

SAFETY DATA SHEET



Cookson Electronics ASSEMBLY MATERIALS

Fernox flux 450g

1. Identification of the preparation and of the company

Product name : Fernox flux 450g**Code** : 61007**Head Office** : **Cookson Electronics**
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2 Hazards identification

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.**Effects and symptoms****Inhalation** : May be harmful by inhalation after often repeated exposure.**Ingestion** : May be harmful if swallowed.**Skin contact** : Slightly hazardous by the following route of exposure: of skin contact (irritant).

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Toxicity data : Not available.**Additional warning phrases** : Safety data sheet available for professional user on request.**See section 11 for more detailed information on health effects and symptoms.**

3 Composition/information on ingredients

Substance/preparation : Preparation

Ingredient name	CAS number	%	EC number	Classification
Europe ammonium chloride	12125-02-9	5 - 10	235-186-4	Xn; R22 Xi; R36
2-hydroxyethylammonium chloride	2002-24-6	5 - 10	217-900-6	Xn; R21/22 Xi; R36/37/38
See section 16 for the full text of the R-phrases declared above				

Occupational exposure limits, if available, are listed in section 8.

The classifications listed, indicate the potential hazards of the ingredients

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4. First-aid measures

First-aid measures

- Inhalation** : Get medical attention if symptoms occur. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Eye contact** : Check for and remove any contact lenses. Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : No specific fire or explosion hazard.
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Prevent entry into sewers, water courses, basements or confined areas. Place spilt material in an appropriate container for disposal. Dispose of via a licensed waste disposal contractor. Use a water rinse for final clean-up. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Dilute with plenty of water. Use a water rinse for final clean-up.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Do not reuse container.
- Storage** : Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Packaging materials

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7. Handling and storage

Recommended : Use original container.

8. Exposure controls/personal protection

Exposure limit values

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
Europe ammonium chloride	ACGIH TLV (United States, 1/2008). STEL: 20 mg/m ³ 15 minute(s). Form: Fume TWA: 10 mg/m ³ 8 hour(s). Form: Fume
Sweden No exposure limit value known.	
Denmark ammonium chloride	Arbejdstilsynet (Denmark, 3/2008). TWA: 10 mg/m ³ 8 hour(s). Form: fume
Norway ammonium chloride	Arbejdstilsynet (Norway, 11/2007). TWA: 10 mg/m ³ 8 hour(s).
France ammonium chloride	INRS (France, 12/2007). Notes: indicative exposure limits TWA: 10 mg/m ³ 8 hour(s). Form: fume
Netherlands Ammonium chloride	Nationale MAC-lijst (Netherlands, 1/2004). Notes: TGG: 10 mg/m ³ 8 hour(s). Form: Fume
Germany No exposure limit value known.	
Finland ammonium chloride	Työterveyslaitos, Sosiaali- ja terveysministeriö (Finland, 8/2007). TWA: 10 mg/m ³ 8 hour(s).
United Kingdom (UK) ammonium chloride	EH40/2005 WELs (United Kingdom (UK), 8/2007). STEL: 20 mg/m ³ 15 minute(s). Form: Fume TWA: 10 mg/m ³ 8 hour(s). Form: Fume
Austria No exposure limit value known.	
Switzerland ammonium chloride	SUVA (Switzerland, 1/2007). Notes: not temporary TWA: 3 mg/m ³ 8 hour(s). Form: respirable dust
Belgium ammonium chloride	Lijst Grenswaarden / Valeurs Limites (Belgium, 6/2007). STEL: 20 mg/m ³ 15 minute(s). Form: fume TWA: 10 mg/m ³ 8 hour(s). Form: fume
Spain ammonium chloride	INSHT (Spain, 1/2008). STEL: 20 mg/m ³ 15 minute(s). Form: fume TWA: 10 mg/m ³ 8 hour(s). Form: fume
Turkey ammonium chloride	NIOSH REL (United States, 6/2008). STEL: 20 mg/m ³ 15 minute(s). Form: Fume TWA: 10 mg/m ³ 10 hour(s). Form: Fume
Czech Republic	

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8. Exposure controls/personal protection

ammonium chloride	178/2001 (Czech Republic, 12/2007). STEL: 10 mg/m ³ 15 minute(s). Form: fume TWA: 5 mg/m ³ 8 hour(s). Form: fume
Ireland	
ammonium chloride	NAOSH (Ireland, 8/2007). OELV-15min: 20 mg/m ³ 15 minute(s). Form: fume OELV-8hr: 10 mg/m ³ 8 hour(s). Form: fume
Italy	
ammonium chloride	ACGIH TLV (United States, 1/2008). STEL: 20 mg/m ³ 15 minute(s). Form: Fume TWA: 10 mg/m ³ 8 hour(s). Form: Fume
Estonia	
No exposure limit value known.	
Lithuania	
ammonium chloride	Del Lietuvos Higienos Normos (Lithuania, 10/2007). TWA: 10 mg/m ³ 8 hour(s).
Slovakia	
No exposure limit value known.	
Hungary	
No exposure limit value known.	
Poland	
ammonium chloride	Ministra Pracy i Polityki Społecznej (Poland, 9/2007). STEL: 20 mg/m ³ 15 minute(s). Form: vapours and smokes TWA: 10 mg/m ³ 8 hour(s). Form: vapours and smokes
Slovenia	
No exposure limit value known.	
Latvia	
ammonium chloride	LV Nat. Standardisation and Meterological Centre (Latvia, 5/2007). TWA: 10 mg/m ³ 8 hour(s).
Greece	
ammonium chloride	PD 90/1999 (Greece, 8/2007). STEL: 20 mg/m ³ 15 minute(s). Form: fume TWA: 10 mg/m ³ 8 hour(s). Form: fume
Portugal	
ammonium chloride	Instituto Português da Qualidade (Portugal, 3/2007). STEL: 20 mg/m ³ 15 minute(s). Form: fume TWA: 10 mg/m ³ 8 hour(s). Form: fume

Recommended monitoring procedures : Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : Recommended:None assigned.

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8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. <1 hours (breakthrough time): disposable vinyl
- Eye protection** : Recommended:None assigned.
- Skin protection** : Recommended:Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

General information

Appearance

- Physical state** : Solid. [paste]
- Colour** : Beige.
- Odour** : Mild

Important health, safety and environmental information

- Solubility** : Partially soluble in the following materials: cold water and hot water.
- Vapour density** : >1 [Air = 1]
- VOC content** : 0 % (w/w) [ISO % 11890-2]

10. Stability and reactivity

- Stability** : The product is stable.
- Conditions to avoid** : No specific data.
- Materials to avoid** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Potential acute health effects

- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.

Acute toxicity

Over-exposure signs/symptoms

- Target organs** : Contains material which may cause damage to the following organs: upper respiratory tract, skin, eye, lens or cornea.

12. Ecological information

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
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12. Ecological information

ammonium chloride	-	Acute EC50 261 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - LARVAE - 22 to 63 mg	48 hours
	-	Acute LC50 2.88 to 3.74 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	-	Acute LC50 2.63 to 3.11 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	-	Acute LC50 >1.43 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - 24 hours	48 hours
	-	Acute LC50 1.06 to 1.15 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - 24 hours	48 hours
	-	Acute LC50 0.46 to 0.54 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - 24 hours	48 hours
	-	Acute LC50 0.28 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - 24 hours	48 hours
	-	Acute LC50 0.16 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - FRY - 1.7 to 1.9 cm	96 hours
	-	Acute LC50 0.14 mg/L Marine water	Fish - Atlantic silverside - Menidia menidia - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 2940 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate	48 hours
	-	Acute LC50 1460 ug/L Fresh water	Crustaceans - Shrimp - Paratya curvirostris - Adult	48 hours
	-	Acute LC50 1420 ug/L Fresh water	Crustaceans - Shrimp - Paratya curvirostris - Adult	48 hours
	-	Acute LC50 1290 ug/L	Crustaceans - Penaeidean shrimp - Penaeus sp. -	48 hours

12. Ecological information

-	Acute LC50 1050 ug/L Fresh water	500 to 1500 mg Crustaceans - Water flea - Simocephalus vetulus - Adult	48 hours
-	Acute LC50 1030 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
-	Acute LC50 1000 ug/L Fresh water	Crustaceans - Giant river prawn - Macrobrachium rosenbergii - Post-larvae - 9.6 mm - 12.9 mg	48 hours
-	Acute LC50 990 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio - Juvenile (Fledgling, Hatchling, Weanling) - 20 mm	48 hours
-	Acute LC50 960 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex	48 hours
-	Acute LC50 810 ug/L Fresh water	Crustaceans - Giant river prawn - Macrobrachium rosenbergii - Juvenile (Fledgling, Hatchling, Weanling) - 34.5 mm - 836 mg	48 hours
-	Acute LC50 390 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Young	48 hours
-	Acute LC50 177.6 ug/L Fresh water	Fish - Coho salmon, silver salmon - Oncorhynchus kisutch - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
-	Acute LC50 166 ug/L Fresh water	Fish - Lake trout, siscowet - Salvelinus namaycush - 1.6 g	96 hours
-	Acute LC50 160 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 160 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	4 days
-	Acute LC50 148	Fish - Lake trout,	96 hours

12. Ecological information

-	ug/L Fresh water	siscowet - Salvelinus namaycush - 1.6 g	96 hours
-	Acute LC50 147 ug/L Fresh water	Fish - Lake trout, siscowet - Salvelinus namaycush - 1.6 g	96 hours
-	Acute LC50 110 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 80 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 20 to 50 ug/L Fresh water	Crustaceans - Giant river prawn - Macrobrachium rosenbergii - Post-larvae - 9.6 mm - 12.9 mg	48 hours

Biodegradability

Other adverse effects : No known significant effects or critical hazards.

AOX : The product contains organically bound halogens and can contribute to the AOX value in waste water.

13. Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

European waste catalogue (EWC) : 16 03 06 organic wastes other than those mentioned in 16 03 05

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA Class	Not regulated.	-	-	-		-

PG* : Packing group

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15. Regulatory information

EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :



Irritant

Risk phrases : This product is not classified according to EU legislation.

Product use : Consumer applications, Industrial applications.

Other EU regulations

Additional warning phrases : Safety data sheet available for professional user on request.

Germany

Hazard class for water : 1 Appendix No. 4

Technical instruction on air quality control : TA-Luft Number 5.2.1: 57.4%

Italy

Emission control directive : Not classified.

16. Other information

Full text of R-phrases referred to in sections 2 and 3 - Europe : R22- Harmful if swallowed.
R21/22- Harmful in contact with skin and if swallowed.
R36- Irritating to eyes.
R36/37/38- Irritating to eyes, respiratory system and skin.

Full text of classifications referred to in sections 2 and 3 - Europe : Xn - Harmful
Xi - Irritant

History

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Prepared by : Simon Hosken
Environmental, Health and Safety Manager

✔ Indicates information that has changed from previously issued version.

References

The Health and Safety At Work Act 1974, section 6.
Control of Substances Hazardous to Health (CoSHH) Regulations 2002 and its amendments.

Preparation contains solely TSCA and REACH 1907/2006 listed substances.

This safety data sheet has been prepared in accordance with the requirements of the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 which implement EC Directives 1999/45/EC and 2001/58/EC and their amendments.

Notice to reader

16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.