

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

1 Identification

- **Product identifier**
- **Trade name:** EC-440 (B) Hardener
- **Article number:** 657087
- **Application of the substance / the mixture** Hardening agent/ Curing agent
- **Details of the supplier of the safety data sheet**
Sika Advanced Resins, US
EHS Department
advanced.resins.ehs@us.sika.com
- **Manufacturer/Supplier:**
Manufacturer:
Sika Advanced Resins
30800 Stephenson Hwy
Madison Heights
MI 48071
USA
- **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 Toxicity - Oral 3 H301 Toxic if swallowed.



GHS08 Health hazard

Carcinogenicity 2 H351 Suspected of causing cancer.



GHS05 Corrosion

Skin Corrosion 1A H314 Causes severe skin burns and eye damage.

Eye Damage 1 H318 Causes serious eye damage.



GHS07

Sensitization - Skin 1 H317 May cause an allergic skin reaction.

(Contd. on page 2)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 1)

· **Label elements**

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

· **Hazard pictograms**



GHS05 GHS06 GHS07 GHS08

· **Signal word** *Danger*

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

4,4'-methylenebis(cyclohexylamine)
3-aminomethyl-3,5,5-trimethylcyclohexylamine
4-methylimidazole
m-phenylenebis(methylamine)
tetraethylenepentamine

· **Hazard statements**

Toxic if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Suspected of causing cancer.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing 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 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 2)

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



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

HEALTH	*3	Health = *3
FIRE	1	Fire = 1
REACTIVITY	0	Reactivity = 0

- **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: 1761-71-3 EINECS: 217-168-8	4,4'-methylenebis(cyclohexylamine)	20-50%
CAS: 2855-13-2 EINECS: 220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine	20-50%
CAS: 68953-36-6	Tofa, reaction products with TEPA	20-50%
CAS: 1477-55-0 EINECS: 216-032-5	m-phenylenebis(methylamine)	5%
CAS: 931-36-2 EINECS: 213-234-5	2-ethyl-4-methylimidazole	1-5%
CAS: 112-57-2 EINECS: 203-986-2	tetraethylenepentamine	≥1-<5%
CAS: 822-36-6 EINECS: 212-497-3	4-methylimidazole	0.1-1%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 3)

- **After inhalation:**
Supply fresh air and to be sure call for a 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.
- **After swallowing:**
Do not induce vomiting; immediately call for medical help.
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:**
Dilute with plenty of water.
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.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 4)

· Protective Action Criteria for Chemicals

· PAC-1:

112-57-2	tetraethylenepentamine	15 mg/m ³
822-36-6	4-methylimidazole	10 mg/m ³

· PAC-2:

112-57-2	tetraethylenepentamine	130 mg/m ³
822-36-6	4-methylimidazole	110 mg/m ³

· PAC-3:

112-57-2	tetraethylenepentamine	790 mg/m ³
822-36-6	4-methylimidazole	150 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 following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

112-57-2 tetraethylenepentamine	
WEEL	Long-term value: 5 mg/m ³ Skin; DSEN

· Additional information: The lists that were valid during the creation were used as basis.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 5)

- **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.*
- **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:	Amber colored
Odor:	Amine-like
Odor threshold:	Not determined.

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 6)

· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	204 °C (399.2 °F)
· Flash point:	101 °C (213.8 °F)
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20 °C (68 °F):	0.94 g/cm ³ (7.84 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· 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:	26.3 %
· 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.

(Contd. on page 8)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 7)

· **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

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)
--------	------	-------------------

931-36-2 2-ethyl-4-methylimidazole

Oral	LD50	250 mg/kg (mouse)
------	------	-------------------

		1,000 mg/kg (rat)
--	--	-------------------

Dermal	LD50	>400 mg/kg (rabbit)
--------	------	---------------------

· **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

Corrosive

Irritant

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)**

822-36-6	4-methylimidazole	2B
----------	-------------------	----

· **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 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) 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)
------	------------------

931-36-2 2-ethyl-4-methylimidazole

96 hr LC50	>46 mg/l (Fish)
------------	-----------------

- **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.

- **Additional ecological information:**

- **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

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

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

- **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.

- **Uncleaned packagings:**

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

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**

- **DOT, IMDG, IATA**

UN2922

- **UN proper shipping name**

- **DOT**

Corrosive liquids, toxic, n.o.s. (Cycloaliphatic Amine, m-phenylenebis(methylamine))

(Contd. on page 10)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 9)

· **IMDG, IATA** *CORROSIVE LIQUID, TOXIC, N.O.S. (Cycloaliphatic Amine, m-phenylenebis(methylamine))*

· **Transport hazard class(es)**

· **DOT**



· **Class** *8 Corrosive substances*
· **Label** *8, 6.1*

· **IMDG**



· **Class** *8 Corrosive substances*
· **Label** *8/6.1*

· **IATA**



· **Class** *8 Corrosive substances*
· **Label** *8 (6.1)*

· **Packing group**
· **DOT, IMDG, IATA** *II*

· **Environmental hazards:**
· **Marine pollutant:** *No*

· **Special precautions for user** *Warning: Corrosive substances*
· **Hazard identification number (Kemler code):** *86*
· **EMS Number:** *F-A,S-B*
· **Segregation groups** *(SGG18) Alkalis*
· **Stowage Category** *B*
· **Stowage Code** *SW2 Clear of living quarters.*

· **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** *Not applicable.*

(Contd. on page 11)



Safety Data Sheet
acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 10)

· Transport/Additional information:

· DOT

· Quantity limitations

On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

· IMDG

· Limited quantities (LQ)

1L

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":

UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S.
(CYCLOALIPHATIC AMINE, M-PHENYLENEBIS(METHYLAMINE)), 8 (6.1), II

15 Regulatory information

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

No further relevant information available.

· 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.

· Proposition 65

· Chemicals known to cause cancer:

822-36-6 4-methylimidazole

· 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.

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 11)

· **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)**

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

· **Signal word** Danger

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

4,4'-methylenebis(cyclohexylamine)
 3-aminomethyl-3,5,5-trimethylcyclohexylamine
 4-methylimidazole
 m-phenylenebis(methylamine)
 tetraethylenepentamine

· **Hazard statements**

Toxic if swallowed.
 Causes severe skin burns and eye damage.
 May cause an allergic skin reaction.
 Suspected of causing cancer.

· **Precautionary statements**

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Do not breathe dusts or mists.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Contaminated work clothing must not be allowed out of the workplace.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If swallowed: Immediately call a poison center/doctor.
 Specific treatment (see on this label).
 If swallowed: Rinse mouth. Do NOT induce vomiting.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

(Contd. on page 13)

Safety Data Sheet

acc. to OSHA HCS

Printing date 08/31/2022

Reviewed on 08/31/2022

Trade name: EC-440 (B) Hardener

(Contd. of page 12)

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

IF exposed or concerned: Get medical advice/attention.

If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing 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.

· **Contact:**

· **Date of preparation / last revision** 08/31/2022

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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 Toxicity - Oral 3: Acute toxicity – Category 3

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Sensitization - Skin 1: Skin sensitisation – Category 1

Carcinogenicity 2: Carcinogenicity – Category 2

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