

Service life of articles containing cobalt being encapsulated in the internal part of the product

Systematic title based on use descriptor	SU21, AC2, ERC 10a, 11a (Service life of substances in articles) SU16, SU17 (downstream uses leading to inclusion in article)
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2. Operational conditions and risk management measures

The substance enclosed within the article. Physical barriers prevent migration of the substance during service life.

2.1 Control of consumers exposure

Product (article) characteristic

Cobalt used in permanent magnets used in various types of electromagnetic devices like electromotors and generators, sensors, measuring/ metering devices: servo motors for various purposes, automobile windows drives, starter motors, ABS sensors, position and angle sensors in automotive industry, safety switches (over-current protection), kWh meters. Under normal use conditions the consumer will not come in contact with such parts of machinery and mechanical appliances or electrical and electronic articles.

Amounts used

Amount of substance in article 1 - 65% (Co) (permanent magnets).

Other given operational conditions affecting consumers exposure from article service life

Not applicable.

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

Not applicable.

Conditions and measures related to personal protective equipment and hygiene

Not applicable.

2.2 Control of environmental exposure

Product (article) characteristic

Cobalt can be in any form in an article.

Amounts used

Not applicable.

Frequency and duration of use/exposure from service life

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.

Conditions and measures related to municipal sewage treatment plant

Presence of municipal sewage treatment plant.

Conditions and measures related to disposal of articles at end of service life

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 recovery of articles at the end of service life

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

Human exposure prediction

Exposure route	Exposure assessment instrument/tool/method
Oral / Dermal	Qualitative assessment. As an internal structural component, physical barriers preclude consumer contact with cobalt used in these applications. This prevents dermal and oral exposure.
Inhalation	Qualitative assessment. Inhalation exposure is insignificant due to the extremely low vapour pressure of cobalt. Abrasive task forming Co dust does not need to be considered for this kind of application.

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

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