EPOCAST® 8623 A US

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	05/23/2017	400001009857	Date of first issue: 05/23/2017

SECTION 1. IDENTIFICATION

Product name : EPOCAST® 8623 A US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : 2795 Slough Avenue
Mississauga, ON L4T 1G2,
Canada
Telephone : +1 905 678 9150

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 constituents

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitisation : Category 1

Carcinogenicity : Category 2

Acute aquatic toxicity : Category 2

Chronic aquatic toxicity : 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.
H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
Storage:
P405 Store locked up.
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)
Bisphenol A epoxy resin	25068-38-6	43 - 45
Dibromo cresyl glycidyl ether	30171-80-3	3 - 5
triphenyl phosphate	115-86-6	3 - 5
hexaboron dizinc undecaoxide	12767-90-7	1 - 3
Dechlorane	13560-89-9	1 - 3
1,4-bis(2,3-epoxypropoxy)butane	2425-79-8	1 - 3
diantimony trioxide	1309-64-4	0.1 - 1

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

Do not leave the victim unattended.

If inhaled	:	If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
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. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	None known.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	No data is available on the product itself.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	No data is available on the product itself. Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known No data is available on the product itself.
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.
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.
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. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Materials to avoid	:	Strong acids Strong bases Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
triphenyl phosphate	115-86-6	TWA	3 mg/m3	ACGIH
		TWA	3 mg/m3	OSHA Z-1

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

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

Material : Solvent-resistant gloves (butyl-rubber)
Material : Nitrile rubber
Break through time : 10 - 480 min

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : paste

Colour : 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 : > 185 °C

Method: estimated, 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	:	No data is available on the product itself.
Lower explosion limit	:	No data is available on the product itself.
Vapour pressure	:	< 1.33 hPa (20 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	No data is available on the product itself.
Density	:	0.6 - 0.64 g/cm3
Solubility(ies)		
Water solubility	:	negligible (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	:	No data is available on the product itself.
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 decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available
Hazardous decomposition products	:	Burning produces noxious and toxic fumes.

Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: > 40 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitisation

Product:

Remarks: Causes sensitisation.

Components:

triphenyl phosphate:
Assessment: No skin irritation, No eye irritation
Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

Bisphenol A epoxy resin:
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

triphenyl phosphate:
Genotoxicity in vitro : Test Type: Ames test
Species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: unscheduled DNA synthesis assay
Method: OECD Test Guideline 482
Result: negative

Test Type: Chromosome aberration test in vitro
Species: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

1,4-bis(2,3-epoxypropoxy)butane:
Genotoxicity in vitro : Concentration: 10 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Concentration: 1 - 100 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

Components:

Bisphenol A epoxy resin:
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

1,4-bis(2,3-epoxypropoxy)butane:
Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Cell type: Somatic
Application Route: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg/kg
Method: OECD Test Guideline 474
Result: negative

Test Type: unscheduled DNA synthesis assay
Species: Rat

Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

Components:

Bisphenol A epoxy resin:
Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

triphenyl phosphate:
Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

1,4-bis(2,3-epoxypropoxy)butane:
Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Germ cell mutagenicity-Assessment : No data available

Carcinogenicity

Components:

Bisphenol A epoxy resin:
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

diantimony trioxide:
Species: Rat, (female)
Application Route: Inhalation

Exposure time: 12 month(s)
Dose: 45 mg/m³
Frequency of Treatment: 7 hour
Method: OECD Test Guideline 451
Result: positive
Target Organs: Lungs

Components:

diantimony trioxide:
Carcinogenicity - Assessment : Suspected human carcinogens

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.

Reproductive toxicity

Components:

Bisphenol A epoxy resin:
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.

triphenyl phosphate:

Species: Rat, male and female
Application Route: Oral
Dose: 166, 341, 516, 690 mg/kg
General Toxicity - Parent: No-observed-effect level: 690 mg/kg body weight
Method: OECD Test Guideline 415
Result: Animal testing did not show any effects on fertility.

diantimony trioxide:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 408
Result: No effects on fertility and early embryonic development were detected.

Components:

Bisphenol A epoxy resin:
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
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

triphenyl phosphate:

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: > 690 mg/kg body weight
Teratogenicity: No observed adverse effect level: > 690 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

diantimony trioxide:

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: Lowest observed adverse effect level: 2.6 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

triphenyl phosphate:
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:

Bisphenol A epoxy resin:
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
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

triphenyl phosphate:
Species: Rat, male and female
NOAEL: 105 - 117 mg/kg
Application Route: oral (feed)
Method: OECD Test Guideline 408
Target Organs: Liver

1,4-bis(2,3-epoxypropoxy)butane:
Species: Rat, male and female
NOAEL: 200 mg/kg
Application Route: Ingestion
Exposure time: 28 d
Number of exposures: 7 d
Method: Subacute toxicity

diantimony trioxide:
Species: Rat, male and female
: 1686 - 1879 mg/kg, >= 0.51 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 6 h
Method: OECD Test Guideline 452

Components:

triphenyl phosphate:
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

Neurological effects

No data available

Further information

Product:

Remarks: No data available

Other health hazards

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Bisphenol A epoxy resin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Dibromo cresyl glycidyl ether:

Toxicity to fish : LC50 (Aphyosemion bivitattum (Red killifish)): 1.28 mg/l
Exposure time: 96 h

triphenyl phosphate:

Toxicity to fish : LC50: 0.36 - 0.85 mg/l
Exposure time: 96 h
Remarks: Toxic to fish.

1,4-bis(2,3-epoxypropoxy)butane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 24 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

diantimony trioxide:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 14.4 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Components:

Bisphenol A epoxy resin:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Dibromo cresyl glycidyl ether:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 1.32 mg/l
Exposure time: 48 h

triphenyl phosphate:
Toxicity to daphnia and other aquatic invertebrates : EC50: 1.35 mg/l
Exposure time: 48 h

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 75 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

diantimony trioxide:
Toxicity to daphnia and other aquatic invertebrates : LC50 (Other): 1.77 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Components:

Bisphenol A epoxy resin:
Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Dibromo cresyl glycidyl ether:
Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.61 mg/l
Exposure time: 72 h

triphenyl phosphate:
Toxicity to algae : NOEC: 0.25 - 2.5 mg/l

Exposure time: 72 h

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to algae : EL50: > 160 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

diantimony trioxide:
Toxicity to algae : EC50 (Other): > 36.6 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Components:

hexaboron dizinc undecaoxide:
M-Factor (Acute aquatic toxicity) : 1

Components:

triphenyl phosphate:
Toxicity to fish (Chronic toxicity) : Lowest Observed Effect Concentration (Oncorhynchus mykiss (rainbow trout)): 0.055 mg/l
Exposure time: 30 d
Test Type: flow-through test

diantimony trioxide:
Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 1.13 mg/l
Exposure time: 28 d
Test Type: flow-through test
Test substance: Fresh water

Components:

Bisphenol A epoxy resin:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.3 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

triphenyl phosphate:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.254 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

Lowest Observed Effect Concentration (Daphnia magna (Water flea)): 0.931 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

diantimony trioxide:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.74 mg/l Exposure time: 21 d Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211
M-Factor (Chronic aquatic toxicity)	:	No data available

Components:

Bisphenol A epoxy resin:

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

1,4-bis(2,3-epoxypropoxy)butane:

Toxicity to microorganisms	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209
Toxicity to soil dwelling organisms	:	No data available
Plant toxicity	:	No data available
Sediment toxicity	:	No data available
Toxicity to terrestrial organisms	:	No data available

Ecotoxicology Assessment

Components:

Dibromo cresyl glycidyl ether:

Acute aquatic toxicity	:	Very toxic to aquatic life.

triphenyl phosphate:

Acute aquatic toxicity	:	Very toxic to aquatic life.

Components:

Dibromo cresyl glycidyl ether:

Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

triphenyl phosphate:

Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.
Toxicity Data on Soil	:	No data available
Other organisms relevant to the environment	:	No data available

Persistence and degradability

Components:

Bisphenol A epoxy resin:

Biodegradability	:	Inoculum: Sewage (STP effluent) Concentration: 20 mg/l Result: Not readily biodegradable. Biodegradation: 5 % Exposure time: 28 d Method: OECD Test Guideline 301F

triphenyl phosphate:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: > 60 % Exposure time: 28 d

1,4-bis(2,3-epoxypropoxy)butane:

Biodegradability	:	Inoculum: activated sludge Concentration: 20 mg/l Result: Not readily biodegradable. Biodegradation: 43 % Exposure time: 28 d Method: OECD Test Guideline 301F
Biochemical Oxygen Demand (BOD)	:	No data available
Chemical Oxygen Demand (COD)	:	No data available
BOD/COD	:	No data available
ThOD	:	No data available
BOD/ThOD	:	No data available
Dissolved organic carbon (DOC)	:	No data available
Physico-chemical removability	:	No data available

Components:

Bisphenol A epoxy resin:

Stability in water	:	Degradation half life(DT50): 4.83 d (25 °C) pH: 4 Method: OECD Test Guideline 111 Remarks: Fresh water Degradation half life(DT50): 7.1 d (25 °C) pH: 9 Method: OECD Test Guideline 111 Remarks: Fresh water Degradation half life(DT50): 3.58 d (25 °C) pH: 7 Method: OECD Test Guideline 111 Remarks: Fresh water

Photodegradation	:	No data available
Impact on Sewage Treatment	:	No data available

Bioaccumulative potential

Components:

Bisphenol A epoxy resin:

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

triphenyl phosphate:

Bioaccumulation	:	Bioconcentration factor (BCF): 132

Components:

Bisphenol A epoxy resin:

Partition coefficient: n-octanol/water	:	log Pow: 3.242 (25 °C) pH: 7.1 Method: OECD Test Guideline 117

triphenyl phosphate:

Partition coefficient: n-octanol/water	:	log Pow: 4.59 - 4.76

1,4-bis(2,3-epoxypropoxy)butane:

Partition coefficient: n-octanol/water	:	log Pow: -0.269 (25 °C) pH: 6.7 Method: OECD Test Guideline 117

Mobility in soil

Mobility	:	No data available

Components:

Bisphenol A epoxy resin:

Distribution among environmental compartments	:	Koc: 445

triphenyl phosphate:

Distribution among environmental compartments	:	Koc: 2514 - 5500

1,4-bis(2,3-epoxypropoxy)butane:

Distribution among environmental compartments	:	Koc: 12.59Method: OECD Test Guideline 121
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available

Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	Not applicable

Additional ecological information - Product	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

TDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, DIBROMOCRESYL GLYCIDYL ETHER)
Class	:	9
Packing group	:	III
Labels	:	9

IATA

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN, DIBROMOCRESYL GLYCIDYL ETHER)

Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, DIBROMOCRESYL GLYCIDYL ETHER)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

TDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, DIBROMOCRESYL GLYCIDYL ETHER)
Class	:	9
Packing group	:	III
Labels	:	9
ERG Code	:	171
Marine pollutant	:	yes(BISPHENOL A EPOXY RESIN, DIBROMOCRESYL GLYCIDYL ETHER)

SECTION 15. REGULATORY INFORMATION

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

CH INV	:	The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
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IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory

Inventories

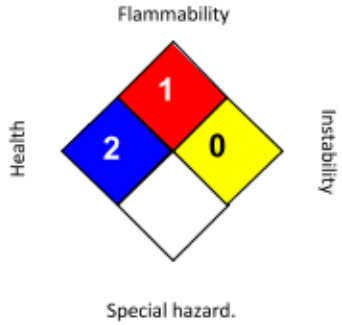
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

Canada. CEPA 1999 Significant New Activity (SNAc) List
No substances are subject to a Significant New Activity Notification.

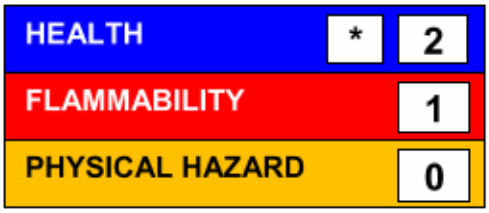
SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Revision Date : 05/23/2017

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

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

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

HARDENER 9861 US

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2017	400001012500	Date of first issue: 03/22/2017

SECTION 1. IDENTIFICATION

Product name : HARDENER 9861 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547

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 : Hardener

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitisation : Category 1

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 + H332 Harmful if swallowed or if inhaled
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
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 + P364 Take off contaminated clothing and wash it before reuse.
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)
N,N"-[1,7-heptanediylbis[(4,5-dihydro-1H-imidazole-2,1-diyl)-2,1-ethanediyl]]bis1,2-ethanediamine	179796-73-7	93 - 95
modified aliphatic amine	Not Assigned	3 - 5
3-aminopropyltriethoxysilane	919-30-2	1 - 3

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

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. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do not give milk or alcoholic beverages. 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.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	No data is available on the product itself.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	No data is available on the product itself.
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	No data is available on the product itself.
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.
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. Electrical installations / working materials must comply with the technological safety standards.
Materials to avoid	:	Strong acids Strong bases Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Hand protection

Material	:	butyl-rubber
Break through time	:	> 8 h
		Solvent-resistant gloves (butyl-rubber) Nitrile rubber 10 - 480 min
		Neoprene gloves
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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	amber
Odour	:	ammoniacal, mild
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	:	135 °C Method: closed cup
Evaporation rate	:	< 1
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit	:	No data is available on the product itself.
Lower explosion limit	:	No data is available on the product itself.
Vapour pressure	:	No data is available on the product itself.
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1.05
Density	:	No data is available on the product itself.
Solubility(ies)		
Water solubility	:	No data is available on the product itself.
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	:	No data is available on the product itself.
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 decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available
Hazardous decomposition products	:	Carbon oxides Burning produces noxious and toxic fumes. Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 500.04 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 11.18 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Components:

3-aminopropyltriethoxysilane:
Acute dermal toxicity : LD50 (Rabbit, male and female): 4,075 mg/kg
Method: Acute Dermal Toxicity
Assessment: The substance or mixture has no acute dermal

toxicity

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitisation

Product:

Remarks: Causes sensitisation.

Assessment: No data available

Germ cell mutagenicity

Components:

3-aminopropyltriethoxysilane:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Components:

3-aminopropyltriethoxysilane:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

No data available

Carcinogenicity - Assessment : No data available

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.

Reproductive toxicity

Effects on fertility : No data available

Effects on foetal development : No data available

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

3-aminopropyltriethoxysilane:
Species: Rat, male and female
NOAEL: 200 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Method: Subchronic toxicity

Repeated dose toxicity - Assessment : No data available

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

Neurological effects

No data available

Further information

Product:

Remarks: No data available

Other health hazards

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

3-aminopropyltriethoxysilane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 934 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:

3-aminopropyltriethoxysilane:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 331 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Components:

3-aminopropyltriethoxysilane:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : No data available

M-Factor (Chronic aquatic toxicity) : No data available

Components:

3-aminopropyltriethoxysilane:

Toxicity to microorganisms : EC50 (Pseudomonas putida): 43 mg/l
Exposure time: 5.75 h
Test Type: static test

Test substance: Fresh water

Toxicity to soil dwelling organisms	:	No data available
Plant toxicity	:	No data available
Sediment toxicity	:	No data available
Toxicity to terrestrial organisms	:	No data available
Ecotoxicology Assessment Acute aquatic toxicity	:	No data available
Chronic aquatic toxicity	:	No data available
Toxicity Data on Soil	:	No data available
Other organisms relevant to the environment	:	No data available

Persistence and degradability

Components:

3-aminopropyltriethoxysilane:

Biodegradability	:	Inoculum: activated sludge Concentration: 8.95 mg/l Result: Not readily biodegradable. Biodegradation: 67 % Exposure time: 28 d Method: Directive 67/548/EEC Annex V, C.4.A.
Biochemical Oxygen Demand (BOD)	:	No data available
Chemical Oxygen Demand (COD)	:	No data available
BOD/COD	:	No data available
ThOD	:	No data available
BOD/ThOD	:	No data available
Dissolved organic carbon (DOC)	:	No data available
Physico-chemical removability	:	No data available
Stability in water	:	No data available
Photodegradation	:	No data available

Impact on Sewage Treatment	:	No data available

Bioaccumulative potential

Components:

3-aminopropyltriethoxysilane:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 3.4 Remarks: Does not bioaccumulate.

Components:

3-aminopropyltriethoxysilane:

Partition coefficient: n-octanol/water	:	log Pow: 1.7 (20 °C) pH: 7

Mobility in soil

Mobility	:	No data available
Distribution among environmental compartments	:	No data available
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available
Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential		Not applicable
Additional ecological information - Product	:	No data available
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with

chemical or used container.
Send to a licensed waste management company.

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

TDG
Not regulated as dangerous goods

IATA
Not regulated as dangerous goods

IMDG
Not regulated as dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

TDG
Not regulated as dangerous goods

SECTION 15. REGULATORY INFORMATION

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SECTION 16. OTHER INFORMATION

Further information

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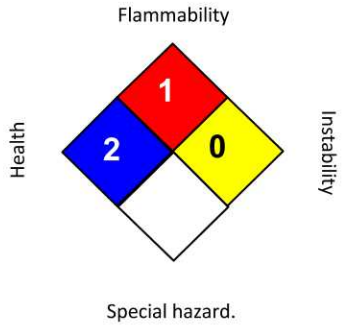

HMIS® IV:

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Revision Date : 03/22/2017

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