

40. ES 40: Consumer use; Use of nickel-containing alloys for welding/brazing by consumers

40.1. Title section

Product category: Welding and soldering products, flux products (PC 38)

Environment	
1: Use of nickel-containing alloys for welding/brazing by consumers	ERC 8c
Consumer	
2: Use of nickel-containing alloy as brazing solder	PC 38
3: Use of nickel-containing alloy as welding consumable (indoor application)	PC 38
4: Use of nickel-containing alloy as welding consumable (outdoor application)	PC 38

40.2. Conditions of use affecting exposure

40.2.1. Control of environmental exposure: Use of nickel-containing alloys for welding/brazing by consumers (ERC 8c)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed.

40.2.2. Control of consumer exposure: Use of nickel-containing alloy as brazing solder (PC 38)

Product (article) characteristics
Physical form of product; Massive object
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour per day.
Information and behavioral advice for consumers
Use only outdoors or in a well-ventilated area.
Clothing and personal protective equipment that shields from the heat and other hazards of the particular task and welding method. That may include fire-retardant clothing, heavy gloves, safety shoes, helmet or hair protection, and protective leggings. Eye protection is also a must, both for reducing the effects of radiant energy and stopping any chips or fragments that may fly off the workpieces. Users should also not carry flammable or explosive items such as butane cigarette lighters.

40.2.3. Control of consumer exposure: Use of nickel-containing alloy as welding consumable (indoor application) (PC 38)

Product (article) characteristics
Physical form of product; Massive object
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour per day.
Information and behavioral advice for consumers

Use indoors only in a well-ventilated area.
APF of RPE = 20 (95% respiratory protection). For further specification, refer to section 8 of the SDS.
Clothing and personal protective equipment that shields from the heat and other hazards of the particular task and welding method. That may include fire-retardant clothing, rigger type gloves, safety shoes, helmet or hair protection, and protective leggings. Eye protection is also a must, both for reducing the effects of radiant energy and stopping any chips or fragments that may fly off the workpieces. Users should also not carry flammable or explosive items such as butane cigarette lighters.

40.2.4. Control of consumer exposure: Use of nickel-containing alloy as welding consumable (outdoor application) (PC 38)

Product (article) characteristics
Physical form of product; Massive object
Amount used (or contained in articles), frequency and duration of use/exposure
Avoid carrying out activities involving exposure for more than 1 hour per day.
Information and behavioral advice for consumers
Use only outdoors (good natural ventilation needs to be ensured. The workplace should not be located under a roof and the worker should always be positioned upwind of the welding zone. If such conditions are not observed, the contributing scenario for indoor use should apply, in particular respiratory protection should be worn, i.e. RPE with an assigned protection factor (APF) of 20).
Clothing and personal protective equipment that shields from the heat and other hazards of the particular task and welding method. That may include fire-retardant clothing, rigger type gloves, safety shoes, helmet or hair protection, and protective leggings. Eye protection is also a must, both for reducing the effects of radiant energy and stopping any chips or fragments that may fly off the workpieces. Users should also not carry flammable or explosive items such as butane cigarette lighters.

40.3. Exposure estimation and reference to its source

40.3.1. Environmental release and exposure: Use of nickel-containing alloys for welding/brazing by consumers (ERC 8c)

Release route	Release rate	Release estimation method
Water	5.5E-3 kg/day	Estimated release factor
Air	5.5E-3 kg/day	Estimated release factor
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	3.02E-3 mg/L (EUSES 2.1.2)	0.425
Sediment (freshwater)	38.24 mg/kg dw (PEC sediment calculation method for metals)	0.351
Sewage Treatment Plant	1.65E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	16.24 mg/kg dw (EUSES 2.1.2)	0.543

40.3.2. Consumer exposure: Use of nickel-containing alloy as brazing solder (PC 38)

Route of exposure and type of effects	Exposure estimate	RCR

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.6 µg/m ³ (Quantitative assessment)	0.17*

* Due to the consideration that exclusively, healthy adults may conduct welding and brazing activities, the inhalation DNEL provided for consumers/general population of 60 ng/m³ is not considered applicable for this task. Instead, exposure estimates should be compared to DNELs derived for healthy adults (i.e. workers). The inhalation DNEL to be used for the calculation of an RCR is therefore 50 µg/m³. Thus, in consideration of the exposure estimate derived for soldering/brazing by consumers of 8.6 µg/m³, the calculated RCR is 0.17.

40.3.3. Consumer exposure: Use of nickel-containing alloy as welding consumable (indoor application) (PC 38)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9.8 µg/m ³ (Quantitative assessment)	0.2*

* Due to the consideration that exclusively, healthy adults may conduct welding and brazing activities, the inhalation DNEL provided for consumers/general population of 60 ng/m³ is not considered applicable for this task. Instead, exposure estimates should be compared to DNELs derived for healthy adults (i.e. workers). The inhalation DNEL to be used for the calculation of an RCR is therefore 50 µg/m³. Thus, in consideration of the higher exposure estimate derived for GMAW by consumers of 9.8 µg/m³, the calculated RCR is 0.2

40.3.4. Consumer exposure: Use of nickel-containing alloy as welding consumable (outdoor application) (PC 38)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9.8 µg/m ³ (Quantitative assessment)	0.2*

* Due to the consideration that exclusively, healthy adults may conduct welding and brazing activities, the inhalation DNEL provided for consumers/general population of 60 ng/m³ is not considered applicable for this task. Instead, exposure estimates should be compared to DNELs derived for healthy adults (i.e. workers). The inhalation DNEL to be used for the calculation of an RCR is therefore 50 µg/m³. Thus, in consideration of the higher exposure estimate derived for GMAW by consumers of 9.8 µg/m³, the calculated RCR is 0.2

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

Guidance: Not applicable.