

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

1 Identification

- **Product identifier**
- **Trade name:** AL 2022 Hardener
- **Article number:** I026018
- **Application of the substance / the mixture** Epoxy curing agent
- **Details of the supplier of the safety data sheet**
Sika Advanced Resins, US
EHS Department
- **Manufacturer/Supplier:**
Supplier's Name: Sika Advanced Resins, US
Headquarters:
30800 Stephenson Hwy
Madison Heights, MI 48071
USA

ehs-us@axson.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal opening times: +1 (248) 588-2270
CHEMTREC 24-hour Emergency: +1 (800) 424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 2 H330 Fatal if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 1)



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 Aquatic Acute 3 H402 Harmful to aquatic life.

· **Label elements**

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labeling:**

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)
 3-aminomethyl-3,5,5-trimethylcyclohexylamine
 Trimethylolpropane poly(oxypropylene)triamine

· **Hazard statements**

Harmful if swallowed.
 Toxic in contact with skin.
 Fatal if inhaled.
 Causes severe skin burns and eye damage.
 May cause an allergic skin reaction.
 May cause damage to organs through prolonged or repeated exposure.
 Harmful to aquatic life.
 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray
 Do not breathe dusts or mists.
 Wear protective gloves/protective clothing/eye protection/face protection.
 [In case of inadequate ventilation] wear respiratory protection.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 Immediately call a poison center/doctor.
 Specific treatment is urgent (see on this label).
 Take off immediately all contaminated clothing and wash it before reuse.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 2)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 2855-13-2 EINECS: 220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine	≥25-≤50%
CAS: 6864-37-5 EINECS: 229-962-1	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	≥25-≤50%
CAS: 39423-51-3	Trimethylolpropane poly(oxypropylene)triamine	≥20-<25%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 4)

US



Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 3)

- **After swallowing:**
Immediately call a doctor.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
Wear self-contained respiratory protective device.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-I:**

6864-37-5	2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	0.28 mg/m ³
39423-51-3	Trimethylolpropane poly(oxypropylene)triamine	30 mg/m ³

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 4)

· PAC-2:		
6864-37-5	2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	3.1 mg/m ³
39423-51-3	Trimethylolpropane poly(oxypropylene)triamine	330 mg/m ³
· PAC-3:		
6864-37-5	2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	19 mg/m ³
39423-51-3	Trimethylolpropane poly(oxypropylene)triamine	2,000 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 5)

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Color:	Colorless
Odor:	Amine-like
Odor threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	1,013 °C (1,855.4 °F)

Flash point: 110 °C (230 °F)

Flammability (solid, gaseous): Not applicable.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 6)

· Ignition temperature:	275 °C (527 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	0.5 Vol %
Upper:	2.8 Vol %
· Vapor pressure at 20 °C (68 °F):	6.8 hPa (5.1 mm Hg)
· Density at 20 °C (68 °F):	0.93 g/cm ³ (7.76 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
· Solids content:	0.0 %
· Other information	No further relevant information available.

* 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 7)

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:

- LD/LC50 values that are relevant for classification:

2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Oral	LD50	1,030 mg/kg (rat)
Dermal	LD50	2,000 mg/kg (rat)

6864-37-5 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)

Oral	LD50	320-460 mg/kg (rat)
Dermal	LD50	200-400 mg/kg (rabbit)
Inhalative	LC50/4 h	0.42 mg/l (rat) (Test Guideline 402)

39423-51-3 Trimethylolpropane poly(oxypropylene)triamine

Oral	LD50	<2,000 mg/kg (rat)
Dermal	LD50	>1,000 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Harmful
Corrosive
Irritant
Very toxic
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 8)

12 Ecological information

- **Toxicity**

· Aquatic toxicity:	
2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine	
96 hr LC50	110 mg/l (Fish)
NOEC	3 mg/l (daphnia)
6864-37-5 2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)	
48 hr EC50	15.2 mg/l (daphnia)
96 hr LC50	45 mg/l (Fish)
39423-51-3 Trimethylolpropane poly(oxypropylene)triamine	
48 hr EC50 (static)	13 mg/l (daphnia)
72 or 96 hr ErC50 (static)	4.4 mg/l (Algae)
NOEC (static)	1 mg/l (Algae)

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Ecotoxicological effects:**

- **Remark:** Toxic for fish

- **Additional ecological information:**

- **General notes:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2019



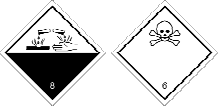
Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 9)

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number · DOT, IMDG, IATA	UN2922
· UN proper shipping name · DOT · IMDG · IATA	Corrosive liquids, toxic, n.o.s. (Cycloaliphatic Amine) CORROSIVE LIQUID, TOXIC, N.O.S. (Cycloaliphatic Amine, Propoxylated Triamine), MARINE POLLUTANT CORROSIVE LIQUID, TOXIC, N.O.S. (Cycloaliphatic Amine)
· Transport hazard class(es) · DOT	
	
· Class · Label	8 Corrosive substances 8, 6.1
· IMDG	
	
· Class · Label	8 Corrosive substances 8/6.1
· IATA	
	
· Class · Label	8 Corrosive substances 8 (6.1)
· Packing group · DOT, IMDG, IATA	II
· Environmental hazards:	Product contains environmentally hazardous substances: Propoxylated Triamine

(Contd. on page 11)



Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 10)

· Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	886
· EMS Number:	F-A,S-B
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 0.5 L On cargo aircraft only: 2.5 L
· Remarks:	Special marking with the symbol (fish and tree).
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (CYCLOALIPHATIC AMINE), 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

· Section 355 (extremely hazardous substances):	None of the ingredients is listed.
· Section 313 (Specific toxic chemical listings):	None of the ingredients is listed.
· TSCA (Toxic Substances Control Act):	All components have the value ACTIVE.
· Chemicals regulated by TSCA Section 12(b)	None of the ingredients is listed.
· Chemical regulated by TSCA 5(a)(2)rule:	None of the ingredients is listed.
· Hazardous Air Pollutants	None of the ingredients is listed.

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 11)

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Listed in CWC Regulations**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05 GHS06 GHS07 GHS08 GHS09

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Trimethylolpropane poly(oxypropylene)triamine

· **Hazard statements**

Harmful if swallowed.

Toxic in contact with skin.

Fatal if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

May cause damage to organs through prolonged or repeated exposure.

Harmful to aquatic life.

Toxic to aquatic life with long lasting effects.

(Contd. on page 13)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/08/2019

Reviewed on 10/08/2019

Trade name: AL 2022 Hardener

(Contd. of page 12)

· **Precautionary statements**

Do not breathe dusts or mists.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment is urgent (see on this label).

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 10/08/2019 / 3

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· *** Data compared to the previous version altered.**