  
 PROC 26: Handling of solid inorganic substances at ambient temperature  
 PROC 27a: Production of metal powders (hot processes)  
 PROC 27b: Production of metal powders (wet processes)  
 PROC 0: Other: Cleaning and maintenance

**Environmental release category**

- ERC 1: Manufacture of substances  
 ERC 2: Formulation of preparations  
 ERC 3: Formulation in materials  
 ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles  
 ERC 5: Industrial use resulting in inclusion into or onto a matrix  
 ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)  
 ERC 6b: Industrial use of reactive processing aids  
 ERC 8a: Wide dispersive indoor use of processing aids in open systems  
 ERC 8b: Wide dispersive indoor use of reactive substances in open systems  
 ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix  
 ERC 8d: Wide dispersive outdoor use of processing aids in open systems  
 ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix  
 ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release



- ERC 10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
- ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release
- ERC 12a: Industrial processing of articles with abrasive techniques (low release)
- ERC 12b: Industrial processing of articles with abrasive techniques (high release)

### **Market sector by type of chemical product**

- PC 7: Base metals and alloys
- PC 8: Biocidal products (e.g. disinfectants, pest control)
- PC 9a: Coatings and paints, thinners, paint removes
- PC 9b: Fillers, putties, plasters, modelling clay
- PC 14: Metal surface treatment products, including galvanic and electroplating products
- PC 15: Non-metal-surface treatment products
- PC 17: Hydraulic fluids
- PC 18: Ink and toners
- PC 21: Laboratory chemicals
- PC 24: Lubricants, greases, release products
- PC 25: Metal working fluids
- PC 29: Pharmaceuticals
- PC 32: Polymer preparations and compounds
- PC 34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
- PC 35: Washing and cleaning products (including solvent based products)
- PC 37: Water treatment chemicals
- PC 38: Welding and soldering products (with flux coatings or flux cores.), flux products

### **Sector of end use**

- SU 2a: Mining (without offshore industries)
- SU 4: Manufacture of food products
- SU 5: Manufacture of textiles, leather, fur
- SU 6a: Manufacture of wood and wood products
- SU 6b: Manufacture of pulp, paper and paper products
- SU 7: Printing and reproduction of recorded media
- SU 9: Manufacture of fine chemicals
- SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- SU 11: Manufacture of rubber products
- SU 12: Manufacture of plastics products, including compounding and conversion
- SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement
- SU 14: Manufacture of basic metals, including alloys
- SU 15: Manufacture of fabricated metal products, except machinery and equipment
- SU 16: Manufacture of computer, electronic and optical products, electrical equipment
- SU 17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
- SU 19: Building and construction work
- SU 20: Health services
- SU 24: Scientific research and development

### **Article category related to subsequent service life**

- AC 1: Vehicles
- AC 2: Machinery, mechanical appliances, electrical/electronic articles
- AC 3: Electrical batteries and accumulators
- AC 5: Fabrics, textiles and apparel
- AC 7: Metal articles
- AC 8: Paper articles
- AC 10: Rubber articles