Welding in industrial and/or professional settings

Systematic title based on use descriptor	SU3 (Industrial use), SU22 (Professional use) PC7, AC7, ERC5/ERC8c, ERC8f (appropriate PROCs are given in Section 2 below)

2. Operational conditions and risk management measures

Task	Involved task	Involved PROCs
Welding in industrial and/or professional settings	Handling of electrodes and metal objects, welding	21, 25

2.1 Control of workers exposure

Product characteristics

Task	Use in preparation and content in preparation	Physical form of the product
Welding in industrial and/or professional settings	Yes (No restriction)	Molten, Gaseous

Amounts used

No restriction.

Frequency and duration of use/exposure

Welding in industrial and/or professional settings: < 240 min

Human factors not influenced by risk management

The shift breathing volume 10 m^3/ 8 h (full shift).

Other given operational conditions affecting workers exposure

Task	Room volume	Indoor use/Outdoor use	Process temperature	Process pressure
Welding in industrial and/or professional settings	Not applicable	Indoor and outdoor use	No restriction	Not considered relevant for occupational exposure assessment of the conducted processes.

Technical conditions and measures at process level (source) to prevent release

Task	Level of containment	Level of segregation
Welding in industrial and/or professional settings	To be selected according to the EUROMETAUX / EUROFER / EWA catalogue of risk management measures (RMM catalogue (REACH and the welding of Metals and Alloys), full version available at: http://www.eurofer.be/index.php/eng/REACH/Documents-and-useful-web-links/Welding)	

Technical conditions and measures to control dispersion from source towards the worker

Task	Level of separation	Localised controls (LC)	Efficiency of LC (according to MEASE)	Additional information
Welding in industrial and/or professional settings	To be selected according to the EUROMETAUX / EUROFER / EWA catalogue of risk management measures (RMM catalogue (REACH and the welding of Metals and Alloys), full version available at: http://www.eurofer.be/index.php/eng/REACH/Documents-and-useful-web-links/Welding)			

Organisational measures to prevent/limit releases, dispersion and exposure

Additional information See Section: 7, 8, 11 (SDS).

Conditions and measures related to personal protection, hygiene and health evaluation

Task	Specification of respiratory protective equipment (RPE)	RPE efficiency (assigned protection factor, APF)	Specification of gloves and further personal protective equipment (PPE)
Welding in industrial and/or professional settings	To be selected according to the EUROMETAUX / EUROFER / EWA catalogue of risk management measures (RMM catalogue (REACH and the welding of Metals and Alloys), full version available at: http://www.eurofer.be/index.php/eng/REACH/Documents-and-useful-web-links/Welding)		Since cobalt has sensitising properties, the use of suitable chemical resistant gloves (EN 374) providing protection for the duration of activity (e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) is a prerequisite for all process steps in which direct contact to cobalt substances is possible. In cases where direct contact with cobalt cannot be avoided, a protective suit conforming to EN13982 should be worn. As a general requirement for the conducted processes: standard working clothes (long-sleeve overall) and safety shoes.

2.2 Control of environmental exposure

Product characteristics

Cobalt can be in any form in an article.

Amounts used

Not applicable .

Frequency and duration of use/exposure

Continuous use/release. 365 days/year

Environment factors not influenced by risk management

Flow rate of receiving surface should be sufficiently high to dilute the effluent concentration of the STP below the PNEC (Water/ Sedimentation).

Other given operational conditions affecting environmental exposure

Indoor or outdoor use of products containing cobalt is possible. There are no intended Co releases due to wide dispersive use and the non-intended releases are negligible and pose no threat to the environment.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Not applicable.

Organisational measures to prevent/limit release from site

Please see section 8 SDS for more details.

Conditions and measures related to municipal sewage treatment plant

Presence of municipal sewage treatment plant.

Conditions and measures related to external treatment of waste for disposal

Fraction of daily/annual use expected in waste: 60% of all articles, 40% is recycled. (EC, 2010)
Appropriate waste codes: 20 01 34; 20 01 33; 20 01 40; 20 03 01; 20 03 07
Suitable Disposal: Waste from end-of-life articles can be disposed of as municipal waste, except when they are separately regulated, like electronic devices, batteries, vehicles, etc. Disposal of wastes is possible via incineration (Directive 2000/76/EC) or landfilling (BAT Reference Document 2006, Council Directive 1999/31/EC and Council Decision 19/12/2002).

Conditions and measures related to external recovery of waste

Shredders pre-treating metal wastes maximum release factors to air of 0.0015 after RMM and no releases to water and soil.

3. Exposure estimation and reference to its source

Occupational exposure

The risk characterisation ratio (RCR) is the quotient of the exposure estimate and the respective Derived No Effect Level (DNEL) and has to be below 1 to demonstrate a safe use. For inhalation exposure, the RCR is based on a DNEL for cobalt of 40 µg/m³.

Task	Method used for inhalation exposure assessment	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
Welding in industrial and/or professional settings	MEASE (example estimate: industrial setting, open operation, Co-content > 25%, APF=40)	30 µg/m³ (0.75)	Since cobalt has sensitising properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	

Environmental emissions

Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH. Thus, the downstream user is not obliged to i) carry out an own CSA and ii) to notify the use to the Agency, if he does not implement these measures.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Occupational and Environmental exposure

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. For human health, this has to be done by showing that they limit the inhalation exposure to a level below the DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below. If measured data are not available, the DU may make use of an appropriate scaling tool such as MEASE (www.ebrc.de/mease.html) to estimate the associated exposure.