

Consumer use of diamond tools and other cobalt –containing tools other than hard metal

Systematic title based on use descriptor	SU21, AC2/7, ERC 10b, 11b (Service life of substances in articles) SU17 (downstream use leading to inclusion in article)
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2. Operational conditions and risk management measures

No product integrated risk management measures are in place.

2.1 Control of consumers exposure

Product (article) characteristic

Product Description	Cobalt will be used as binder in small diameter circular diamond saws or core drills. Size ranges are typically Ø 100 to 300 mm for diamond saws and some cm Ø for core drills.
Amount of substance in article	About 3% cobalt of total tool (core drill, saw blade) weight. 5 - 20% (Co) in the metal bond, with the metal bond being ~15% of total tool weight or 5 - 90% cobalt in metal bond, with the metal bond being ~ 3% of the total tool weight.
Fraction of substance amount available for exposure	Dry process: Dust during abrasive tasks like cutting, sawing, grinding and drilling. Wet process: Cobalt dust-particles in water suspension.

Amounts used

Not applicable.

Frequency and duration of use/exposure

Cutting, sawing, grinding and drilling; 15 – 60 min; infrequent.

Human factors not influenced by risk management

Not applicable.

Other given operational conditions affecting consumers exposure

The factors that require consideration in predicting wear rates are the type of tool, the operating parameters and the characteristics of the material to be drilled, sawed, grind or cut.

Conditions and measures at level of article production to prevent release during service life

Not applicable.

Conditions and measures related to information and behavioural advice to consumers

Do follow the manufacturer's recommended specifications for material being cut, drilled or sawed with the cobalt containing tools.

Conditions and measures related to personal protection and hygiene

Not applicable.

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

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

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.

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	
The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective Derived No Effect Level (DNEL) and is given in brackets below. For inhalation exposure, the RCR is based on the chronic, local DNEL for cobalt of 6.3 µg Co/m ³ . Due to the sensitising properties of cobalt, dermal exposure has to be avoided.	
Human exposure prediction	
Route	Exposure assessment instrument/tool/method
Oral	Qualitative assessment. Oral exposure does not occur as part of the intended product use or reasonable foreseeable misuse.
Dermal	Qualitative assessment. Dermal contact to the cutting tools will be very short during installation into the machinery. Relevant migration from the article to the skin is not assumed during such short tasks. Dermal exposure to cobalt dust from abrasive task will be negligible.
Inhalation	Negligible. Qualitative assessment. In use, the formation of cobalt dust cannot be ruled out. However, due to the hardness and wear resistance of these products dust formation due to abrasive task will be low, only in the case of misuse, if the tool has been used with the wrong material, excessive wear can be an issue. As such, the consumer applications of diamond tool and other cobalt containing tools are not expected to produce significant exposures to cobalt during use.
Environmental exposure prediction	
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	
Consumer and environmental exposure	
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