

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Epoxy systems Aradur® H 2 hardener

article number: **2551**  
Version: **2.0 en**  
Replaces version of: 2020-12-11  
Version: (1)

date of compilation: 2020-12-11  
Revision: 2022-05-04

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

#### 1.1 Product identifier

|                                 |  |
|---------------------------------|--|
| Identification of the substance | <b>Epoxy systems Aradur® H 2 hardener</b>                |
| Article number                  | 2551   |
| EC number                       | 292-588-2  |
| CAS number                      | 90640-67-8   |
| Alternative name(s)             | Amines, polyethylenepoly-, triethylenetetramine fraction |

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

|                           |   |
|---------------------------|---|
| Relevant identified uses: | Laboratory chemical<br>Laboratory and analytical use<br>Adhesive  |
| Uses advised against:     | Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). |

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

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:**+49 (0) 721 - 56 06 0  
**Telefax:** +49 (0) 721 - 56 06 149  
**e-mail:** sicherheit@carlroth.de  
**Website:** www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

**e-mail (competent person):** **sicherheit@carlroth.de**

#### 1.4 Emergency telephone number

| Name  | Street    | Postal code/city     | Telephone    | Website |
|---|-----------|----------------------|--------------|---------|
| National Poisons Information Service<br>City Hospital | Dudley Rd | B187QH<br>Birmingham | 844 892 0111 |         |

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification acc. to GHS

| Section | Hazard class  | Cat-egory | Hazard class and category | Hazard statement |
|---------|---|-----------|---------------------------|------------------|
| 3.10    | Acute toxicity (oral)                                 | 4         | Acute Tox. 4              | H302             |
| 3.1D    | Acute toxicity (dermal)                               | 4         | Acute Tox. 4              | H312             |
| 3.2     | Skin corrosion/irritation                             | 1         | Skin Corr. 1              | H314             |
| 3.3     | Serious eye damage/eye irritation                     | 1         | Eye Dam. 1                | H318             |
| 3.4S    | Skin sensitisation                                    | 1         | Skin Sens. 1              | H317             |
| 4.1C    | Hazardous to the aquatic environment - chronic hazard | 3         | Aquatic Chronic 3         | H412             |

For full text of abbreviations: see SECTION 16

##### The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. Spillage and fire water can cause pollution of watercourses.

#### 2.2 Label elements

##### Labelling

##### Signal word

**Danger**

##### Pictograms

GHS05, GHS07



##### Hazard statements

H302+H312 Harmful if swallowed or in contact with skin  
H314 Causes severe skin burns and eye damage  
H317 May cause an allergic skin reaction  
H412 Harmful to aquatic life with long lasting effects

##### Precautionary statements

##### Precautionary statements - prevention

P273 Avoid release to the environment  
P280 Wear protective gloves/eye protection

##### Precautionary statements - response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 Immediately call a POISON CENTER/doctor

##### Hazardous ingredients for labelling:

Amines, polyethylenepoly-, triethylenetetramine fraction

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### 2.3 Other hazards

#### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                   |  |
|-------------------|--|
| Name of substance | Amines, polyethylenepoly-, triethylenetetramine fraction |
| Molecular formula | C <sub>6</sub> H <sub>18</sub> N <sub>4</sub>            |
| Molar mass        | 146,2 g/mol  |
| CAS No            | 90640-67-8   |
| EC No             | 292-588-2  |

| Substance, Specific Conc. Limits, M-factors, ATE |           |                            |                |
|--|-----------|----------------------------|----------------|
| Specific Conc. Limits                            | M-Factors | ATE                        | Exposure route |
| -  | -         | 1.862 mg/kg<br>1.465 mg/kg | oral<br>dermal |

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off immediately all contaminated clothing.

#### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure. In case of skin reactions, consult a physician.

#### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

#### Following ingestion

Rinse mouth immediately and drink plenty of water. Rinse mouth with water (only if the person is conscious). Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

### 4.2 Most important symptoms and effects, both acute and delayed

Corrosion, Vomiting, Risk of blindness, Gastric perforation, Risk of serious damage to eyes, Allergic reactions

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### 4.3 Indication of any immediate medical attention and special treatment needed

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings  
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

water jet

### 5.2 Special hazards arising from the substance or mixture

Combustible. Vapours are heavier than air, spread along floors and form explosive mixtures with air.

#### Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures



#### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

#### Advice on how to contain a spill

Covering of drains.

#### Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

#### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Provision of sufficient ventilation. Handle and open container with care. Clear contaminated areas thoroughly.

#### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

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

Keep container tightly closed.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice:

#### Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

#### Human health values

| Relevant DNELs and other threshold levels |                        |                                    |                   |                            |
|---|------------------------|------------------------------------|-------------------|----------------------------|
| Endpoint                                  | Threshold level        | Protection goal, route of exposure | Used in           | Exposure time              |
| DNEL                                      | 0,54 mg/m <sup>3</sup> | human, inhalatory                  | worker (industry) | chronic - systemic effects |

#### Environmental values

| Relevant PNECs and other threshold levels |                 |                   |                              |                              |
|---|-----------------|-------------------|------------------------------|------------------------------|
| End-point                                 | Threshold level | Organism          | Environmental compartment    | Exposure time                |
| PNEC                                      | 0,027 mg/l      | aquatic organisms | freshwater                   | short-term (single instance) |
| PNEC                                      | 0,003 mg/l      | aquatic organisms | marine water                 | short-term (single instance) |
| PNEC                                      | 0,13 mg/l       | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| PNEC                                      | 8,572 mg/kg     | aquatic organisms | freshwater sediment          | short-term (single instance) |

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| Relevant PNECs and other threshold levels |                 |                       |                           |                              |
|---|-----------------|-----------------------|---------------------------|------------------------------|
| End-point                                 | Threshold level | Organism              | Environmental compartment | Exposure time                |
| PNEC                                      | 0,857 mg/kg     | aquatic organisms     | marine sediment           | short-term (single instance) |
| PNEC                                      | 1,25 mg/kg      | terrestrial organisms | soil                      | short-term (single instance) |

### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection. Wear face protection.

##### Skin protection



##### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

##### • type of material

Butyl caoutchouc (butyl rubber)

##### • material thickness

≥0,5 mm

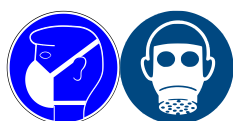
##### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

##### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

##### Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C, colour code: Brown).

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### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|  |   |
|--|---|
| Physical state   | liquid  |
| Colour   | colourless - whitish  |
| Odour  | faintly perceptible   |
| Melting point/freezing point                             | <-70 °C at 1.013 hPa  |
| Boiling point or initial boiling point and boiling range | 274,6 °C at 1.013 hPa (ECHA)                                      |
| Flammability   | this material is combustible, but will not ignite readily         |
| Lower and upper explosion limit                          | 1 vol% (LEL) - 3,6 vol% (UEL)                                     |
| Flash point  | 118 °C (c.c.) (ECHA)  |
| Auto-ignition temperature                                | 325 °C at 1.025 hPa   |
| Decomposition temperature                                | >240 °C   |
| pH (value)   | ~13 (in aqueous solution: 1.000 g/l, 20 °C)                       |
| Kinematic viscosity                                      | 28,6 mm <sup>2</sup> /s at 20 °C 10,8 mm <sup>2</sup> /s at 40 °C |
| Dynamic viscosity  | 13,9 mPa s at 40 °C   |
| <u>Solubility(ies)</u>                                   |   |
| Water solubility   | >1.000 g/l at 20 °C (ECHA)  |
| <u>Partition coefficient</u>                             |   |
| Partition coefficient n-octanol/water (log value):       | -2,65 (TETA)  |
| Soil organic carbon/water (log KOC)                      | 3,2 (ECHA)  |
| Vapour pressure  | 0,346 Pa at 20 °C   |
| <u>Density and/or relative density</u>                   |   |
| Density  | 0,971 g/cm <sup>3</sup> at 25 °C                                  |
| Relative vapour density                                  | 5,04 (air = 1)  |
| Particle characteristics                                 | not relevant (liquid)   |
| <u>Other safety parameters</u>                           |   |
| Oxidising properties                                     | none  |

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### 9.2 Other information

Information with regard to physical hazard classes:

hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics:

There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

#### If heated

Vapours may form explosive mixtures with air.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

**Violent reaction with:** strong oxidiser, Strong acid

### 10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >240 °C.

### 10.5 Incompatible materials

acids, copper, nickel, cobalt

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Classification acc. to GHS

#### Acute toxicity

Harmful if swallowed. Harmful in contact with skin.

| Acute toxicity |          |             |         |        |        |
|----------------|----------|-------------|---------|--------|--------|
| Exposure route | Endpoint | Value       | Species | Method | Source |
| oral           | LD50     | 1.862 mg/kg | rat     |        | ECHA   |
| dermal         | LD50     | 1.465 mg/kg | rabbit  |        | ECHA   |

#### Skin corrosion/irritation

Causes severe skin burns and eye damage.

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitisation

May cause an allergic skin reaction.

#### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.



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### Carcinogenicity

Shall not be classified as carcinogenic.

### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

### Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### Symptoms related to the physical, chemical and toxicological characteristics

#### • If swallowed

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

#### • If in eyes

causes burns, Causes serious eye damage, risk of blindness

#### • If inhaled

irritant effects, cough, Dyspnoea

#### • If on skin

causes severe burns, causes poorly healing wounds, May produce an allergic reaction, pruritis, localised redness

#### • Other information

none

### 11.2 Endocrine disrupting properties

Not listed.

### 11.3 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Harmful to aquatic life with long lasting effects.

| Aquatic toxicity (acute) |           |                       |        |               |
|--------------------------|-----------|-----------------------|--------|---------------|
| Endpoint                 | Value     | Species               | Source | Exposure time |
| LC50                     | 330 mg/l  | fish                  | ECHA   | 96 h          |
| EC50                     | 31,1 mg/l | aquatic invertebrates | ECHA   | 48 h          |
| ErC50                    | 20 mg/l   | algae                 | ECHA   | 72 h          |

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| Aquatic toxicity (chronic) |          |                       |        |               |
|----------------------------|----------|-----------------------|--------|---------------|
| Endpoint                   | Value    | Species               | Source | Exposure time |
| EC50                       | <10 mg/l | aquatic invertebrates | ECHA   | 21 d          |

### Biodegradation

Not readily biodegradable.

### 12.2 Process of degradability

Theoretical Oxygen Demand with nitrification: 2,366 mg/mg

Theoretical Oxygen Demand: 1,641 mg/mg

Theoretical Carbon Dioxide: 1,806 mg/mg

| Process of degradability |                  |       |
|--------------------------|------------------|-------|
| Process                  | Degradation rate | Time  |
| biotic/abiotic           | 0 %              | 28 d  |
| oxygen depletion         | 0 %              | 162 d |
| DOC removal              | 20 %             | 84 d  |

### 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

|                           |              |
|---------------------------|--------------|
| n-octanol/water (log KOW) | -2,65 (TETA) |
|---------------------------|--------------|

### 12.4 Mobility in soil

|  |            |
|--|------------|
| The Organic Carbon normalised adsorption coefficient | 3,2 (ECHA) |
|--|------------|

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Endocrine disrupting properties

Not listed.

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

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### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

### 14.1 UN number or ID number

|           |         |
|-----------|---------|
| ADRRID    | UN 2259 |
| IMDG-Code | UN 2259 |
| ICAO-TI   | UN 2259 |

### 14.2 UN proper shipping name

|           |                      |
|-----------|----------------------|
| ADRRID    | TRIETHYLENETETRAMINE |
| IMDG-Code | TRIETHYLENETETRAMINE |
| ICAO-TI   | Triethylenetetramine |

### 14.3 Transport hazard class(es)

|           |   |
|-----------|---|
| ADRRID    | 8 |
| IMDG-Code | 8 |
| ICAO-TI   | 8 |

### 14.4 Packing group

|           |    |
|-----------|----|
| ADRRID    | II |
| IMDG-Code | II |
| ICAO-TI   | II |

### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

### 14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

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

The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

#### Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

|                                       |  |
|---------------------------------------|--|
| Proper shipping name                  | TRIETHYLENETETRAMINE                     |
| Particulars in the transport document | UN2259, TRIETHYLENETETRAMINE, 8, II, (E) |
| Classification code                   | C7                                       |
| Danger label(s)                       | 8  |

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|                               |     |
|-------------------------------|-----|
| Excepted quantities (EQ)      | E2  |
| Limited quantities (LQ)       | 1 L |
| Transport category (TC)       | 2   |
| Tunnel restriction code (TRC) | E   |
| Hazard identification No      | 80  |
| <b>Emergency Action Code</b>  | 2X  |

### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) Additional information

|                            |   |
|----------------------------|---|
| <b>Classification code</b> | 8 |
| <b>Danger label(s)</b>     | 8 |



|                                 |     |
|---------------------------------|-----|
| <b>Excepted quantities (EQ)</b> | E2  |
| <b>Limited quantities (LQ)</b>  | 1 L |
| <b>Transport category (TC)</b>  | 2   |
| <b>Hazard identification No</b> | 80  |

### International Maritime Dangerous Goods Code (IMDG) - Additional information

|  |                                     |
|--|-------------------------------------|
| Proper shipping name                     | TRIETHYLENETETRAMINE                |
| Particulars in the shipper's declaration | UN2259, TRIETHYLENETETRAMINE, 8, II |
| Marine pollutant                         | -                                   |
| Danger label(s)                          | 8                                   |



|                          |              |
|--------------------------|--------------|
| Special provisions (SP)  | -            |
| Excepted quantities (EQ) | E2           |
| Limited quantities (LQ)  | 1 L          |
| EmS                      | F-A, S-B     |
| Stowage category         | B            |
| <b>Segregation group</b> | 18 - Alkalis |

### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

|  |                                     |
|--|-------------------------------------|
| Proper shipping name                     | Triethylenetetramine                |
| Particulars in the shipper's declaration | UN2259, Triethylenetetramine, 8, II |
| Danger label(s)                          | 8                                   |



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|                          |       |
|--------------------------|-------|
| Excepted quantities (EQ) | E2    |
| Limited quantities (LQ)  | 0,5 L |

### SECTION 15: Regulatory information

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

##### Relevant provisions of the European Union (EU)

###### Seveso Directive

| 2012/18/EU (Seveso III) |                                       |   |       |
|-------------------------|---------------------------------------|---|-------|
| No                      | Dangerous substance/hazard categories | Qualifying quantity (tonnes) for the application of lower and upper-tier requirements | Notes |
|                         | not assigned                          |   |       |

###### Deco-Paint Directive

|             |              |
|-------------|--------------|
| VOC content | 0 %<br>0 g/l |
|-------------|--------------|

###### Industrial Emissions Directive (IED)

|             |       |
|-------------|-------|
| VOC content | 0 %   |
| VOC content | 0 g/l |

###### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

###### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

###### Water Framework Directive (WFD)

not listed

###### Regulation on the marketing and use of explosives precursors

not listed

###### Regulation on drug precursors

not listed

###### Regulation on substances that deplete the ozone layer (ODS)

not listed

###### Regulation concerning the export and import of hazardous chemicals (PIC)

not listed

###### Regulation on persistent organic pollutants (POP)

not listed

###### National regulations(GB)

###### List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

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### Restrictions according to GB REACH, Annex 17

| Dangerous substances with restrictions (GB REACH, Annex 17) |  |        |    |
|---|--|--------|----|
| Name of substance   | Name acc. to inventory   | CAS No | No |
| Amines, polyethylenepoly-, triethylenetetramine fraction    | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC |        | 3  |

### Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

### National inventories

| Country | Inventory  | Status              |
|---------|------------|---------------------|
| CN      | IECSC      | substance is listed |
| EU      | ECSI       | substance is listed |
| EU      | REACH Reg. | substance is listed |
| KR      | KECI       | substance is listed |
| NZ      | NZIoC      | substance is listed |

#### Legend

ECSI EC Substance Inventory (EINECS, ELINCS, NLP)  
IECSC Inventory of Existing Chemical Substances Produced or Imported in China  
KECI Korea Existing Chemicals Inventory  
NZIoC New Zealand Inventory of Chemicals  
REACH Reg. REACH registered substances

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

Alignment to regulation:

Restructuring: section 9, section 14

| Section | Former entry (text/value)   | Actual entry (text/value)   | Safety-relevant |
|---------|---|---|-----------------|
| 2.1     |   | Classification acc. to GHS:<br>change in the listing (table)  | yes             |
| 2.1     |   | The most important adverse physicochemical, human health and environmental effects:<br>Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. Spillage and fire water can cause pollution of watercourses. | yes             |
| 2.2     | Labelling of packages where the contents do not exceed 125 ml:<br>Signal word: Danger |   | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)   | yes             |

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| Section | Former entry (text/value)   | Actual entry (text/value)   | Safety-relevant |
|---------|---|---|-----------------|
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)                           | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table)                           | yes             |
| 2.2     | contains:<br>Amines, polyethylenepoly-, triethylenetetramine fraction |   | yes             |
| 2.3     | Other hazards:<br>There is no additional information.                 | Other hazards   | yes             |
| 2.3     |   | Results of PBT and vPvB assessment:<br>According to the results of its assessment, this substance is not a PBT or a vPvB. | yes             |

### Abbreviations and acronyms

| Abbr.    | Descriptions of used abbreviations  |
|----------|---|
| ADN      | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR      | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)   |
| ATE      | Acute Toxicity Estimate   |
| CAS      | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)  |
| DGR      | Dangerous Goods Regulations (see IATA/DGR)  |
| DNEL     | Derived No-Effect Level   |
| EC50     | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval                                      |
| EC No    | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)                                     |
| EINECS   | European Inventory of Existing Commercial Chemical Substances   |
| ELINCS   | European List of Notified Chemical Substances   |
| EmS      | Emergency Schedule  |
| ErC50    | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control  |
| GB REACH | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)  |
| GHS      | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations   |
| IATA     | International Air Transport Association   |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA)  |
| ICAO     | International Civil Aviation Organization   |
| ICAO-TI  | Technical instructions for the safe transport of dangerous goods by air   |
| IMDG     | International Maritime Dangerous Goods Code   |

# Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Epoxy systems Aradur® H 2 hardener

article number: 2551

| Abbr.     | Descriptions of used abbreviations  |
|-----------|---|
| IMDG-Code | International Maritime Dangerous Goods Code   |
| LC50      | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval                       |
| LD50      | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval  |
| LEL       | Lower explosion limit (LEL)   |
| NLP       | No-Longer Polymer   |
| PBT       | Persistent, Bioaccumulative and Toxic   |
| PNEC      | Predicted No-Effect Concentration   |
| REACH     | Registration, Evaluation, Authorisation and Restriction of Chemicals  |
| RID       | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| UEL       | Upper explosion limit (UEL)   |
| VOC       | Volatile Organic Compounds  |
| vPvB      | Very Persistent and very Bioaccumulative  |

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text   |
|------|--|
| H302 | Harmful if swallowed.                              |
| H312 | Harmful in contact with skin.                      |
| H314 | Causes severe skin burns and eye damage.           |
| H317 | May cause an allergic skin reaction.               |
| H318 | Causes serious eye damage.                         |
| H412 | Harmful to aquatic life with long lasting effects. |

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.