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)

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

<table>
<thead>
<tr>
<th>Product Description</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of substance in article</td>
<td>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.</td>
</tr>
<tr>
<td>Fraction of substance amount available for exposure</td>
<td>Dry process: Dust during abrasive tasks like cutting, sawing, grinding and drilling. Wet process: Cobalt dust-particles in water suspension.</td>
</tr>
</tbody>
</table>

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, ground 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

<table>
<thead>
<tr>
<th>Fraction of daily/annual use expected in waste</th>
<th>60% of all articles, 40% is recycled. (EC, 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate waste codes</td>
<td>20 01 34; 20 01 33; 20 01 40; 20 03 01; 20 03 07</td>
</tr>
</tbody>
</table>
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/m³. Due to the sensitising properties of cobalt, dermal exposure has to be avoided.

Human exposure prediction

<table>
<thead>
<tr>
<th>Route</th>
<th>Exposure assessment instrument/tool/method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Qualitative assessment. Oral exposure does not occur as part of the intended product use or reasonable foreseeable misuse.</td>
</tr>
<tr>
<td>Dermal</td>
<td>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.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Route</th>
<th>Exposure assessment instrument/tool/method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Qualitative assessment. Oral exposure does not occur as part of the intended product use or reasonable foreseeable misuse.</td>
</tr>
<tr>
<td>Dermal</td>
<td>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.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

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.