

SAFETY DATA SHEET



Cookson Electronics ASSEMBLY MATERIALS

Protector F1 Express

1. Identification of the preparation and of the company

Product name : Protector F1 Express**Code** : 58229**Head Office** : **Cookson Electronics**
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Tel: +44(0)1483 758400
Fax: +44(0)1483 728837**Contact person** : shosken@cooksonelectronics.com**Material uses** : Water treatment agent.

2 Hazards identification

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : F+; R12**Effects and symptoms****Skin contact** : Slightly hazardous by the following route of exposure: of skin contact (irritant).**Eye contact** : Slightly hazardous by the following route of exposure: of eye contact (irritant).**Toxicity data** : Not available.**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 triethanolamine benzotriazole	102-71-6 95-14-7	30 - 40 1 - 5	203-049-8 202-394-1	Not classified. Xn; R22 Xi; R36 R52/53
Molybdate (MoO ₄ ²⁻), disodium, dihydrate, (T-4)- See section 16 for the full text of the R-phrases declared above	10102-40-6	1 - 5	*600-158-6	Not classified.

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

The classifications listed, indicate the potential hazards of the ingredients

4. First-aid measures

First-aid measures**Inhalation** : Get medical attention if adverse health effects persist or are severe. 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.**Date of issue** : 30/11/2010.

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4. First-aid measures

- 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 adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Eye contact** : Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. 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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- 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 dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Extremely flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous combustion products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides
- 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** : Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. 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** : Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Dilute with plenty of water.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Empty containers retain product residue and can be hazardous.
- Storage** : Store in accordance with local regulations. Store in original container, protected from direct sunlight. Use appropriate containment to avoid environmental contamination.
- Packaging materials**
- Recommended** : Use original container.

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7. Handling and storage

Czech Republic - Storage : III
code

8. Exposure controls/personal protection

Exposure limit values

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
Europe	
triethanolamine	ACGIH TLV (United States, 1/2007). TWA: 5 mg/m ³ 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	ACGIH TLV (United States, 1/2008). Notes: as Mo TWA: 0.5 mg/m ³ , (as Mo) 8 hour(s). Form: Soluble
Sweden	
triethanolamine	AFS (Sweden, 6/2005). STEL: 10 mg/m ³ 15 minute(s). TWA: 5 mg/m ³ 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	AFS 2005:17 (Sweden, 6/2007). Notes: as Mo TWA: 5 mg/m ³ , (as Mo) 8 hour(s). Form: total dust
Denmark	
triethanolamine	Arbejdstilsynet (Denmark, 4/2005). TWA: 3.1 mg/m ³ 8 hour(s). TWA: 0.5 ppm 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Arbejdstilsynet (Denmark, 3/2008). Notes: calculated as Mo TWA: 5 mg/m ³ , (calculated as Mo) 8 hour(s).
Norway	
triethanolamine	Arbeidstilsynet (Norway, 10/2003). TWA: 5 mg/m ³ 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Arbeidstilsynet (Norway, 11/2007). Notes: calculated as Mo TWA: 5 mg/m ³ , (calculated as Mo) 8 hour(s).
propane-1,2-diol	Arbeidstilsynet (Norway, 11/2007). TWA: 79 mg/m ³ 8 hour(s). TWA: 25 ppm 8 hour(s).
France	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	INRS (France, 12/2007). Notes: indicative exposure limits STEL: 10 mg/m ³ , (as Mo) 15 minute(s). TWA: 5 mg/m ³ , (as Mo) 8 hour(s).
Netherlands	
No exposure limit value known.	
Germany	
No exposure limit value known.	
Finland	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Työterveyslaitos, Sosiaali- ja terveysministeriö (Finland, 8/2007). Notes: calculated as Mo TWA: 0.5 mg/m ³ , (calculated as Mo) 8 hour(s).
United Kingdom (UK)	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	EH40/2005 WELs (United Kingdom (UK), 8/2007). Notes: as Mo STEL: 10 mg/m ³ , (as Mo) 15 minute(s). TWA: 5 mg/m ³ , (as Mo) 8 hour(s).
propane-1,2-diol	EH40/2005 WELs (United Kingdom (UK), 8/2007). TWA: 10 mg/m ³ 8 hour(s). Form: Particulate TWA: 474 mg/m ³ 8 hour(s). Form: Sum of vapour and particulates TWA: 150 ppm 8 hour(s). Form: Sum of vapour and particulates
Austria	

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8. Exposure controls/personal protection

triethanolamine

GKV_MAK (Austria, 6/2006).STEL: 10 mg/m³, 4 times per shift, 15 minute(s). Form: Inhalable fraction

STEL: 1.6 ppm, 4 times per shift, 15 minute(s). Form: Inhalable fraction

TWA: 5 mg/m³ 8 hour(s). Form: Inhalable fraction

TWA: 0.8 ppm 8 hour(s). Form: Inhalable fraction

Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**GKV_MAK (Austria, 9/2007). Notes: measured as Mo**STEL: 10 mg/m³, (measured as Mo), 4 times per shift, 15 minute(s). Form: inhalable fractionTWA: 5 mg/m³, (measured as Mo) 8 hour(s). Form: inhalable fraction**Switzerland**Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**SUVA (Switzerland, 1/2007). Notes: calculated as Mo**TWA: 5 mg/m³, (calculated as Mo) 8 hour(s). Form: inhalable dust**Belgium**

triethanolamine

Lijst Grenswaarden / Valeurs Limites (Belgium, 3/2006).TWA: 5 mg/m³ 8 hour(s).Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**Lijst Grenswaarden / Valeurs Limites (Belgium, 6/2007). Notes: as Mo**TWA: 5 mg/m³, (as Mo) 8 hour(s).**Spain**

triethanolamine

INSHT (Spain, 1/2007).TWA: 5 mg/m³ 8 hour(s).Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**INSHT (Spain, 1/2008). Notes: as Mo**TWA: 5 mg/m³, (as Mo) 8 hour(s).**Turkey**

No exposure limit value known.

Czech Republic

triethanolamine

178/2001 (Czech Republic, 6/2004).STEL: 10 mg/m³ 10 minute(s).

STEL: 1.64 ppm 10 minute(s).

TWA: 5 mg/m³ 8 hour(s).

TWA: 0.82 ppm 8 hour(s).

Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**178/2001 (Czech Republic, 12/2007). Notes: as Mo**STEL: 25 mg/m³, (as Mo) 15 minute(s).TWA: 5 mg/m³, (as Mo) 8 hour(s).**Ireland**

triethanolamine

NAOSH (Ireland, 3/2002).OELV-8hr: 5 mg/m³ 8 hour(s).Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**NAOSH (Ireland, 8/2007). Notes: as Mo**OELV-15min: 10 mg/m³, (as Mo) 15 minute(s).OELV-8hr: 5 mg/m³, (as Mo) 8 hour(s).

propane-1,2-diol

NAOSH (Ireland, 8/2007).OELV-8hr: 10 mg/m³ 8 hour(s). Form: particulateOELV-8hr: 470 mg/m³ 8 hour(s). Form: vapour and particulates

OELV-8hr: 150 ppm 8 hour(s). Form: vapour and particulates

Italy

triethanolamine

ACGIH TLV (United States, 1/2007).TWA: 5 mg/m³ 8 hour(s).Molybdate (MoO₄ 2-), disodium, dihydrate, (T-4)-**ACGIH TLV (United States, 1/2008). Notes: as Mo**TWA: 0.5 mg/m³, (as Mo) 8 hour(s). Form: Soluble**Estonia**

8. Exposure controls/personal protection

triethanolamine	Sotsiaalminister (Estonia, 9/2001). STEL: 10 MG/M3 15 minute(s). TWA: 5 MG/M3 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Sotsiaalminister (Estonia, 10/2007). TWA: 5 mg/m ³ 8 hour(s). TWA: 5 mg/m ³ 8 hour(s). Form: inhalable dust TWA: 10 mg/m ³ 8 hour(s). Form: total dust
Lithuania	
triethanolamine	Del Lietuvos Higienos Normos (Lithuania, 12/2001). STEL: 10 MG/M3 15 minute(s). TWA: 5 MG/M3 8 hour(s).
sebacic acid	Del Lietuvos Higienos Normos (Lithuania, 10/2007). TWA: 4 mg/m ³ 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Del Lietuvos Higienos Normos (Lithuania, 10/2007). TWA: 5 mg/m ³ 8 hour(s).
propane-1,2-diol	Del Lietuvos Higienos Normos (Lithuania, 10/2007). TWA: 7 mg/m ³ 8 hour(s).
Slovakia	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Nariadenie Vlády Slovenskej republiky (Slovakia, 6/2007). Notes: as Mo TWA: 5 mg/m ³ , (as Mo) 8 hour(s).
2-Propenoic acid, homopolymer, sodium salt	Nariadenie Vlády Slovenskej republiky (Slovakia, 6/2007). TWA: 5 mg/m ³ 8 hour(s). Form: total compact aerosols
Hungary	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	EüM-SzCsM (Hungary, 12/2007). Notes: as Mo PEAK: 20 mg/m ³ , (as Mo) 15 minute(s). TWA: 5 mg/m ³ , (as Mo) 8 hour(s).
Poland	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Ministra Pracy i Polityki Społecznej (Poland, 9/2007). Notes: calculated as Mo STEL: 10 mg/m ³ , (calculated as Mo) 15 minute(s). TWA: 4 mg/m ³ , (calculated as Mo) 8 hour(s).
Slovenia	
triethanolamine	Uradni list Republike Slovenije (Slovenia, 4/2005). TWA: 5 MG/M3 8 hour(s). Form: Inhalable fraction
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Uradni list Republike Slovenije (Slovenia, 6/2007). Notes: measured as Mo TWA: 5 mg/m ³ , (measured as Mo) 8 hour(s). Form: inhalable fraction
Latvia	
sebacic acid	LV Nat. Standardisation and Meterological Centre (Latvia, 5/2007). TWA: 4 mg/m ³ 8 hour(s).
benzotriazole	LV Nat. Standardisation and Meterological Centre (Latvia, 5/2007). TWA: 5 mg/m ³ 8 hour(s).
propane-1,2-diol	LV Nat. Standardisation and Meterological Centre (Latvia, 5/2007). TWA: 7 mg/m ³ 8 hour(s).
2-Propenoic acid, homopolymer, sodium salt	LV Nat. Standardisation and Meterological Centre (Latvia, 5/2007). TWA: 5 mg/m ³ 8 hour(s). Form: dust
Greece	
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	PD 90/1999 (Greece, 8/2007). Notes: as Mo TWA: 5 mg/m ³ , (as Mo) 8 hour(s).
Portugal	

8. Exposure controls/personal protection

triethanolamine	Instituto Português da Qualidade (Portugal, 7/2004). TWA: 5 MG/M3 8 hour(s).
Molybdate (MoO4 2-), disodium, dihydrate, (T-4)-	Instituto Português da Qualidade (Portugal, 3/2007). Notes: expressed as Mo TWA: 0.5 mg/m ³ , (expressed as Mo) 8 hour(s). Form: respirable fraction

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. 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 : Use only with adequate ventilation.

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.

Respiratory protection : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: None assigned.

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 : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: safety glasses with side-shields EN 166 1F

Skin protection : 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. Recommended: None assigned.

Environmental exposure controls : None identified.

9. Physical and chemical properties

General information

Appearance

Physical state : Liquid.

Colour : Straw.

Odour : Characteristic.

Important health, safety and environmental information

pH : 8.1

Relative density : 1.173

Solubility : Easily soluble in the following materials: cold water and hot water.

VOC content : 0 % (w/w) [ISO % 11890-2]

10. Stability and reactivity

Stability : The product is stable.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : Highly reactive or incompatible with the following materials: oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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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** : May cause skin irritation.
- Eye contact** : May cause eye irritation.

Acute toxicity

Over-exposure signs/symptoms

12. Ecological information

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
triethanolamine	-	Acute EC50 609.98 to 658.3 mg/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	-	Acute LC50 11800000 to 13000000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	-	Acute LC50 >100000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon	48 hours

Biodegradability

- Other adverse effects** : No known significant effects or critical hazards.
- AOX** : The product does not contain organically bound halogens which could lead to an 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.

16 03 04 inorganic wastes other than those mentioned in 16 03 03

- 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	1950	Aerosols, non-flammable	2	-		-

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14. Transport information

IMDG Class	1950	Aerosols, non-flammable	2.2	-		-
IATA Class	1950	Aerosols, non-flammable	2.2	-		Passenger and Cargo Aircraft Quantity limitation: 30 kg Cargo Aircraft Only Quantity limitation: 150 kg

PG* : Packing group

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 :



Extremely flammable

Risk phrases

: R12- Extremely flammable.

Safety phrases

: S2- Keep out of the reach of children.
S16- Keep away from sources of ignition - No smoking.
Pressurised container: protect from sunlight and do not expose to temperature exceeding 50°C. Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Product use

: Consumer applications, Industrial applications.

Other EU regulations

Tactile warning of danger : Yes, applicable.

Germany

Hazardous incident ordinance : Applicable. Category: 8 Extremely flammable.

Hazard class for water : 3 Appendix No. 4

Italy

Emission control directive : Not classified.

16. Other information

Full text of R-phrases referred to in sections 2 and 3 - Europe : R12- Extremely flammable.
R22- Harmful if swallowed.
R36- Irritating to eyes.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

History

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Date of previous issue : No previous validation.

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16. Other information

Version : 1
Prepared by : Not available.

✔ 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

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.