

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

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

1.1 Product identifier

Trade name : ARALDITE® FST 40005

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

Use of the Substance/Mixture : Epoxy constituents

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe)BVBA
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40
E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : Centres Antipoison et de Toxicovigilance:
ANGERS: 02 41 48 21 21
BORDEAUX: 05 56 96 40 80
LILLE: 0 825 812 822
LYON: 04 72 11 69 11
MARSEILLE 04 91 75 25 25
NANCY: 03 83 32 36 36
PARIS: 01 40 05 48 48
RENNES: 02 99 59 22 22
STRASBOURG: 03 88 37 37 37
TOULOUSE: 05 61 77 74 47
EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2 H315: Causes skin irritation.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Eye irritation, Category 2

H319: Causes serious eye irritation.

Skin sensitisation, Category 1

H317: May cause an allergic skin reaction.

Long-term (chronic) aquatic hazard,
Category 2

H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

:



Signal word

:

Warning

Hazard statements

:

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.

Precautionary statements

:

Prevention:

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P391 Collect spillage.

Hazardous components which must be listed on the label:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Additional Labelling

EUH205 Contains epoxy constituents. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

Version 2.1 Revision Date: 25.11.2022 SDS Number: 400000000604 Date of last issue: 31.01.2019
Date of first issue: 15.07.2015

Print Date 10.08.2023

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

| Chemical name | CAS-No. EC-No. Index-No. Registration number | Classification | Concentration (% w/w) |
|--|--|---|--------------------------|
| Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE) | - - 01-2119454392-40 | Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411 | >= 70 - < 90 |
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane | 1675-54-3 216-823-5 603-073-00-2 01-2119456619-26 | Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411 specific concentration limit Skin Irrit. 2; H315 >= 5 % Eye Irrit. 2; H319 >= 5 % | >= 25 - < 30 |

For explanation of abbreviations see section 16.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
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.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

- | | |
|-------------------------|--|
| In case of skin contact | : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes. |
| In case of eye contact | : Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. |
| If swallowed | : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. |

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- | | |
|--------------------------------|--|
| Suitable extinguishing media | : Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical |
| Unsuitable extinguishing media | : Exercise caution when using a high volume water jet as it may scatter and spread fire |

5.2 Special hazards arising from the substance or mixture

- | | |
|--------------------------------------|--|
| Specific hazards during firefighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : Carbon dioxide (CO ₂) Carbon monoxide Carbon oxides Halogenated compounds |

5.3 Advice for firefighters

- | | |
|---|---|
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |
| Specific extinguishing methods | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Further information | : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

Version 2.1 Revision Date: 25.11.2022 SDS Number: 400000000604 Date of last issue: 31.01.2019
Date of first issue: 15.07.2015

Print Date 10.08.2023

resealed and kept upright to prevent leakage. Keep in properly labelled containers.

Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Recommended storage temperature : 2 - 40 °C

Further information on storage stability : Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

| Substance name | End Use | Exposure routes | Potential health effects | Value |
|--|-----------|-----------------|----------------------------|---------------------|
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane | Workers | Inhalation | Long-term systemic effects | 4,93 mg/m3 |
| | Workers | Dermal | Long-term systemic effects | 0,75 mg/kg bw/day |
| | Consumers | Inhalation | Long-term systemic effects | 0,87 mg/m3 |
| | Consumers | Dermal | Long-term systemic effects | 0,0893 mg/kg bw/day |
| Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPF DGE) | Consumers | Oral | Long-term systemic effects | 0,5 mg/kg bw/day |
| | Workers | Dermal | Acute local effects | 0,0083 mg/cm2 |
| | Workers | Dermal | Long-term systemic effects | 104,15 mg/kg |
| | Workers | Inhalation | Long-term systemic effects | 29,39 mg/m3 |
| | Consumers | Dermal | Long-term systemic effects | 62,5 mg/kg bw/day |
| | Consumers | Inhalation | Long-term systemic effects | 8,7 mg/m3 |
| | Consumers | Oral | Long-term systemic | 6,25 mg/kg |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

Version
2.1

Revision Date:
25.11.2022

SDS Number:
400000000604

Date of last issue: 31.01.2019
Date of first issue: 15.07.2015

Print Date 10.08.2023

| | | | | |
|--|--|--|---------|--------|
| | | | effects | bw/day |
|--|--|--|---------|--------|

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

| Substance name | Environmental Compartment | Value |
|--|----------------------------|--------------------------------|
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane | Fresh water | 0,006 mg/l |
| | Marine water | 0,001 mg/l |
| | Fresh water sediment | 0,341 mg/kg dry weight (d.w.) |
| | Marine sediment | 0,034 mg/kg dry weight (d.w.) |
| | Soil | 0,065 mg/kg dry weight (d.w.) |
| | Sewage treatment plant | 10 mg/l |
| Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE) | Secondary Poisoning | 11 mg/kg |
| | Fresh water | 0,003 mg/l |
| | Remarks:Assessment Factors | |
| | Marine water | 0 mg/l |
| | Remarks:Assessment Factors | |
| | Intermittent use/release | 0,0254 mg/l |
| | Remarks:Assessment Factors | |
| | Fresh water sediment | 0,294 mg/kg dry weight (d.w.) |
| | Remarks:Equilibrium method | |
| | Marine sediment | 0,0294 mg/kg dry weight (d.w.) |
| | Remarks:Equilibrium method | |
| | Soil | 0,237 mg/kg dry weight (d.w.) |
| | Remarks:Equilibrium method | |
| | Sewage treatment plant | 10 mg/l |
| | Remarks:Assessment Factors | |

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Material : butyl-rubber
Break through time : > 8 h

Material : Nitrile rubber

Material : Neoprene
Break through time : 10 - 480 min

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

- Remarks : 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).
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. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
Equipment should conform to EN 14387
- Filter type : Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state : liquid
- Colour : light yellow
Clear
- Odour : slight
- Odour Threshold : No data is available on the product itself.
- pH : substance/mixture is non-soluble (in water)
- Melting point/freezing point : No data is available on the product itself.
- Boiling point : > 200 °C
- Flash point : > 200 °C
Method: Pensky-Martens closed cup, closed cup
- Flammability (solid, gas) : No data is available on the product itself.
- Upper explosion limit / Upper flammability limit : No data is available on the product itself.
- Lower explosion limit / Lower flammability limit : No data is available on the product itself.
- Vapour pressure : < 0,00001 hPa (20 °C)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Relative vapour density : No data is available on the product itself.

Relative density : ca. 1,2 (25 °C)

Density : 1,18 g/cm³ (25 °C)

Solubility(ies)
Water solubility : practically insoluble (20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Decomposition temperature : > 200 °C

Viscosity
Viscosity, dynamic : 6 500 - 8 000 mPa.s (25 °C)

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

| | | |
|-----------------------|---|--|
| Acute oral toxicity | : | LD50 (Rat, male and female): > 5 000 mg/kg Method: OECD Test Guideline 401 |
| Acute dermal toxicity | : | LD50 (Rat, male and female): > 2 000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity |

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

| | | |
|-----------------------|---|---|
| Acute oral toxicity | : | LD50 (Rat, female): > 2 000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity Remarks: No mortality observed at this dose. |
| Acute dermal toxicity | : | LD50 (Rat, male and female): > 2 000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity |

Skin corrosion/irritation

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

| | | |
|---------|---|-------------------------|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | Irritating to skin. |

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

| | | |
|---------------|---|-------------------------|
| Species | : | Rabbit |
| Exposure time | : | 4 h |
| Assessment | : | Irritating to skin. |
| Method | : | OECD Test Guideline 404 |
| Result | : | Irritating to skin. |

Serious eye damage/eye irritation

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

| | | |
|---------|---|--------|
| Species | : | Rabbit |
|---------|---|--------|

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Method : OECD Test Guideline 405
Result : No eye irritation

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Species : Rabbit
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405
Result : Irritating to eyes.

Respiratory or skin sensitisation

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin
Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitisation by skin contact.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin
Species : Mouse
Method : OECD Test Guideline 429
Result : The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Exposure time: 48 h
Dose: 2000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Cell type: Somatic

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Application Route: Oral
Dose: 2000 mg/kg
Method: OECD Test Guideline 486
Result: negative

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Result: positive

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

Genotoxicity in vivo : Test Type: in vivo assay
Species: Mouse (male)
Cell type: Germ
Application Route: Oral
Dose: 3333, 10000 mg/kg
Result: negative

Test Type: gene mutation test
Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 50,250,500,1000 mg/kg bw/day
Method: OECD Test Guideline 488
Result: negative

Carcinogenicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Species : Rat, male
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOAEL : 15 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Mouse, male
Application Route : Dermal
Exposure time : 24 month(s)
Dose : 0, 0.1, 10, 100 mg/kg bw/day
Frequency of Treatment : 3 days/week
NOEL : 0,1 mg/kg body weight
Method : OECD Test Guideline 453

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Result : negative
Target Organs : Digestive organs

Species : Rat, female
Application Route : Dermal
Exposure time : 24 month(s)
Dose : 0.1, 100, 1000 mg/kg bw/day
Frequency of Treatment : 5 days/week
NOEL : 100 mg/kg body weight
Method : OECD Test Guideline 453
Result : negative

Species : Rat, female
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOAEL : 100 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Rat, females
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOEL : 2 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Reproductive toxicity

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 180, 540 or 750 mg/kg/
Duration of Single Treatment: 238 d
General Toxicity - Parent: NOEL: 750
General Toxicity F1: NOEL: 750 mg/kg body weight
General Toxicity F2: NOAEL: 750 mg/kg body weight
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Effects on fertility : Test Type: Two-generation study

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 180, 540 or 750 milligram per kilogram
Duration of Single Treatment: 238 d
Frequency of Treatment: 1 daily
General Toxicity - Parent: NOEL: 540 mg/kg body weight
General Toxicity F1: NOEL: 750 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Effects on foetal development

: Species: Rabbit, female
Application Route: Dermal
Dose: 0, 30, 100 or 300 milligram per kilogram
Duration of Single Treatment: 28 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 30 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Dose: 0, 20, 60 or 180 milligram per kilogram
Duration of Single Treatment: 13 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 60 mg/kg body weight
Developmental Toxicity: NOAEL: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0, 60, 180 and 540 milligram per kilogram
Duration of Single Treatment: 10 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 180 mg/kg body weight
Developmental Toxicity: NOAEL: > 540 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDEG):

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

| | |
|---------------------|------------------------|
| Species | : Rat, male and female |
| NOAEL | : 250 mg/kg |
| Application Route | : Ingestion |
| Exposure time | : 13 Weeks |
| Number of exposures | : 7 d |
| Method | : Subchronic toxicity |

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

| | |
|---------------------|------------------------------|
| Species | : Rat, male and female |
| NOAEL | : 50 mg/kg |
| Application Route | : oral (gavage) |
| Exposure time | : 14 Weeks |
| Number of exposures | : 7 d |
| Dose | : 0, 50, 250, 1000 mg/kg/day |
| Method | : OECD Test Guideline 408 |

| | |
|---------------------|------------------------------|
| Species | : Rat, male and female |
| NOAEL | : ≥ 10 mg/kg |
| Application Route | : Skin contact |
| Exposure time | : 13 Weeks |
| Number of exposures | : 5 d |
| Dose | : 0, 10, 100, 1000 mg/kg/day |
| Method | : OECD Test Guideline 411 |

| | |
|---------------------|---------------------------|
| Species | : Mouse, male |
| NOAEL | : 100 mg/kg |
| Application Route | : Skin contact |
| Exposure time | : 13 Weeks |
| Number of exposures | : 3 d |
| Dose | : 0, 1, 10, 100 mg/kg/day |
| Method | : OECD Test Guideline 411 |

Aspiration toxicity

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

| | |
|------------|--|
| Assessment | : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher |
|------------|--|

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

| | |
|--|---|
| Toxicity to fish | : LC50 (Fish): 2,54 mg/l Exposure time: 96 h Test substance: Fresh water Method: Calculation method |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): 2,55 mg/l Exposure time: 48 h Method: Calculation method |
| Toxicity to algae/aquatic plants | : EC50 (Selenastrum capricornutum (green algae)): > 1,8 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: no |
| Toxicity to microorganisms | : IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Analytical monitoring: no Test substance: Fresh water GLP: no |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC: 0,3 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Analytical monitoring: no Test substance: Fresh water Method: OECD Test Guideline 211 GLP: yes Remarks: Information given is based on data obtained from similar substances. |

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

| | |
|---|--|
| Toxicity to fish | : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): 1,8 mg/l Exposure time: 48 h Test Type: static test |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 : 11 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

NOEC : 4,2 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,3 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 3 mg/l
Result: Not biodegradable
Biodegradation: ca. 0 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.E.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Stability in water : Degradation half life (DT50): 4,83 d (25 °C)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 2.1 | 25.11.2022 | 400000000604 | 31.01.2019 |
| | | | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 7,1 d (25 °C)
pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 3,58 d (25 °C)
pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

12.3 Bioaccumulative potential

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 150
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 2,7 - 3,6
Method: OECD Test Guideline 117
GLP: yes

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3,242 (25 °C)
pH: 7,1
Method: OECD Test Guideline 117

12.4 Mobility in soil

Components:

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Distribution among environmental compartments : Koc: 4460
Method: OECD Test Guideline 121

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Distribution among environmental compartments : Koc: 445

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|------|-----------|
| ADN | : UN 3082 |
| ADR | : UN 3082 |
| RID | : UN 3082 |
| IMDG | : UN 3082 |
| IATA | : UN 3082 |

14.2 UN proper shipping name

| | |
|-----|---|
| ADN | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL F EPOXY RESIN, BISPHENOL A EPOXY RESIN) |
| ADR | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

(BISPHENOL F EPOXY RESIN, BISPHENOL A EPOXY RESIN)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL F EPOXY RESIN, BISPHENOL A EPOXY RESIN)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL F EPOXY RESIN, BISPHENOL A EPOXY RESIN)

IATA : Environmentally hazardous substance, liquid, n.o.s.
(BISPHENOL F EPOXY RESIN, BISPHENOL A EPOXY RESIN)

14.3 Transport hazard class(es)

| | Class | Subsidiary risks |
|-------------|-------|------------------|
| ADN | : 9 | |
| ADR | : 9 | |
| RID | : 9 | |
| IMDG | : 9 | |
| IATA | : 9 | |

14.4 Packing group

ADN

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

ADR

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Labels : Miscellaneous

IATA (Passenger)

Packing instruction : 964

(passenger aircraft)

Packing instruction (LQ) : Y964

Packing group : III

Labels : Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Number on list 3

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. E2 ENVIRONMENTAL HAZARDS

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

Occupational Illnesses (R- : 51, 51
461-3, France)

Installations classified for the : 4511
protection of the environment
(Environment Code R511-9)

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

AIIC : On the inventory, or in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOIC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 31.01.2019 |
| 2.1 | 25.11.2022 | 400000000604 | Date of first issue: 15.07.2015 |

Print Date 10.08.2023

SECTION 16: Other information

Full text of H-Statements

| | |
|------|--|
| 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. |

Full text of other abbreviations

| | |
|-----------------|--------------------------------------|
| Aquatic Chronic | : Long-term (chronic) aquatic hazard |
| Eye Irrit. | : Eye irritation |
| Skin Irrit. | : Skin irritation |
| Skin Sens. | : Skin sensitisation |

Further information

Classification of the mixture:

| | |
|-------------------|------|
| Skin Irrit. 2 | H315 |
| Eye Irrit. 2 | H319 |
| Skin Sens. 1 | H317 |
| Aquatic Chronic 2 | H411 |

Classification procedure:

| |
|--------------------|
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® FST 40005

Version
2.1

Revision Date:
25.11.2022

SDS Number:
400000000604

Date of last issue: 31.01.2019
Date of first issue: 15.07.2015

Print Date 10.08.2023