# Safety data sheet
# according to Regulation (EC) No 1907/2006, Annex II

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

## Flammadur® A 386

### 1.2 Relevant identified uses of the substance or mixture and uses advised against
**Relevant identified uses of the substance or mixture:**
Coating
Resin
**Uses advised against:**
No information available at present.

### 1.3 Details of the supplier of the safety data sheet
GB

Flamro Brandschutz-Systeme GmbH
Am Sportplatz 2
56291 Leiningen
Tel.: +49 6746 9410 0
E-Mail: info@flamro.de
Web: www.flamro.de

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

### 1.4 Emergency telephone number
**Emergency information services / official advisory body:**
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**Telephone number of the company in case of emergencies:**
+1 872 5888271 (RKR)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture
**Classification according to Regulation (EC) 1272/2008 (CLP)**

| Hazard class | Hazard category | Hazard statement |
|---|---|---|
| Eye Irrit. | 2 | H319-Causes serious eye irritation. |
| Skin Irrit. | 2 | H315-Causes skin irritation. |
| Skin Sens. | 1 | H317-May cause an allergic skin reaction. |
| Aquatic Chronic | 2 | H411-Toxic to aquatic life with long lasting effects. |

### 2.2 Label elements
**Labeling according to Regulation (EC) 1272/2008 (CLP)**

Warning

H319-Causes serious eye irritation. H315-Causes skin irritation. H317-May cause an allergic skin reaction. H411-Toxic to aquatic life with long lasting effects.

P261-Avoid breathing vapours or spray. P273-Avoid release to the environment. P280-Wear protective gloves / eye protection / face protection.
P314-Get medical advice / attention if you feel unwell.

Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
Bisphenol F epoxy resin
Bis-[4-(2,3-epoxypropoxy)phenyl]propane

### 2.3 Other hazards
The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

## SECTION 3: Composition/information on ingredients

### 3.1 Substances
n.a.

### 3.2 Mixtures

| **Bis-[4-(2,3-epoxypropoxy)phenyl]propane** | |
|---|---|
| **Registration number (REACH)** | 01-2119456619-26-XXXX |
| **Index** | 603-073-00-2 |
| **EINECS, ELINCS, NLP, REACH-IT List-No.** | 216-823-5 |
| **CAS** | 1675-54-3 |
| **content %** | 25-<50 |
| **Classification according to Regulation (EC) 1272/2008 (CLP), M-factors** | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 |
| **Specific Concentration Limits and ATE** | Skin Irrit. 2, H315: >=5 %<br>Eye Irrit. 2, H319: >=5 % |

| **Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.** | |
|---|---|
| **Registration number (REACH)** | 01-2119485289-22-XXXX |
| **Index** | 603-103-00-4 |
| **EINECS, ELINCS, NLP, REACH-IT List-No.** | 271-846-8 |
| **CAS** | 68609-97-2 |
| **content %** | 1-<10 |
| **Classification according to Regulation (EC) 1272/2008 (CLP), M-factors** | Skin Irrit. 2, H315<br>Skin Sens. 1, H317 |

| **Bisphenol F epoxy resin** | |
|---|---|
| **Registration number (REACH)** | 01-2119454392-40-XXXX |
| **Index** | --- |
| **EINECS, ELINCS, NLP, REACH-IT List-No.** | 500-006-8 |
| **CAS** | 9003-36-5 |
| **content %** | 1-<10 |
| **Classification according to Regulation (EC) 1272/2008 (CLP), M-factors** | Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 |

Impurities, test data and additional information may have been taken into account in classifying and labelling the product.
For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.
The substances named in this section are given with their actual, appropriate classification!
For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures
First-aiders should ensure they are protected!
Never pour anything into the mouth of an unconscious person!
### Inhalation
Supply person with fresh air and consult doctor according to symptoms.
### Skin contact
Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.
### Eye contact
Remove contact lenses.
Wash thoroughly for several minutes using copious water. Seek medical help if necessary.
### Ingestion
Rinse the mouth thoroughly with water.
Give copious water to drink - consult doctor immediately.
### 4.2 Most important symptoms and effects, both acute and delayed
If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.
eyes, reddened
watering eyes
reddening of the skin
Dermatitis (skin inflammation)
Allergic reaction
### 4.3 Indication of any immediate medical attention and special treatment needed
Symptomatic treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media
### Suitable extinguishing media
Water jet spray/foam/CO2/dry extinguisher
### Unsuitable extinguishing media
None known
### 5.2 Special hazards arising from the substance or mixture
In case of fire the following can develop:
Oxides of carbon
Oxides of nitrogen
Oxides of sulphur
Toxic gases
### 5.3 Advice for firefighters
For personal protective equipment see Section 8.
In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
According to size of fire
Full protection, if necessary.
Dispose of contaminated extinction water according to official regulations.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures
### 6.1.1 For non-emergency personnel
In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.
Ensure sufficient ventilation, remove sources of ignition.
Avoid dust formation with solid or powder products.
Leave the danger zone if possible, use existing emergency plans if necessary.
Avoid contact with eyes or skin.
If applicable, caution - risk of slipping.
### 6.1.2 For emergency responders
See section 8 for suitable protective equipment and material specifications.
### 6.2 Environmental precautions
If leakage occurs, dam up.

Resolve leaks if this possible without risk.
Prevent surface and ground-water infiltration, as well as ground penetration.
Prevent from entering drainage system.
If accidental entry into drainage system occurs, inform responsible authorities.

### 6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth, sawdust) and dispose of according to Section 13.
Fill the absorbed material into lockable containers.

### 6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

## SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

### 7.1 Precautions for safe handling

### 7.1.1 General recommendations

Ensure good ventilation.
Avoid contact with eyes or skin.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Observe directions on label and instructions for use.
Use working methods according to operating instructions.

### 7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
Store product closed and only in original packing.
Not to be stored in gangways or stair wells.
Under all circumstances prevent penetration into the soil.
Store at room temperature.
Store in a dry place.

### 7.3 Specific end use(s)

No information available at present.
Observe the instructions for good working practice and the recommendations for risk assessment.
Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries,
depending on the application (building materials, wood, chemistry, laboratory, leather, metal).

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

| GB **Chemical Name** | Iron(III)oxide | |
|---|---|---|
| WEL-TWA: 5 mg/m3 (fume, as Fe) / Rouge: 4 mg/m3 (resp. dust), 10 mg/m3 (total inh. dust) | WEL-STEL: 10 mg/m3 (fume, as Fe) | --- |
| Monitoring procedures: --- | | |
| BMGV: --- | Other information: --- | |

| **Bis-[4-(2,3-epoxypropoxy)phenyl]propane** | | | | | | |
|---|---|---|---|---|---|---|
| **Area of application** | **Exposure route / Environmental compartment** | **Effect on health** | **Descriptor** | **Value** | **Unit** | **Note** |
| | Environment - freshwater | | PNEC | 3 | µg/l | |
| | Environment - marine | | PNEC | 0,3 | µg/l | |
| | Environment - sewage treatment plant | | PNEC | 10 | mg/l | |
| | Environment - sporadic (intermittent) release | | PNEC | 0,012 | mg/l | |
| | Environment - sediment | | PNEC | 0,05 | mg/kg dw | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Environment - sediment, freshwater | | PNEC | 0,5 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 0,5 | mg/kg dw | |
| Consumer | Human - dermal | Short term, systemic effects | DNEL | 3,6 | mg/kg bw/d | |
| Consumer | Human - inhalation | Short term, systemic effects | DNEL | 0,75 | mg/m3 | |
| Consumer | Human - oral | Short term, systemic effects | DNEL | 0,75 | mg/kg bw/d | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 3,6 | mg/kg bw/d | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 0,75 | mg/m3 | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 0,75 | mg/kg bw/d | |
| Workers / employees | Human - dermal | Short term, systemic effects | DNEL | 8,3 | mg/kg bw/d | |
| Workers / employees | Human - inhalation | Short term, systemic effects | DNEL | 12,3 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 8,3 | mg/kg bw/d | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 12,3 | mg/m3 | |

**Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.**

| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
|---|---|---|---|---|---|---|
| | Environment - freshwater | | PNEC | 0,106 | mg/l | |
| | Environment - marine | | PNEC | 0,011 | mg/l | |
| | Environment - water, sporadic (intermittent) release | | PNEC | 0,072 | mg/l | |
| | Environment - sewage treatment plant | | PNEC | 10 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 307,16 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 30,72 | mg/kg dw | |
| | Environment - soil | | PNEC | 1,234 | mg/kg dw | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 0,5 | mg/kg bw/day | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 0,87 | mg/m3 | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 0,5 | mg/kg bw/day | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 1 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 3,6 | mg/m3 | |

**Bisphenol F epoxy resin**

| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
|---|---|---|---|---|---|---|
| | Environment - freshwater | | PNEC | 0,003 | mg/l | |
| | Environment - marine | | PNEC | 0,0003 | mg/l | |
| | Environment - water, sporadic (intermittent) release | | PNEC | 0,0254 | mg/l | |
| | Environment - sewage treatment plant | | PNEC | 10 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 0,294 | mg/kg dw | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Environment - sediment, marine | | PNEC | 0,0294 | mg/kg dw | |
| | Environment - soil | | PNEC | 0,237 | mg/kg dw | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 8,7 | mg/m3 | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 62,5 | mg/kg bw/day | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 6,25 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 29,39 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 104,15 | mg/kg bw/day | |
| Workers / employees | Human - dermal | Short term, local effects | DMEL | 0,0083 | mg/cm2 | |

| **Iron(III)oxide** | | | | | | |
|---|---|---|---|---|---|---|
| **Area of application** | **Exposure route / Environmental compartment** | **Effect on health** | **Descriptor** | **Value** | **Unit** | **Note** |
| Workers / employees | Human - inhalation | Long term, local effects | DNEL | 10 | mg/m3 | |

| **Aluminium hydroxide** | | | | | | |
|---|---|---|---|---|---|---|
| **Area of application** | **Exposure route / Environmental compartment** | **Effect on health** | **Descriptor** | **Value** | **Unit** | **Note** |
| | Human - inhalation | Long term, local effects | DNEL | 10,76 | mg/m3 | |
| | Human - inhalation | Long term, systemic effects | DNEL | 10,76 | mg/m3 | |
| Consumer | Human - oral | Short term, systemic effects | DNEL | 4,74 | mg/kg bw/d | |

GB WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany).
(8) = Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (11) = Inhalable fraction (Directive 2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).
(8) = Inhalable fraction (2017/164/EU, 2017/2398/EU). (9) = Respirable fraction (2017/164/EU, 2017/2398/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause sensitisation of the skin (Directive 2004/37/CE).

## 8.2 Exposure controls
## 8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.
Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.
These are specified by e.g. EN 14042.
EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

## 8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:
Chemical resistant protective gloves (EN ISO 374).
If applicable
Protective gloves made of butyl (EN ISO 374).
Protective Neoprene® / polychloroprene gloves (EN ISO 374).
Protective nitrile gloves (EN ISO 374).
Minimum layer thickness in mm:
0,5
Permeation time (penetration time) in minutes:
480
The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.
The recommended maximum wearing time is 50% of breakthrough time.
Protective hand cream recommended.

Skin protection - Other:
Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:
Normally not necessary.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

### 8.2.3 Environmental exposure controls
No information available at present.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| Physical state: | Liquid |
| Colour: | Brown |
| Odour: | Mild |
| Melting point/freezing point: | There is no information available on this parameter. |
| Boiling point or initial boiling point and boiling range: | 200 °C |
| Flammability: | There is no information available on this parameter. |
| Lower explosion limit: | There is no information available on this parameter. |
| Upper explosion limit: | There is no information available on this parameter. |
| Flash point: | 130 °C |
| Auto-ignition temperature: | There is no information available on this parameter. |
| Decomposition temperature: | There is no information available on this parameter. |
| pH: | Mixture is non-soluble (in water). |
| Kinematic viscosity: | There is no information available on this parameter. |
| Solubility: | Insoluble |
| Partition coefficient n-octanol/water (log value): | Does not apply to mixtures. |
| Vapour pressure: | There is no information available on this parameter. |
| Density and/or relative density: | 1,5 g/m3 (20°C) |
| Relative vapour density: | There is no information available on this parameter. |
| Particle characteristics: | Does not apply to liquids. |

### 9.2 Other information
No information available at present.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity
The product has not been tested.

### 10.2 Chemical stability
Stable with proper storage and handling.

### 10.3 Possibility of hazardous reactions
No dangerous reactions are known.

### 10.4 Conditions to avoid
None known

### 10.5 Incompatible materials
Avoid contact with strong alkalis.
Avoid contact with strong oxidizing agents.
Avoid contact with strong acids.

### 10.6 Hazardous decomposition products
No decomposition when used as directed.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008
Possibly more information on health effects, see Section 2.1 (classification).

**Flammadur® A 386**

| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
|---|---|---|---|---|---|---|
| Acute toxicity, by oral route: | | | | | | n.d.a. |
| Acute toxicity, by dermal route: | | | | | | n.d.a. |
| Acute toxicity, by inhalation: | | | | | | n.d.a. |
| Skin corrosion/irritation: | | | | | | n.d.a. |
| Serious eye damage/irritation: | | | | | | n.d.a. |
| Respiratory or skin sensitisation: | | | | | | n.d.a. |
| Germ cell mutagenicity: | | | | | | n.d.a. |
| Carcinogenicity: | | | | | | n.d.a. |
| Reproductive toxicity: | | | | | | n.d.a. |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | n.d.a. |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | | n.d.a. |
| Aspiration hazard: | | | | | | n.d.a. |
| Symptoms: | | | | | | n.d.a. |

**Bis-[4-(2,3-epoxypropoxy)phenyl]propane**

| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
|---|---|---|---|---|---|---|
| Acute toxicity, by oral route: | LD50 | >2000 | mg/kg | Rat | OECD 420 (Acute Oral toxicity - Fixe Dose Procedure) | |
| Acute toxicity, by dermal route: | LD50 | >2000 | mg/kg | Rat | OECD 402 (Acute Dermal Toxicity) | |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Skin Irrit. 2 |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Eye Irrit. 2 |
| Respiratory or skin sensitisation: | | | | Mouse | OECD 429 (Skin Sensitisation - Local Lymph Node Assay) | Yes (skin contact) |
| Germ cell mutagenicity: | | | | | OECD 471 (Bacterial Reverse Mutation Test) | Positive |
| Germ cell mutagenicity: | | | | | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Positive |

| | | | | | | |
|---|---|---|---|---|---|---|
| Germ cell mutagenicity: | | | | | OECD 478 (Genetic Toxicology - Rodent dominant Lethal Test) | Negative |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 472 (Genetic Toxicology - Escherichia coli, Reverse Assay) | Negative |
| Reproductive toxicity (Developmental toxicity): | | | | Rat | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |
| Carcinogenicity: | | | | Rat | OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies) | Negative |
| Reproductive toxicity (Developmental toxicity): | | | | Rabbit | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |
| Reproductive toxicity (Effects on fertility): | NOAEL | 540 | mg/kg bw/d | Rat | OECD 416 (Two-generation Reproduction Toxicity Study) | |
| Symptoms: | | | | | | breathing difficulties, coughing, gastrointestinal disturbances |
| Specific target organ toxicity - repeated exposure (STOT-RE), oral: | NOAEL | 50 | mg/kg | Rat | OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents) | |
| Specific target organ toxicity - repeated exposure (STOT-RE), dermal: | NOAEL | 10 | mg/kg | Rat | | |
| Specific target organ toxicity - repeated exposure (STOT-RE), dermal: | NOAEL | 100 | mg/kg | Mouse | | |

**Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.**

| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
|---|---|---|---|---|---|---|
| Acute toxicity, by oral route: | LD50 | >2000 | mg/kg | Rat | | |
| Acute toxicity, by dermal route: | LD50 | >4000 | mg/kg | Rabbit | | |
| Skin corrosion/irritation: | | | | Rabbit | (Draize-Test) | Skin Irrit. 2 |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Yes (skin contact) |
| Germ cell mutagenicity: | | | | | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Germ cell mutagenicity: | | | | | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mammalian | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative Chinese hamster |
| Reproductive toxicity: | | | | Rat | | No indications of such an effect. |
| Reproductive toxicity (Effects on fertility): | NOEL | 200 | mg/kg | Rat | OECD 414 (Prenatal Developmental Toxicity Study) | |
| Symptoms: | | | | | | eyes, reddened, watering eyes |

| | | | | | | |
|---|---|---|---|---|---|---|
| Specific target organ toxicity - repeated exposure (STOT-RE), dermal: | NOAL | 1 | mg/kg/d | Rat | OECD 411 (Subchronic Dermal Toxicity - 90-day Study) | |

| **Bisphenol F epoxy resin** | | | | | | |
|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| Acute toxicity, by oral route: | LD50 | >5000 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | >2000 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Skin Irrit. 2 |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 429 (Skin Sensitisation - Local Lymph Node Assay) | Yes (skin contact) |
| Germ cell mutagenicity: | | | | | OECD 471 (Bacterial Reverse Mutation Test) | Positive |
| Germ cell mutagenicity: | | | | | OECD 473 (In Vitro Mammalian Chromosome Aberration Test) | Positive |
| Germ cell mutagenicity: | | | | | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Positive |
| Germ cell mutagenicity: | | | | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Germ cell mutagenicity: | | | | Rat | OECD 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells In Vivo) | Negative |
| Carcinogenicity: | NOAEL | 800 | mg/kg/d | Mouse | | Negative |
| Carcinogenicity: | | | | Rat | OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies) | Negative |
| Reproductive toxicity: | NOEL | 750 | mg/kg/d | Rat | OECD 416 (Two-generation Reproduction Toxicity Study) | |
| Aspiration hazard: | | | | | | No |
| Symptoms: | | | | | | watering eyes, Reddening, eyes, reddened |
| Specific target organ toxicity - repeated exposure (STOT-RE), oral: | NOAEL | 250 | mg/kg/d | Rat | OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents) | |

| **Iron(III)oxide** | | | | | | |
|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| Acute toxicity, by oral route: | LD50 | >5000 | mg/kg | Rat | | Analogous conclusion |
| Acute toxicity, by inhalation: | LC50 | >210 | mg/m3 | Rat | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Skin corrosion/irritation: | | | | Rabbit | | Not irritant, Analogous conclusion, Mechanical irritation possible. |
| Serious eye damage/irritation: | | | | Rabbit | | Not irritant, Analogous conclusion, Mechanical irritation possible. |
| Germ cell mutagenicity: | | | | | | No indications of such an effect. |
| Carcinogenicity: | | | | | | No indications of such an effect. |
| Reproductive toxicity: | | | | | | No indications of such an effect. |
| Aspiration hazard: | | | | | | No |
| Symptoms: | | | | | | respiratory distress, coughing, mucous membrane irritation |

## 11.2. Information on other hazards

| **Flammadur® A 386** | | | | | | |
|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| Endocrine disrupting properties: | | | | | | Does not apply to mixtures. |
| Other information: | | | | | | No other relevant information available on adverse effects on health. |

# SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

| **Flammadur® A 386** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Time** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| 12.1. Toxicity to fish: | | | | | | | n.d.a. |
| 12.1. Toxicity to daphnia: | | | | | | | n.d.a. |
| 12.1. Toxicity to algae: | | | | | | | n.d.a. |
| 12.2. Persistence and degradability: | | | | | | | n.d.a. |
| 12.3. Bioaccumulative potential: | | | | | | | n.d.a. |
| 12.4. Mobility in soil: | | | | | | | n.d.a. |
| 12.5. Results of PBT and vPvB assessment | | | | | | | n.d.a. |
| 12.6. Endocrine disrupting properties: | | | | | | | Does not apply to mixtures. |
| 12.7. Other adverse effects: | | | | | | | No information available on other adverse effects on the environment. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Other information: | | | | | | | DOC-elimination degree(complexing organic substance)>= 80%/28d: n.a. |
| Other information: | AOX | | | % | | | Contains organically bound halogens, which may contribute to the AOX value in wastewater. |

| **Bis-[4-(2,3-epoxypropoxy)phenyl]propane** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Time** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| 12.1. Toxicity to algae: | NOEC/NOEL | 72h | 4,2 | mg/l | Scenedesmus subspicatus | | |
| 12.1. Toxicity to fish: | LC50 | 96h | 1,5-2 | mg/l | Oncorhynchus mykiss | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 1,8-2,7 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to daphnia: | NOEC/NOEL | 21d | 0,3 | mg/l | Daphnia magna | OECD 211 (Daphnia magna Reproduction Test) | |
| 12.1. Toxicity to algae: | LC50 | 72h | 9,4 | mg/l | Selenastrum capricornutum | U.S. EPA ECOTOX Database | |
| 12.2. Persistence and degradability: | | 28d | 6-12 | % | activated sludge | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | Not readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 5 | % | activated sludge | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Not readily biodegradable |
| 12.3. Bioaccumulative potential: | BCF | | 3-31 | | | | Low |
| 12.3. Bioaccumulative potential: | Log Pow | | 2,64-3,78 | | | OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method) | Low |
| 12.4. Mobility in soil: | Koc | | 445 | | | | |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | IC50 | 3h | >100 | mg/l | activated sludge | | |

| **Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Time** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| 12.1. Toxicity to fish: | LL50 | 96h | >100 | mg/l | Oncorhynchus mykiss | OECD 203 (Fish, Acute Toxicity Test) | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.1. Toxicity to daphnia: | EL50 | 48h | 7,2 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to daphnia: | NOELR | 48h | 1,8 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to algae: | IC50 | 72h | 843,75 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.1. Toxicity to algae: | NOEC/NOEL | 72h | 500 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.2. Persistence and degradability: | | 28d | 87 | % | | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | Log Pow | | 3,77 | | | OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method) | Low |
| Toxicity to bacteria: | IC50 | 3h | >100 | mg/l | activated sludge | OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)) | |
| Other information: | | | | | | | Contains organically bound halogens, which may contribute to the AOX value in wastewater. |

**Bisphenol F epoxy resin**

| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|---|---|---|---|---|---|---|---|
| 12.1. Toxicity to fish: | LC50 | 96h | 2,54 | mg/l | Leuciscus idus | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to fish: | EC50 | 96h | 2,54 | mg/l | Leuciscus idus | | |
| 12.1. Toxicity to daphnia: | NOEC/NOEL | 21d | 0,3 | mg/l | Daphnia magna | OECD 211 (Daphnia magna Reproduction Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 2,55 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to algae: | EC50 | 72h | 1,8 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.2. Persistence and degradability: | | 28d | 16 | % | activated sludge | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | Not readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 0 | % | | Regulation (EC) 440/2008 C.4-E (DETERMINATION OF 'READY' BIODEGRADABILITY - CLOSED BOTTLE TEST) | Not readily biodegradable |
| 12.3. Bioaccumulative potential: | BCF | | 150 | L/kg | | | Low QSAR |
| 12.3. Bioaccumulative potential: | Log Pow | | 2,7-3,6 | | | OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method) | Low |
| 12.4. Mobility in soil: | Log Koc | | 3,65 | | | OECD 121 (Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using HPLC) | |
| 12.4. Mobility in soil: | Koc | | 4460 | | | OECD 121 (Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using HPLC) | |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | IC50 | 3h | >100 | mg/l | activated sludge | | |

| **Iron(III)oxide** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Toxicity / effect** | **Endpoint** | **Time** | **Value** | **Unit** | **Organism** | **Test method** | **Notes** |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| 12.1. Toxicity to fish: | LC50 | 96h | >1000 | mg/l | Leuciscus idus | | Analogous conclusion |
| 12.1. Toxicity to daphnia: | EC50 | 48h | >100 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.2. Persistence and degradability: | | | | | | | Not relevant for inorganic substances. |
| 12.3. Bioaccumulative potential: | | | | | | | Not to be expected |
| Toxicity to bacteria: | EC50 | 3h | >10000 | mg/l | activated sludge | ISO 8192 | |

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods
### For the substance / mixture / residual amounts

EC disposal code no.:
The waste codes are recommendations based on the scheduled use of this product.
Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

08 04 09 waste adhesives and sealants containing organic solvents or other hazardous substances
Recommendation:
Sewage disposal shall be discouraged.
Pay attention to local and national official regulations.
E.g. suitable incineration plant.
E.g. dispose at suitable refuse site.

### For contaminated packing material

Pay attention to local and national official regulations.
Empty container completely.
Uncontaminated packaging can be recycled.
Dispose of packaging that cannot be cleaned in the same manner as the substance.

## SECTION 14: Transport information

### General statements

### Transport by road/by rail (ADR/RID)

| | |
|---|---|
| 14.1. UN number or ID number: | 3082 |
| 14.2. UN proper shipping name: | |
| UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BIS-[4-(2,3-EPOXYPROPOXY)PHENYL]PROPANE, EPOXY RESIN) | |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| 14.5. Environmental hazards: | environmentally hazardous |
| Tunnel restriction code: | - |
| Classification code: | M6 |
| LQ: | 5 L |
| Transport category: | 3 |

### Transport by sea (IMDG-code)

| | |
|---|---|
| 14.1. UN number or ID number: | 3082 |
| 14.2. UN proper shipping name: | |
| UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BIS-[4-(2,3-EPOXYPROPOXY)PHENYL]PROPANE, EPOXY RESIN) | |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| 14.5. Environmental hazards: | environmentally hazardous |
| Marine Pollutant: | Yes |
| EmS: | F-A, S-F |

### Transport by air (IATA)

| | |
|---|---|
| 14.1. UN number or ID number: | 3082 |
| 14.2. UN proper shipping name: | |
| UN 3082 Environmentally hazardous substance, liquid, n.o.s. (BIS-[4-(2,3-EPOXYPROPOXY)PHENYL]PROPANE, EPOXY RESIN) | |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| 14.5. Environmental hazards: | environmentally hazardous |

### 14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.
All persons involved in transporting must observe safety regulations.
Precautions must be taken to prevent damage.

### 14.7. Maritime transport in bulk according to IMO instruments

Freighted as packaged goods rather than in bulk, therefore not applicable.
Minimum amount regulations have not been taken into account.
Danger code and packing code on request.
Comply with special provisions.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Observe restrictions:
Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!
Comply with trade association/occupational health regulations.

Directive 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

| Hazard categories | Notes to Annex I | Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements | Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements |
|---|---|---|---|
| E2 | | 200 | 500 |

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2010/75/EU (VOC): ~ 1 %

National requirements/regulations on safety and health protection must be applied when using work equipment.

### 15.2 Chemical safety assessment
A chemical safety assessment is not provided for mixtures.

## SECTION 16: Other information

Revised sections: n.a.
Employee training in handling dangerous goods is required.
These details refer to the product as it is delivered.
Employee instruction/training in handling hazardous materials is required.

### Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

| Classification in accordance with regulation (EC) No. 1272/2008 (CLP) | Evaluation method used |
|---|---|
| Eye Irrit. 2, H319 | Classification according to calculation procedure. |
| Skin Irrit. 2, H315 | Classification according to calculation procedure. |
| Skin Sens. 1, H317 | Classification according to calculation procedure. |
| Aquatic Chronic 2, H411 | Classification according to calculation procedure. |

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Eye Irrit. — Eye irritation
Skin Irrit. — Skin irritation
Skin Sens. — Skin sensitization
Aquatic Chronic — Hazardous to the aquatic environment - chronic

### Key literature references and sources for data:
Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.
Guidelines for the preparation of safety data sheets as amended (ECHA).
Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).
Safety data sheets for the constituent substances.
ECHA Homepage - Information about chemicals.
GESTIS Substance Database (Germany).
German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).
EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.
National Lists of Occupational Exposure Limits for each country as amended.
Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

## Any abbreviations and acronyms used in this document:

acc., acc. to according, according to
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOX Adsorbable organic halogen compounds
approx. approximately
Art., Art. no. Article number
ASTM ASTM International (American Society for Testing and Materials)
ATE Acute Toxicity Estimate
BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BSEF The International Bromine Council
bw body weight
CAS Chemical Abstracts Service
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
dw dry weight
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
EC European Community
ECHA European Chemicals Agency
ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ErCx, EμCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)
etc. et cetera
EU European Union
EVAL Ethylene-vinyl alcohol copolymer
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
Koc Adsorption coefficient of organic carbon in the soil
Kow octanol-water partition coefficient
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC (Code) International Bulk Chemical (Code)
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow Logarithm of octanol-water partition coefficient
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute for Occupational Safety and Health (USA)
NLP No-longer-Polymer
NOEC, NOEL No Observed Effect Concentration/Level
OECD Organisation for Economic Co-operation and Development
org. organic
OSHA Occupational Safety and Health Administration (USA)
PBT persistent, bioaccumulative and toxic
PE Polyethylene

PNEC Predicted No Effect Concentration
ppm parts per million
PVC Polyvinylchloride
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative
wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.
These statements were made by:

**Chemical Check GmbH, Chemical Check Platz 1-7, D-32839 Steinheim, Tel.: +49 5233 94 17 0, Fax: +49 5233 94 17 90**