

EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

SECTION 1. IDENTIFICATION

Product name : EPOCAST® 1652 A 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
Telephone : Non-Emergency: (800) 257-5547
E-mail address of person responsible for the SDS : MSDS@huntsman.com
Emergency telephone : 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**

Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitization : Category 1
Acute aquatic toxicity : Category 2
Chronic aquatic toxicity : Category 2

GHS Label element

Hazard pictograms :



Signal Word : Danger

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:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

P272 Contaminated work clothing must 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 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.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

| Chemical Name | CAS-No. | Concentration (%) |
|----------------------------|------------|-------------------|
| Bisphenol A epoxy resin | 25068-38-6 | >= 30 - <= 60 |
| epoxy phenol novolac resin | 28064-14-4 | >= 13 - <= 30 |

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material 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.



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

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. FIRE-FIGHTING MEASURES

Suitable extinguishing media : No data is available on the product itself.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : 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 fire-fighters : 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.



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

- Advice on safe handling : Do not breathe vapors/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 sensitization 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.
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**Ingredients with workplace control parameters****Personal protective equipment**

- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection
Material : butyl-rubber
Break through time : > 8 h

Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
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



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

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 |
| Color | : white |
| Odor | : slight |
| Odor Threshold | : No data is available on the product itself. |
| pH | : No data is available on the product itself. |
| Flash point | : 143 °C Method: Pensky-Martens closed cup, closed cup |
| Evaporation rate | : No data is available on the product itself. |
| Flammability (solid, gas) | : 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. |
| Vapor pressure | : < 1 hPa (20 °C) |
| Relative vapor density | : No data is available on the product itself. |
| Relative density | : No data is available on the product itself. |
| Density | : 0.7 g/cm ³ (25 °C) |
| Solubility(ies) | |
| Water solubility | : practically insoluble (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. |
| Autoignition temperature | : No data is available on the product itself. |
| Decomposition temperature | : > 200 °C |
| Viscosity | : No data is available on the product itself. |
| Self-Accelerating decomposition temperature | : No data is available on the product itself. |



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

(SADT)

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 obnoxious and toxic fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity**Ingredients:**

Bisphenol A epoxy resin:

Acute oral toxicityIngredients : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

epoxy phenol novolac resin:

Acute oral toxicityIngredients : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : No data available

Ingredients:

Bisphenol A epoxy resin:

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

epoxy phenol novolac resin:

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

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 sensitization**Product:**

Remarks: Causes sensitization.

Assessment: No data available

Germ cell mutagenicity**Ingredients:**

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

epoxy phenol novolac resin:

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Result: positive

Concentration: 0 - 5000 ug/plate

Metabolic activation: with and without metabolic activation
Result: positive

Ingredients:

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

epoxy phenol novolac resin:

Genotoxicity in vivo

: Cell type: Germ
Application Route: Oral
Result: negative



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

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

Ingredients:

Bisphenol A epoxy resin:

Germ cell mutagenicity-
Assessment

: Weight of evidence does not support classification as a germ cell mutagen.

Germ cell mutagenicity-
Assessment

: No data available

Carcinogenicity**Ingredients:**

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

epoxy phenol novolac resin:

Species: Rat, (male and female)

Application Route: Oral

Exposure time: 24 month(s)

Dose: 15 mg/kg

Frequency of Treatment: 7 daily

Method: OECD Test Guideline 453

Result: negative

Species: Mouse, (male)

Application Route: Dermal

Exposure time: 24 month(s)



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

Dose: .1 mg/kg
Frequency of Treatment: 3 daily
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 daily
Method: OECD Test Guideline 453
Result: negative

Carcinogenicity - Assessment : No data available

ACGIH Suspected human carcinogen
cristobalite

Reproductive toxicity**Ingredients:**

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.

epoxy phenol novolac resin:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Ingredients:

Bisphenol A epoxy resin:
Effects on fetal development

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

Species: Rabbit, female
Application Route: Oral



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

General Toxicity Maternal: NOAEL (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: NOAEL (No observed adverse effect level): 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

epoxy phenol novolac resin:

Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: NOAEL (No observed adverse effect level): 30 mg/kg body weight
Result: No teratogenic effects.

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

Reproductive toxicity - Assessment : No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Repeated dose toxicity**Ingredients:**

Bisphenol A epoxy resin:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 50 mg/kg
Application Route: Ingestion
Exposure time: 14 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

No-observed-effect level: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL (No observed adverse effect level): 100 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 3 d
Method: Subchronic toxicity

epoxy phenol novolac resin:
Species: Rat, male and female
NOAEL (No observed adverse effect level): 50 mg/kg
Application Route: Ingestion
Exposure time: 14 Weeks
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
No-observed-effect level: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL (No observed adverse effect level): 100 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 3 d
Method: Subchronic toxicity

Repeated dose toxicity - : No data available
Assessment

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



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information**Product:**

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Ingredients:**

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

epoxy phenol novolac 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

Ingredients:

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

epoxy phenol novolac resin:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 2.7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

Ingredients:

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

epoxy phenol novolac 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

M-Factor (Acute aquatic toxicity)

: No data available

Ingredients:

epoxy phenol novolac resin:

Toxicity to fish (Chronic toxicity) : GLP: yes

Ingredients:

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

epoxy phenol novolac 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

M-Factor (Chronic aquatic toxicity)

: No data available

Ingredients:

Bisphenol A epoxy resin:

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

epoxy phenol novolac resin:

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



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

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

Further information:
No data available

Persistence and degradability**Ingredients:**

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

epoxy phenol novolac 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

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 : No data available



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

(DOC)

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****Ingredients:**Bisphenol A epoxy resin:
Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.epoxy phenol novolac resin:
Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.**Ingredients:**Bisphenol A epoxy resin:
Partition coefficient: n-
octanol/water : log Pow: 3.242 (25 °C)
pH: 7.1
Method: OECD Test Guideline 117epoxy phenol novolac resin:
Partition coefficient: n-
octanol/water : log Pow: 3.242 (25 °C)
pH: 7.1
Method: OECD Test Guideline 117**Mobility in soil**

Mobility : No data available

Ingredients:Bisphenol A epoxy resin:
Distribution among
environmental compartments : Koc: 445.
epoxy phenol novolac resin:
Distribution among
environmental compartments : Koc: 445.
Stability in soil : No data available**Other adverse effects**Environmental fate and
pathways : No data availableResults of PBT and vPvB
assessment : No data available

EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

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 Regulation****TDG**

| | |
|----------------------|--|
| UN number | : UN 3082 |
| Proper shipping name | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN) |
| 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, EPOXY PHENOL NOVOLAC RESIN) |



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

| | |
|--|-----------------|
| 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, EPOXY PHENOL NOVOLAC RESIN) |
| 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.

Domestic regulation**TDG**

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

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

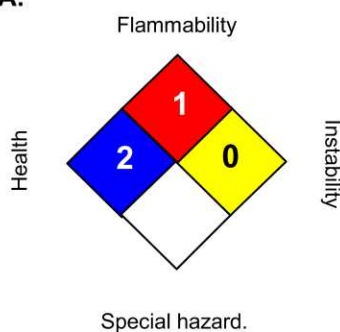
| | |
|--------|---|
| CH INV | : The mixture contains substances listed on the Swiss Inventory |
| TSCA | : On TSCA Inventory |
| DSL | : All components of this product are on the Canadian DSL. |
| AICS | : On the inventory, or in compliance with the inventory |
| NZIoC | : not determined |
| ENCS | : On the inventory, or in compliance with the inventory |
| ISHL | : On the inventory, or in compliance with the inventory |



EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/06/2016 | 400001008248 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

| | | |
|-------|---|---|
| KECI | : | On the inventory, or in compliance with the inventory |
| PICCS | : | On the inventory, or in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

| | |
|------------------------|----------|
| HEALTH | 2 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

Revision Date : 05/06/2016

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

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.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR

SAFETY DATA SHEET



Enriching lives through innovation

EPOCAST® 1652 A US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/06/2016 | 400001008248 | Date of first issue: 05/06/2016 |

HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

SECTION 1. IDENTIFICATION

Product name : EPOCAST® 1652 B 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
Telephone : Non-Emergency: (800) 257-5547
E-mail address of person responsible for the SDS : MSDS@huntsman.com
Emergency telephone : 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**

Flammable liquids : Category 4
Acute toxicity (Inhalation) : Category 4
Skin corrosion : Category 1B
Serious eye damage : Category 1
Respiratory sensitization : Category 1
Skin sensitization : Category 1

GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Precautionary Statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing must not be allowed out of the workplace.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P285 In case of inadequate ventilation wear respiratory protection.

Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

P305 + P351 + P338 + P310 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 or doctor/ physician.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Mixture

Hazardous ingredients

| Chemical Name | CAS-No. | Concentration (%) |
|--|------------|-------------------|
| Formaldehyde, reaction products with hexahydro-1,3-isobenzofurandione and triethylenetetramine | 68478-68-2 | 60 - 100 |
| 2-dimethylaminoethanol | 108-01-0 | 13 - 30 |
| hexahydrophthalic anhydride | 85-42-7 | 0.1 - 1 |

EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Call a physician or poison control center immediately.
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
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 induce vomiting.
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. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : No data is available on the product itself.
Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet
No data is available on the product itself.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion : No data is available on the product itself.



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

products

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.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.

Special protective equipment for fire-fighters : 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.
Ensure adequate ventilation.

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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/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.
Provide sufficient air exchange and/or exhaust in work rooms.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Conditions for safe storage : No smoking.
Keep in a well-ventilated place.
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**Ingredients with workplace control parameters****Personal protective equipment**

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

Hand protection

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

Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
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 : liquid

Color : amber

Odor : amine-like

EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

| | |
|--|---|
| Odor Threshold | : No data is available on the product itself. |
| pH | : No data is available on the product itself. |
| Flash point | : 63 °C Method: closed cup |
| Evaporation rate | : No data is available on the product itself. |
| Flammability (solid, gas) | : 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. |
| Vapor pressure | : No data is available on the product itself. |
| Relative vapor density | : No data is available on the product itself. |
| Relative density | : 1.1 |
| Density | : 0.98 g/cm ³ (25 °C) |
| Solubility(ies) | |
| Water solubility | : practically insoluble (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. |
| Autoignition temperature | : No data is available on the product itself. |
| Decomposition temperature | : > 200 °C |
| Viscosity | |
| Viscosity, dynamic | : 500 mPa.s (25 °C) |
| Self-Accelerating decomposition temperature (SADT) | : 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. |
| | Vapors may form explosive mixture with air. |
| Conditions to avoid | : Heat, flames and sparks. |
| Hazardous decomposition | : Carbon oxides |



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

products

Burning produces obnoxious 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**Ingredients:**

2-dimethylaminoethanol:

Acute oral toxicityIngredients : LD50 (Rat, male and female): 1,182.7 mg/kg
Method: OECD Test Guideline 401

hexahydrophthalic anhydride:

Acute oral toxicityIngredients : LD50 (Rat): 4,040 mg/kg
Method: Other guidelines
Assessment: The substance or mixture has no acute oral toxicity

Ingredients:

2-dimethylaminoethanol:

Acute inhalation toxicity : LC50 (Rat, male and female): 1641 ppm
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403

hexahydrophthalic anhydride:

Acute inhalation toxicity : LC50 (Rat, male and female): > 1.100 mg/m3
Exposure time: 4 h
Test atmosphere: dust/mist
Method: No information available.

Ingredients:

2-dimethylaminoethanol:

Acute dermal toxicity : LD50 (Rabbit, male): 1,219 mg/kg
Method: OECD Test Guideline 402

hexahydrophthalic anhydride:

Acute dermal toxicity : LD50 Dermal (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

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



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

Skin corrosion/irritation**Product:**

Remarks: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation**Product:**

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitization**Product:**

Remarks: Causes sensitization.

Assessment: No data available

Germ cell mutagenicity**Ingredients:**

2-dimethylaminoethanol:

Genotoxicity in vitro

: Concentration: ≤ 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Concentration: ≤ 10000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

hexahydrophthalic anhydride:

Genotoxicity in vitro

: Test Type: Chromosome aberration test in vitro
Species: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

Species: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Ingredients:

2-dimethylaminoethanol:
Genotoxicity in vivo

: Application Route: Intraperitoneal injection
Dose: 75 mg/kg
Method: OECD Test Guideline 474
Result: negative

Application Route: Intraperitoneal injection
Dose: 270 - 860 mg/kg
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

No data available

Carcinogenicity -
Assessment

: No data available

ACGIH

No ingredient 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**Ingredients:**

hexahydrophthalic anhydride:
Effects on fertility

: Species: Rat, male and female
Application Route: Oral
Dose: 0, 100, 300, 1000 mg/kg
Frequency of Treatment: 1 daily
General Toxicity Parent: 1,000 mg/kg body weight
Method: OECD Test Guideline 421
Result: Animal testing did not show any effects on fertility.
GLP: yes

Ingredients:

2-dimethylaminoethanol:
Effects on fetal development

: Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: NOAEL (No observed adverse effect level): 10 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects.

hexahydrophthalic anhydride:

Species: Rat, male and female
Application Route: Oral
Dose: 0, 100, 300 and 1000 mg/kg bo



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Frequency of Treatment: 1 daily
General Toxicity Maternal: LOAEL (Lowest observed adverse effect level): 300 mg/kg body weight
Developmental Toxicity: NOAEL (No observed adverse effect level): 1,000 mg/kg body weight
Method: OECD Test Guideline 421
Result: No adverse effects.
GLP: yes

Reproductive toxicity - : No data available
Assessment

STOT-single exposure**Ingredients:**

2-dimethylaminoethanol:

Target Organs: Respiratory Tract

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT-repeated exposure

No data available

Repeated dose toxicity**Ingredients:**

2-dimethylaminoethanol:

Species: Rat, male and female

NOEC: 87.5 mg/m³

Test atmosphere: vapor

Exposure time: 13 Weeks

Method: OECD Test Guideline 413

hexahydrophthalic anhydride:

Species: Rat, male and female

NOAEL: 100 mg/kg

Application Route: Oral

Exposure time: 6 Weeks

Number of exposures: one daily

Dose: 0, 100, 300, 1000 mg/kg

Group: yes

Method: OECD Test Guideline 407

GLP: no

Target Organs: Respiratory system

Repeated dose toxicity - : No data available
Assessment

Aspiration toxicity

No data available



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

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

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Ingredients:**

2-dimethylaminoethanol:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 146.63 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

hexahydrophthalic anhydride:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes

Ingredients:

2-dimethylaminoethanol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 98.37 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

hexahydrophthalic anhydride:



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 100 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202
 GLP: yes

Ingredients:

2-dimethylaminoethanol:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 66.08 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water

hexahydrophthalic anhydride:

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 91.9 mg/l
 Exposure time: 72 h
 Test Type: static test
 Method: Directive 67/548/EEC, Annex V, C.3.
 GLP: yes

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

Ingredients:

hexahydrophthalic anhydride:

Toxicity to bacteria : EC50 (activated sludge): 370 mg/l
 Exposure time: 3 h
 Test Type: static test
 Method: OECD Test Guideline 209
 GLP: yes

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



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:
No data available

Persistence and degradability**Ingredients:**

Formaldehyde, reaction products with hexahydro-1,3-isobenzofurandione and triethylenetetramine:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 15 %
Exposure time: 29 d
Method: OECD Test Guideline 301B

2-dimethylaminoethanol:

Biodegradability : Inoculum: Mixture
Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 60.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

hexahydrophthalic anhydride:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: Readily biodegradable.
Method: Directive 67/548/EEC Annex V, C.4.A.
GLP: yes
Remarks: Readily biodegradable, according to appropriate OECD test.

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



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Ingredients:**

hexahydrophthalic anhydride:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 4.73

Ingredients:

2-dimethylaminoethanol:

Partition coefficient: n-octanol/water : log Pow: -0.55 (23 °C)

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



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

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. Do not burn, or use a cutting torch on, the empty drum. |

SECTION 14. TRANSPORT INFORMATION**International Regulation****TDG**

| | |
|----------------------|---|
| UN number | : UN 2735 |
| Proper shipping name | : AMINES, LIQUID, CORROSIVE, N.O.S. (2-DIMETHYLAMINOETHANOL) |
| Class | : 8 |
| Packing group | : II |
| Labels | : 8 |

IATA

| | |
|--|---|
| UN/ID No. | : UN 2735 |
| Proper shipping name | : Amines, liquid, corrosive, n.o.s. (2-DIMETHYLAMINOETHANOL) |
| Class | : 8 |
| Packing group | : II |
| Labels | : Corrosive |
| Packing instruction (cargo aircraft) | : 855 |
| Packing instruction (passenger aircraft) | : 851 |

IMDG

| | |
|----------------------|---|
| UN number | : UN 2735 |
| Proper shipping name | : AMINES, LIQUID, CORROSIVE, N.O.S. (2-DIMETHYLAMINOETHANOL) |
| Class | : 8 |
| Packing group | : II |
| Labels | : 8 |
| EmS Code | : F-A, S-B |
| Marine pollutant | : no |



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 05/06/2016 |
| 1.1 | 05/07/2016 | 400001008586 | Date of first issue: 05/06/2016 |

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

Not applicable for product as supplied.

Domestic regulation**TDG**

| | |
|----------------------|---|
| UN number | : UN 2735 |
| Proper shipping name | : AMINES, LIQUID, CORROSIVE, N.O.S. (2-DIMETHYLAMINOETHANOL) |
| Class | : 8 |
| Packing group | : II |
| Labels | : 8 |
| ERG Code | : 153 |
| Marine pollutant | : no |

SECTION 15. REGULATORY INFORMATION

TSCA - 5(a) Significant New Use Rule List of Chemicals : Not relevant

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

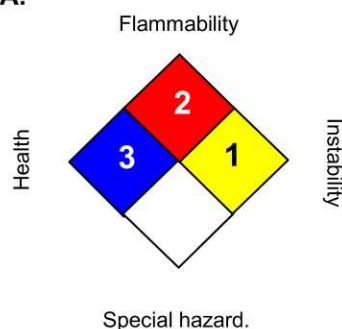
The ingredients of this product are reported in the following inventories:

| | |
|--------|---|
| CH INV | : The mixture contains substances listed on the Swiss Inventory |
| TSCA | : On TSCA Inventory |
| DSL | : This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL. |
| AICS | : On the inventory, or in compliance with the inventory |
| NZIoC | : On the inventory, or in compliance with the inventory |
| ENCS | : Low volume exemption |
| ISHL | : Low volume exemption |
| KECI | : Not in compliance with the inventory |
| PICCS | : Not in compliance with the inventory |
| IECSC | : Not in compliance with the inventory |



EPOCAST® 1652 B US

| | | | |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: |
| 1.1 | 05/07/2016 | 400001008586 | 05/06/2016 |
| | | | Date of first issue: 05/06/2016 |

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

| | |
|------------------------|----------|
| HEALTH | 3 |
| FLAMMABILITY | 2 |
| PHYSICAL HAZARD | 1 |

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, * = Chronic

Revision Date : 05/07/2016

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

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.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.