

12. ES 12: Service life (worker at industrial site); Service life of nickel-containing electronics/ferrite cores in industrial settings

12.1. Title section

Article category: Machinery, mechanical appliances, electrical/electronic articles (AC 2)

Environment	
1: Service life of nickel-containing electronics/ferrite cores in industrial settings	ERC 12c
Worker	
2: Handling of nickel-containing electronics/ferrite cores	PROC 21
Exposure scenario of the uses leading to the inclusion of the substance into the article	
ES 10: Use at industrial sites; Metal surface treatment products; Manufacture of computer, electronic and optical products, electrical equipment; Use of nickel oxide for the production of nickel-containing electronics and thermally functioning ceramics	
ES 11: Use at industrial sites; Metal surface treatment products; Manufacture of computer, electronic and optical products, electrical equipment; Use of nickel oxide powder for the production of nickel zinc ferrite cores	

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Service life of nickel-containing electronics/ferrite cores in industrial settings (ERC 12c)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 16.87 tonnes/day (All the amounts and concentrations are expressed as Ni as this is the driver for the environmental risk assessment.)
Annual amount per site <= 337.5 tonnes/year
Technical and organisational conditions and measures
The substance should not be released to air
The substance should not be released to water
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

12.2.2. Control of worker exposure: Handling of nickel-containing electronics/ferrite cores (PROC 21)

Product (article) characteristics
Maximum emission potential covered in this ES: Low (abrasion based).
Physical form of product; Massive object
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Service life of nickel-containing electronics/ferrite cores in industrial settings (ERC 12c)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

12.3.2. Worker exposure: Handling of nickel-containing electronics/ferrite cores (PROC 21)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9E-3 mg/m ³ (Measured data)	0.18
Inhalation, local, long term	9E-3 mg/m ³ (Measured data)	0.18
Inhalation, local, acute	0.037 mg/m ³ (Measured data)	< 0.01
Dermal, local, long term	5.18 µg/cm ² (Measured data)	0.432
Combined, systemic, long term		0.18

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

Guidance: Please refer to Section 0.3 of this "ES for Communication".