



SAFETY DATA SHEET



EPIBOND® 156-1 A US

Version: 1.2 Revision Date: 10/19/2018 SDS Number: 400001014592 Date of last issue: 07/23/2015
 Date of first issue: 07/18/2015

SECTION 1. IDENTIFICATION

Product name : EPIBOND® 156-1 A US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC

E-mail address of person responsible for the SDS : MSDS@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy resin solution

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation : Category 2

Eye irritation : Category 2A

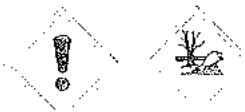
Skin sensitisation : Category 1

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 2

GHS label elements

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:

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P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.
Response:
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P391 Collect spillage.
Storage:
 Not available
Disposal:
 P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	70 - 90
mica	12001-26-2	10 - 20
titanium dioxide	13463-67-7	1 - 5

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

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

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.

If inhaled : If inhaled, remove to fresh air.
 Get medical attention if symptoms occur.

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- 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.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Specific extinguishing methods : No data is available on the product itself.
- 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.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

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Methods and materials for containment and 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.

SECTION 7. HANDLING AND STORAGE

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

Advice on safe handling : 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.
 Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Keep in properly labelled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
mica	12001-26-2	TWA (Respirable fraction)	3 mg/m ³	ACGIH
		TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA	10 mg/m ³ (Titanium dioxide)	ACGIH

Personal protective equipment

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- | | | |
|--------------------------|---|---|
| Respiratory protection | : | No personal respiratory protective equipment normally required. |
| Hand protection | : | |
| Remarks | : | The suitability for a specific workplace should be discussed with the producers of the protective gloves. |
| Eye protection | : | Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems. |
| Skin and body protection | : | Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place. |
| Hygiene measures | : | When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday. |
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- | | | |
|--|---|--|
| Appearance | : | paste |
| Colour | : | off-white |
| Odour | : | slight |
| Odour Threshold | : | No data is available on the product itself. |
| pH | : | No data is available on the product itself. |
| Freezing point | : | No data is available on the product itself. |
| Melting point | : | No data is available on the product itself. |
| Boiling point | : | No data is available on the product itself. |
| Flash point | : | 360 °F / 182 °C
Method: Pensky-Martens closed cup |
| Evaporation rate | : | No data is available on the product itself. |
| Flammability (solid, gas) | : | No data is available on the product itself. |
| Flammability (liquids) | : | 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 | : | < 1 hPa (68 °F / 20 °C) |

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

Relative density : 1.5

Density : 1.5 g/cm³ (77 °F / 25 °C)

Solubility(ies)

Water solubility : practically insoluble (68 °F / 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.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity

Viscosity, dynamic : 325,000 mPa.s (77 °F / 25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : No hazards to be specially mentioned.

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity**Components:**

2,2'-[[1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Acute oral : LD50 (Rat, female): > 2,000 mg/kg

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

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

Concentration: 0 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

titanium dioxide:
Genotoxicity in vitro

: Test Type: Ames test
Concentration: 100 - 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Concentration: 31 - 500 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Concentration: 125 - 2500 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Components:

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

Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Method: OECD Test Guideline 478
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 0 - 5000 mg/kg
Method: OPPTS 870.5395
Result: negative

titanium dioxide:
Genotoxicity in vivo

: Test Type: Micronucleus test
Species: Mouse (males)
Application Route: Inhalation
Exposure time: 5 consecutive days
Dose: 0.8, 7.2, and 28.5 mg/m³
Method: OECD Test Guideline 474
Result: negative

Test Type: Micronucleus test
Species: Rat (male and female)
Application Route: Oral
Exposure time: once

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Dose: 500, 1000, and 2000 mg/kg bw
 Method: OECD Test Guideline 474
 Result: negative

Components:

titanium dioxide:

Germ cell mutagenicity-
Assessment

: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-
Assessment

: No data available

Carcinogenicity**Components:**

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

Species: Rat, male and female

Application Route: Oral

Exposure time: 24 month(s)

Dose: 15 mg/kg

Frequency of Treatment: 7 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Mouse, male

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 0.1 mg/kg

Frequency of Treatment: 3 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Rat, female

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 1 mg/kg

Frequency of Treatment: 5 days/week

Method: OECD Test Guideline 453

Result: negative

titanium dioxide:

Species: Rat, male and female

Application Route: Oral

Exposure time: 103 weeks

Dose: 0, 25000, 50000 ppm

Frequency of Treatment: 7 days/week

NOAEL: > 50.000 ppm

Method: No information available.

Remarks: Titanium Dioxide: based on the results of chronic inhalation studies (with positive results only in a single species - rat), IARC has concluded that: "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide." but that : "There is sufficient evidence in experimental animals for carcinogenicity of titanium dioxide". IARCs overall evaluation was that

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"titanium dioxide is possibly carcinogenic to humans (Group 2B)."

Huntsman has examined all of the available animal carcinogenicity and mechanistic data together with workplace epidemiology data for titanium dioxide and concludes that the weight of scientific evidence indicates that there is no causative link between titanium dioxide exposure and cancer risk in humans and that workplace exposures in compliance with applicable exposure standards will not result in lung cancer or chronic respiratory diseases in humans.

Components:

titanium dioxide:

Carcinogenicity -
Assessment

: Not classifiable as a human carcinogen.

IARC

Group 2B: Possibly carcinogenic to humans
titanium dioxide

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

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

Effects on fertility

: Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: >750 milligram per kilogram
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 540 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Components:

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

Effects on foetal
development

: Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Species: Rabbit, female

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Application Route: Oral
 General Toxicity Maternal: No observed adverse effect level:
 60 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

Species: Rat, female
 Application Route: Oral
 General Toxicity Maternal: No observed adverse effect level:
 180 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

titanium dioxide:

Species: Rat, male and female
 Application Route: Oral
 Dose: 100, 300, and 1000 mg/kg bw/
 Duration of Single Treatment: 20 d
 Frequency of Treatment: 7 days/week
 General Toxicity Maternal: No observed adverse effect level:
 1,000 mg/kg body weight
 Developmental Toxicity: No observed adverse effect level:
 1,000 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No adverse effects

Components:

titanium dioxide:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

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

Species: Rat, male and female

NOAEL: 50 mg/kg

Application Route: Ingestion

Exposure time: 14 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOEL: 10 mg/kg

Application Route: Skin contact

Exposure time: 13 Weeks

Number of exposures: 5 d

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Method: Subchronic toxicity

Species: Mouse, male
 NOAEL: 100 mg/kg
 Application Route: Skin contact
 Exposure time: 13 Weeks
 Number of exposures: 3 d
 Method: Subchronic toxicity

titanium dioxide:
 Species: Rat, male and female
 NOEC: 3500 mg/m3
 Application Route: Ingestion
 Test atmosphere: dust/mist
 Exposure time: 2 yr
 Number of exposures: 5 d
 Method: Chronic toxicity

Species: Rat, male and female
 NOEC: 10 - 50 mg/m3
 Application Route: Inhalation
 Exposure time: 2 yr
 Number of exposures: 6 hours/day, 5 days/week
 Method: Chronic toxicity

Components:

titanium dioxide:
 Repeated dose toxicity - Assessment : No skin irritation, No eye irritation
 No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

