
Fluoronox 1680

1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- Product name: Fluoronox 1680
- Product qualities: Fluoronox 1680
- Chemical characterisation: perfluorinated polyether

1.2 Relevant identified uses of the substance or mixture and uses advised against

- identified uses: for industrial uses
for industrial uses in the electronic industry

1.3 Details of the supplier of the safety data sheet

- Company: TECCEM GmbH
- Address: Wiesentalgraben 110
97638 Mellrichstadt
Germany
- Telephone: +49 9776 705119 0
- Fax: +49 9776 705119 9
- Internet: www.teccem.de

- 1.4 Emergency telephone number** +49 9776 705119 0 or local poison control centre

2. Hazards identification**2.1 Classification of the substance or mixture****2.1.1 European regulation (EC) 1272/2008, as amended**

Not classified as hazardous according to the European regulation (EC) 1272/2008, as amended.

2.1.2 European directive 67/548/EEC or 1999/45/EC, as amended

Not classified as hazardous according to the European directive 67/548/EEC or 1999/45/EC, as amended.

2.2 Label elements

No labelling.

2.3 Other hazards

Thermal decomposition can lead to release of toxic and corrosive gases.

3. Composition/information on ingredients**3.1 Ingredients****3.1.1 Concentration**

Substance name	Concentration
Perfluoropolyether	100%

4. First aid measures

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4.1 Description of first aid measures**4.1.1 In case of inhalation**

- Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
- Oxygen or artificial respiration, if needed.

4.1.2 In case of eye contact

- Rinse immediately with plenty of water, also under the eye lids, for at least 15 minutes.
- If eye irritation persists, consult a specialist.

4.1.3 In case of skin contact

- Wash off with soap and water.

4.1.4 If swallowed

- Drink 1 or 2 glasses of water.
- Do NOT induce vomiting.
- If symptoms persist consult a physician.

4.2 Most important symptoms and effects, both acute and delayed**4.2.1 Inhalation**

- No known effect.

4.2.2 Eye contact

- Contact with eyes may cause irritation and redness.

4.2.3 Skin contact

- Effects of skin contact may include redness.

4.2.4 Ingestion

- Ingestion may provoke the following symptoms:
- Symptoms: Nausea, Vomiting, Diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

- None.

5. Firefighting measures

5.1 Extinguishing media**5.1.1 Suitable extinguishing media**

- Water
- Powder
- Foam
- Dry chemical
- Carbon dioxide (CO₂)

5.1.2 Unsuitable extinguishing media

- None.

5.2 Special hazards arising from the substance or mixture

- The product is not flammable.
- The product is not explosive.
- In case of fire hazardous decomposition products may be produced such as gaseous

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hydrogen fluoride (HF), Fluorophosgene.

5.3 Advice for firefighters

- Wear self-contained breathing apparatus and protective suit.
- When intervention in close proximity wear acid resistant over suit.
- Evacuate personnel to safe areas.
- Approach from upwind.
- Protect intervention team with a water spray as they approach the fire.
- Keep containers and surroundings cool with water spray.
- Keep product and empty container away from heat and sources of ignition.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures**6.1.1 Advise for non-emergency personnel**

- Prevent further leakage or spillage if safe to do so.

6.1.2 Advise for emergency responders

- Ensure adequate ventilation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.

6.2 Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

- Soak up with inert absorbent material.
- Suitable material for picking up are dry sand, earth.
- Shovel into suitable container for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

7. Handling and storage

7.1 Precautions for safe handling

- Ensure adequate ventilation.
- Use personal protective equipment.
- Keep away from heat and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Take measures to prevent the build up of electrostatic charge.
- Clean and dry piping circuits and equipment before any operations.
- Ensure all equipment is electrically grounded before beginning transfer operations.

7.2 Conditions for storage, including incompatibilities**7.2.1 Storage**

- Keep away from heat and sources of ignition.
- Keep in properly labelled containers.

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- Keep away from combustible material.
- Keep away from incompatible products.
- Refer to protective measures listed in sections 7 and 8.

7.2.2 Packaging material

- Suitable material
- Plastic material.
- Glass.
- Metals.

7.3 Specific end use(s)

- Refer to identified uses in section 1.
- For further information, please contact supplier.

8. Exposure controls/personal protection

8.1 Control parameters**8.1.1 Exposure limit values**

- Remarks:
Threshold limit values of by-products from thermal decomposition.

- **Hydrogen fluoride anhydrous**

UK. EH40 Workplace Exposure Limits (WELs). 12 2011

Time weighted average: = 1.8 ppm

Time weighted average: = 1.5 mg/m³

Remarks: As F.

UK. EH40 Workplace Exposure Limits (WELs). 12 2011

Short term exposure limit: = 3 ppm

Short term exposure limit: = 2.5 mg/m³

Remarks: As F.

EU. Indicative Exposure Limit Values in directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EC 12 2009.

Time weighted average: = 1.8 ppm

Time weighted average: = 1.5 mg/m³

Remarks: Indicative.

EU. Indicative Exposure Limit Values in directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EC 12 2009.

Short term exposure limit: = 3 ppm

Short term exposure limit: = 2.5 mg/m³

Remarks: Indicative.

US. ACGIH Threshold Limit Values 03 2013

Time weighted average: = 0.5 ppm

Remarks: As F.

US. ACGIH Threshold Limit Values 03 2013

Ceiling limit value: = 2 ppm

Remarks: As F.

US. ACGIH Threshold Limit Values 03 2013

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Remarks: as F. Can be absorbed through skin.

- **Carbonyl difluoride**

UK. EH40 Workplace Exposure Limits (WELs). 12 2011

Time weighted average: = 2.5 ppm

Remarks: As F.

EU. Indicative Exposure Limit Values in directives 91/322/EEC. 2000/39/EC, 2006/15/EC, 2009/161/EC 12 2009.

Time weighted average: = 2.5 mg/m³

Remarks: Indicative.

US. ACGIH Threshold Limit Values 03 2013

Time weighted average: = 2 ppm

US. ACGIH Threshold Limit Values 03 2013

Short term exposure limit: = 5 ppm

8.2 Exposure controls

8.2.1 Appropriate engineering controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

8.2.2 Individual protection measures

- **Respiratory protection**

- In case of decomposition (see section 10), use an air breathing apparatus with facial mask.
- Use only respiratory protection that conforms to international / national standards.

- **Hand protection**

- Wear protective gloves.
- Suitable material: Nitrile rubber, PVC, Neoprene, butyl-rubber.
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

- **Eye protection**

- Tightly fitting goggles.

- **Skin and body protection**

- Wear work overall and safety shoes.

- **Hygiene measures**

- Ensure that eyewash stations and safety showers are close to workstation location.
- When using, do not eat, drink or smoke.
- Wash hands before breaks and at the end of the workday.
- Handle in accordance with good industrial hygiene and safety practice.

8.2.3 Environmental exposure limits

- Dispose of rinse water in accordance with local and national regulations.

9. Physical and chemical properties
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9.1 Information on basic physical and chemical properties

9.1.1 General information

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- Appearance: Liquid.
- Colour: Colourless.
- Odour: Odourless.
- Odour threshold: No data available.

9.1.2 Important health safety and environmental information

- pH: No data available.
- pKa: No data available.
- Melting point/melting range: Not applicable.
- Boiling point/boiling range: No data available.
- Flash point: The product is not flammable.
- Evaporation rate: No data available.
- Flammability (solid, gas): No data available.
- Flammability: The product is not flammable.
- Explosive properties: The product is not explosive.
- Vapour pressure: No data available.
- Vapour density: No data available.
- Density: 1,90 - 1,94 g/cm³
at temperature 20°C (68°F).
- Bulk density: No data available.
- Solubility: Insoluble, water
Soluble, fluorinated solvents.
- Solubility / qualitative: No data available.
- Partition coefficient:
n-octanol/water: No data available.
- Auto ignition temperature: No data available.
- Decomposition temperature: > 290°C (554°F).
- Viscosity: 800 mm²/s
at temperature 40°C (104°F).
- Oxidizing properties: Non oxidizer.

9.2 Other information

- Remarks: No data available.

10. Stability and reactivity

10.1 Reactivity

- No dangerous reactions known under conditions of normal use.

10.2 Chemical stability

- Stable under recommended conditions.

10.3 Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

- Avoid the use in presence of high voltage electric arc and in absence of oxygen.
- Keep away from flames.
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- Lewis acids (Friedel-Crafts) above 100°C (212°F), Aluminium- and magnesium in powder form above 200°C (392°F), metals promote and lower decomposition temperature, non-

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aqueous Alkalis.

10.6 Hazardous decomposition products

- Gaseous hydrogen fluoride (HF), Fluorophosgene, Carbonyl difluoride.
- Release of other hazardous decomposition products possible.

11. Toxicological information

11.1 Acute toxicity**11.1.1 Acute oral toxicity**

- LD50, Rat, > 2.000 mg/kg

11.1.2 Acute inhalation toxicity

- No data available.

11.1.3 Acute dermal toxicity

- LD50, Rat, > 2.000 mg/kg

11.2 Skin corrosion/irritation

- Rabbit, No skin irritation.

11.3 Serious eye damage/eye irritation

- Rabbit, No eye irritation.

11.4 Sensitisation

- Guinea pig, Did not cause sensitisation on laboratory animals.

11.5 Mutagenicity

- Not mutagenic in Ames test.

11.6 Carcinogenicity

- No data available.

11.7 Toxicity for reproduction

- No data available.

11.8 Repeated dose toxicity

- No data available.

11.9 Toxicity for inhalation

- No data available.

11.10 Other information

- Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components and/or literature.
- Thermal decomposition can lead to release of toxic and corrosive gas.
- Exposure to thermal decomposition products causes severe irritation to eyes, skin and mucous membranes.
- Exposure to thermal decomposition products can cause flue like symptoms, especially after smoking contaminated tobacco.

12. Ecological information

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12.1 Toxicity

- Koncorhynchus mykiss (Rainbow trout), LC50, 96 h, > 360 mg/l, 200 ppm, saturated aqueous solution
- Daphnia magna, EC50, 48 h, > 100 mg/l, 200 ppm, saturated aqueous solution

12.2 Persistence and degradability**12.2.1 Abiotic degradation**

- Result: No data available.

12.2.2 Biodegradation

- Non-biodegradable.

12.3 Bioaccumulation potential

- Result: No data available.

12.4 Mobility in soil

- No data available.

12.5 Results of PBT and vPvB assessment

- No data available.

12.6 Other adverse effects

- Ecological injuries are not known or expected under normal use.

13. Disposal considerations**13.1 Waste treatment methods**

- Can be incinerated, when in compliance with local regulations.
- The incinerator must be equipped with a system for the neutralisation or recovery of HF.
- Dispose of in accordance with local regulations.

13.2 Contaminated packaging

- Empty containers can be landfilled, when in accordance with the local regulations.

14. Transport information**14.1 International transport regulations**

- Sea (IMO/IMDG)
Not regulated.
- Air (ICAO/IATA)
Not regulated.
- European road/rail (ADR/RID/ADN)
Not regulated.
- Inland waterway transport
Not regulated.

15. Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or**

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mixture

- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16. December 2008 on classification, labelling and packaging of substances and mixtures, as amended.
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18. December 2006 concerning the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH), as amended.
- European waste catalogue
- Waste codes should be assigned by the user based on the application for which the product was used.

15.1.1 Notification status

Inventory information	Status
Australia. Inventory of Chemical Substances (AICS)	Listed on inventory
Canada. Domestic Substances List (DSL)	Listed on inventory
China. Inventory of Existing Chemical Substances (IECSC)	Listed on inventory
Japan. ISHL Listing (ISHL (JP))	Listed on inventory
Japan. Inventory of Existing & New Chemical Substances (ENCS)	Listed on inventory
Korean Existing Chemicals Inventory (KECI (KR))	Listed on inventory
New Zealand. Inventory of Chemicals (NZIOC)	Listed on inventory
Philippines. Inventory of Chemicals and Chemical Substances (PICCS)	Listed on inventory
European Registration, Evaluation, Authorisation and restriction of Chemical Substances (REACH)	The product is in compliance with REACH
Taiwan. National Existing Chemical Substance Inventory (NECSI)	Listed on inventory
Toxic Substance Control Act - Liste (TSCA)	Listed on inventory

15.2 Chemical Safety Assessment

- Not required for this product.

16. Other information

The information given in this safety data sheet corresponds to the current state of our knowledge and experience and is not exhaustive. The information is intended to provide data on safe storage, handling, use, transport and disposal of the product. This applies to product which conforms to the specification, unless stated otherwise. In case of combinations and/or mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene and protection of human welfare and the environment.