

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
 Date of first issue: 10/30/2015

SECTION 1. IDENTIFICATION

Product name : RENCAST® 4036 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 : SDS@huntsman.com
 Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Adhesives
 Restrictions on use : For industrial use only.

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Skin irritation : Category 2
 Serious eye damage : Category 1
 Skin sensitisation : Category 1
 Short-term (acute) aquatic hazard : Category 2
 Long-term (chronic) aquatic hazard : Category 2

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.

RENCAS[®] 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.
Response:
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P305 + P351 + P338 + 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/doctor.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P391 Collect spillage.
Storage:
 Not available
Disposal:
 P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
aluminium	7429-90-5	30 - 50
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	25 - 30
limestone	1317-65-3	10 - 20
Epoxyphenol Novolac Resin	28064-14-4	10 - 20
aluminium hydroxide	21645-51-2	5 - 10
1,4-bis(2,3-epoxypropoxy)butane	2425-79-8	3 - 5
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	0.25 - 1

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

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

SECTION 4. FIRST AID MEASURES

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
 Date of first issue: 10/30/2015

- General advice : Move out of dangerous area.
 Consult a physician.
 Show this safety data sheet to the doctor in attendance.
 Treat symptomatically.
 Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
 Get medical attention if symptoms occur.
- 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 : 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.
 Keep eye wide open while rinsing.
 If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
 Do NOT induce vomiting.
 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.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet
- Hazardous combustion products : Metal oxides
 Carbon oxides
 Halogenated compounds
 Carbon dioxide (CO₂)
 Carbon monoxide
- 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.

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

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 or spray mist. 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. 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 sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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

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

Recommended storage temperature : 36 - 104 °F / 2 - 40 °C

Further information on storage stability : Stable under normal conditions.

RENCAS[®] 4036 US
 Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
 Date of first issue: 10/30/2015
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
aluminium	7429-90-5	TWA (total dust)	15 mg/m ³ (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³ (Aluminium)	OSHA Z-1
		TWA (Respirable fraction)	1 mg/m ³ (Aluminium)	ACGIH
		TWA (total dust)	15 mg/m ³ (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³ (Aluminium)	OSHA Z-1
		TWA (Respirable fraction)	1 mg/m ³ (Aluminium)	ACGIH
limestone	1317-65-3	TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
aluminium hydroxide	21645-51-2	TWA (Respirable fraction)	1 mg/m ³ (Aluminium)	ACGIH
		TWA (Respirable fraction)	1 mg/m ³ (Aluminium)	ACGIH

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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 : grey

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 : > 351 °F / > 177 °C

Flash point : > 300 °F / > 149 °C
 Method: Pensky-Martens closed cup

Evaporation rate : No data is available on the product itself.

Flammability (solid, gas) : No data is available on the product itself.

Flammability (liquids) : No data is available on the product itself.

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

Lower explosion limit / Lower flammability limit : No data is available on the product itself.

Vapour pressure : 0.0097309 hPa (176 °F / 80 °C)

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

Relative density : 1.73 - 1.78

Density : No data is available on the product itself.

SAFETY DATA SHEET

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
Date of first issue: 10/30/2015

Solubility(ies)
Water solubility : negligible

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 dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

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

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : aluminium oxide
carbon dioxide
carbon monoxide
Halogenated compounds

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

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Acute inhalation toxicity - Product : Acute toxicity estimate: 35.28 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
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**Components:**

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

Species: Rabbit

Assessment: Mild skin irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

Epoxyphenol Novolac Resin:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

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

Species: Rabbit

Method: OECD Test Guideline 404

Result: Skin irritation

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Species: Rat

Assessment: No skin irritation

Method: OECD Test Guideline 402

Result: No skin irritation

Serious eye damage/eye irritation**Components:**

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

Species: Rabbit

Result: Irritating to eyes.

Assessment: Mild eye irritant

Method: OECD Test Guideline 405

limestone:

Species: Rabbit

Result: Mechanical irritation of the eyes is possible.

Assessment: No eye irritation

Epoxyphenol Novolac Resin:

Species: Rabbit

Result: Irritating to eyes.

RENCAS[®]T 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Method: OECD Test Guideline 405

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

Species: Rabbit

Result: Risk of serious damage to eyes.

Method: OECD Test Guideline 405

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Species: Rabbit

Result: No eye irritation

Assessment: No eye irritation

Method: OECD Test Guideline 405

Respiratory or skin sensitisation**Components:**

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

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: Causes sensitisation.

limestone:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

Epoxyphenol Novolac Resin:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: May cause sensitisation by skin contact.

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

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: The product is a skin sensitiser, sub-category 1A.

Assessment: No data available

Germ cell mutagenicity**Components:**

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

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: positive

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

Epoxyphenol 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

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
 Remarks: Not classified due to data which are conclusive
 although insufficient for classification.

Concentration: 1 - 100 µg/L
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: positive
 Remarks: Not classified due to data which are conclusive
 although insufficient for classification.

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
 Test system: Chinese hamster ovary cells
 Concentration: 50 ug/plate
 Metabolic activation: negative
 Method: OECD Test Guideline 473
 Result: positive

Test Type: Ames test
 Test system: Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: positive

Components:

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

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

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

RENCAS[®] 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Epoxyphenol Novolac Resin:

Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Result: negative

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

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

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

Germ cell mutagenicity- : No data available
Assessment

Carcinogenicity**Components:**

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

Species: Rat, male and female
Application Route: Oral
Exposure time: 24 month(s)
Dose: 15 mg/kg
Frequency of Treatment: 7 days/week
Method: OECD Test Guideline 453
Result: negative

Species: Mouse, male
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 0.1 mg/kg
Frequency of Treatment: 3 days/week
Method: OECD Test Guideline 453

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

Epoxyphenol 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)
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

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

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

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

Reproductive toxicity**Components:**

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

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

Epoxyphenol 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.

Components:

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

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

Species: Rabbit, female
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

Epoxyphenol Novolac Resin:

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

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

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

Species: Rat, male and female

NOAEL: 50 mg/kg

Application Route: Ingestion

Exposure time: 14 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOEL: 10 mg/kg

Application Route: Skin contact

Exposure time: 13 Weeks

Number of exposures: 5 d

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

Epoxyphenol Novolac 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

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511



HUNTSMAN

Enriching lives through innovation

RENCAS[®]T 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

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

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

Ingestion: No data available

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

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

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

limestone:

Toxicity to fish : LC50: > 56,000 mg/l
Exposure time: 96 h

Epoxyphenol 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

aluminium hydroxide:

Toxicity to fish : LC50: > 10,000 mg/l
Exposure time: 96 h

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:

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

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

Epoxyphenol 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

RENCAS[®] 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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

aluminium hydroxide:
Toxicity to daphnia and other : EC50: > 10,000 mg/l
aquatic invertebrates Exposure time: 48 h

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): ca. 67.9 mg/l
aquatic invertebrates Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to algae/aquatic : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
plants Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Epoxyphenol Novolac Resin:
Toxicity to algae/aquatic : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l
plants Exposure time: 72 h
Test Type: static test
Test substance: Fresh water

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Toxicity to algae/aquatic : EbC50 (Selenastrum capricornutum (green algae)): ca. 9 mg/l
plants Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

M-Factor (Acute aquatic) : No data available

RENCAS[®] 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

toxicity)

Components:

Epoxyphenol Novolac Resin:

Toxicity to fish (Chronic toxicity) : GLP: yes

Components:

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

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

limestone:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): > 350 mg/l
 Exposure time: 125 d
 Test Type: semi-static test
 Test substance: Fresh water

Epoxyphenol 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

Components:

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

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

Epoxyphenol Novolac 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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Toxicity to microorganisms : EC50: > 1,000 mg/l
 Exposure time: 3 h
 Test Type: static test

RENCAS[®] 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
 Date of first issue: 10/30/2015

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
 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:**

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

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

Epoxyphenol 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

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

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Biodegradability : Test Type: aerobic
 Inoculum: activated sludge
 Concentration: 5 mg/l
 Result: Not readily biodegradable.
 Biodegradation: ca. 1.1 %

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
Date of first issue: 10/30/2015

Exposure time: 28 d
Method: OECD Test Guideline 301D

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:

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

Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Epoxyphenol Novolac Resin:

Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Stability in water : Degradation half life(DT50): ca. 17 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): ca. 7.98 d (77 °F / 25 °C) pH: 4

RENCAS[®] 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Method: OECD Test Guideline 111
 Remarks: Fresh water

Degradation half life(DT50): ca. 10.8 d (77 °F / 25 °C) pH: 9
 Method: OECD Test Guideline 111
 Remarks: Fresh water

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Bioaccumulation : Bioconcentration factor (BCF): 31
 Remarks: Does not bioaccumulate.

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

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Partition coefficient: n-octanol/water : log Pow: 3.242 (77 °F / 25 °C)
 pH: 7.1
 Method: OECD Test Guideline 117

limestone:
 Partition coefficient: n-octanol/water : log Pow: < 1

Epoxyphenol Novolac Resin:
 Partition coefficient: n-octanol/water : log Pow: 3.242 (77 °F / 25 °C)
 pH: 7.1
 Method: OECD Test Guideline 117

1,4-bis(2,3-epoxypropoxy)butane:
 Partition coefficient: n-octanol/water : log Pow: -0.269 (77 °F / 25 °C)
 pH: 6.7
 Method: OECD Test Guideline 117

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
 Partition coefficient: n-octanol/water : log Pow: 3.59 (68 °F / 20 °C)
 pH: 7
 Method: OECD Test Guideline 107

Mobility in soil

Mobility : No data available

Components:

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

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511 **FREEMAN**

HUNTSMAN
Enriching lives through innovation

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
Date of first issue: 10/30/2015

Distribution among environmental compartments : Koc: 445
Epoxyphenol Novolac Resin:
Distribution among environmental compartments : Koc: 445
1,4-bis(2,3-epoxypropoxy)butane:
Distribution among environmental compartments : Koc: 12.59
Method: OECD Test Guideline 121

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:
Distribution among environmental compartments : OECD Test Guideline 121
Koc: ca. 755, log Koc: ca. 2.88
Method: 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 : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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.

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

Dispose of as hazardous waste in compliance with local and national regulations.
 Dispose of contents/ container to an approved waste disposal plant.

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

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA**

UN/ID No. : 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 : Miscellaneous
 Packing instruction (cargo
 aircraft) : 964
 Packing instruction
 (passenger aircraft) : 964
 Environmentally hazardous : yes

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.

National Regulations**DOT Classification**

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

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
Date of first issue: 10/30/2015

Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)
Remarks : Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1-chloro-2,3-epoxypropane	106-89-8	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV : On the inventory, or in compliance with the inventory

DSL : This product contains one or several components listed in the Canadian NDSL.

AICS : On the inventory, or in compliance with the inventory

NZIoC : not determined

ENCS : On the inventory, or in compliance with the inventory

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

RENCAST® 4036 US

Version 1.1 Revision Date: 02/11/2019 SDS Number: 400001012677 Date of last issue: 10/30/2015
Date of first issue: 10/30/2015

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
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)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

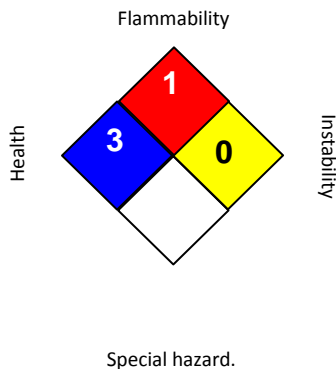
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH		3
FLAMMABILITY		1
PHYSICAL HAZARD		0

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 : 02/11/2019
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1
Limits for Air Contaminants
ACGIH / TWA : 8-hour, time-weighted average
OSHA Z-1 / TWA : 8-hour time weighted average

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511



HUNTSMAN

Enriching lives through innovation

RENCAST® 4036 US

Version	Revision Date:	SDS Number:	Date of last issue: 10/30/2015
1.1	02/11/2019	400001012677	Date of first issue: 10/30/2015

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.

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

SECTION 1. IDENTIFICATION

Product name : REN® 1511 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 29 CFR 1910.1200**

Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin corrosion : Category 1B
Serious eye damage : Category 1
Skin sensitisation : Category 1
Reproductive toxicity : Category 1B
Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney, Liver, Pancreas)
Acute aquatic toxicity : Category 1
Chronic aquatic toxicity : Category 1

GHS label elements

Hazard pictograms : 

Signal word : Danger

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	07/18/2017	400001012654	05/26/2016
			Date of first issue: 05/26/2016

Hazard statements : H302 + H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H360F May damage fertility.
H373 May cause damage to organs (Kidney, Liver, Pancreas) through prolonged or repeated exposure if swallowed.
H410 Very 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.
P260 Do not breathe 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
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/doctor.
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/doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing 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

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
diethylmethylbenzenediamine	68479-98-1	30 - 60
isophorone diamine	2855-13-2	13 - 30
metaxylenediamine	1477-55-0	3 - 7
2,2'-iminodi(ethylamine)	111-40-0	3 - 7
4,4'-isopropylidenediphenol	80-05-7	1 - 3

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

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Remove to fresh air immediately. Get medical attention immediately.
- In case of skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Get medical attention if irritation develops and persists.
- In case of eye contact : Immediately flush eyes for at least 15 minutes. Get medical attention.
Remove contact lenses.
Protect unharmed eye.
Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
Keep eye wide open while rinsing.
- If swallowed : If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel.
Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
- 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 : Do not allow run-off from fire fighting to enter drains or water courses.

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

- 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 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.
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 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.

**REN® 1511 US**

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
metaxylenediamine	1477-55-0	C	0.1 mg/m ³	ACGIH
2,2'-iminodi(ethylamine)	111-40-0	TWA	1 ppm	ACGIH

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

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

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : brown

Odour : amine-like

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.

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

Boiling point : No data is available on the product itself.

Flash point : > 93.33 °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 / Upper flammability limit : No data is available on the product itself.

Lower explosion limit / Lower flammability limit : No data is available on the product itself.

Vapour pressure : > 0.1333 hPa (25 °C)

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

Relative density : 1.01

Density : No data is available on the product itself.

Solubility(ies)
Water solubility : slightly soluble

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 : No decomposition if stored and applied as directed.

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

reactions
Conditions to avoid : No data available

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 : 1,093 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 3.83 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
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: Extremely corrosive and destructive to tissue.

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

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitisation**Product:**

Remarks: Causes sensitisation.

Components:

metaxylenediamine:

Assessment: Harmful if swallowed or if inhaled., May be harmful in contact with skin., Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Germ cell mutagenicity**Components:**

diethylmethylbenzenediamine:

Genotoxicity in vitro : Metabolic activation: negative
Method: OECD Test Guideline 476

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

Result: negative

metaxylenediamine:
Genotoxicity in vitro

: Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

4,4'-isopropylidenediphenol:
Genotoxicity in vitro

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

Components:

diethylmethylbenzenediamine:
Genotoxicity in vivo

: Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

metaxylenediamine:
Genotoxicity in vivo

: Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Exposure time: single dose
Dose: 750 mg/kg body weight
Method: OECD Test Guideline 474
Result: negative

2,2'-iminodi(ethylamine):
Genotoxicity in vivo

: Cell type: Somatic
Application Route: Oral
Dose: 85 - 850 mg/kg
Method: OECD Test Guideline 474
Result: negative

Application Route: Oral
Result: negative

4,4'-isopropylidenediphenol:
Genotoxicity in vivo

: Method: OECD Test Guideline 474
Result: negative

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
 Date of first issue: 05/26/2016

Components:

metaxylenediamine:
 Germ cell mutagenicity-
 Assessment : Tests on bacterial or mammalian cell cultures did not show
 mutagenic effects., Animal testing did not show any mutagenic
 effects.

Germ cell mutagenicity-
 Assessment : No data available

Carcinogenicity**Components:**

diethylmethylbenzenediamine:
 Species: Rat, (male and female)
 Application Route: Oral
 Exposure time: 24 month(s)
 Dose: 1.8 - 3.2 mg/kg
 Frequency of Treatment: 7 daily
 Method: OECD Test Guideline 451
 Result: negative

2,2'-iminodi(ethylamine):
 Species: Mouse, (male)
 Application Route: Dermal
 Dose: 56.3 mg/kg
 Frequency of Treatment: 3 daily
 Result: negative

4,4'-isopropylidenediphenol:
 Species: Rat, (male and female)
 Application Route: Oral
 Exposure time: 103 weeks
 Frequency of Treatment: 7 daily
 Result: negative

Carcinogenicity -
 Assessment : No data available

IARC No component of this product present at levels greater than or
 equal to 0.1% is identified as probable, possible or confirmed
 human carcinogen by IARC.

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

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

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

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
 Date of first issue: 05/26/2016

Reproductive toxicity**Components:**

metaxylenediamine:
 Effects on fertility

: Species: Rat, male and female
 Application Route: Oral
 Dose: 0, 50, 150 and 450 mg/kg
 General Toxicity - Parent: No-observed-effect level: 50 - 150 mg/kg body weight
 General Toxicity F1: No-observed-effect level: 450 mg/kg body weight
 Method: OECD Test Guideline 421
 Result: No effects on fertility and early embryonic development were detected.

2,2'-iminodi(ethylamine):

Species: Rat, male and female
 Application Route: Oral
 General Toxicity - Parent: No observed adverse effect level: 30 mg/kg wet weight
 Method: OECD Test Guideline 421
 Result: positive

4,4'-isopropylidenediphenol:

Species: Rat, male and female
 Application Route: Oral
 Method: OECD Test Guideline 416
 Result: Embryotoxic effects and adverse effects on the offspring were detected.

Components:

isophorone diamine:
 Effects on foetal development

: Species: Rat, female
 Application Route: Oral
 General Toxicity Maternal: No-observed-effect level: 50 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

metaxylenediamine:

Test Type: Pre-natal
 Species: Rat, male and female
 Strain: Sprague-Dawley
 Application Route: Oral
 Dose: 0, 30, 100, 300 mg/kg milligram per kilogram
 Duration of Single Treatment: 19 d
 Frequency of Treatment: 1 daily
 General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight
 Embryo-foetal toxicity: No observed adverse effect level: 300 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No effects on fertility and early embryonic development were detected.

2,2'-iminodi(ethylamine):

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
100 mg/kg body weight
Method: OECD Test Guideline 421
Result: No adverse effects

4,4'-isopropylidenediphenol:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
< 160 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

Components:

metaxylenediamine:

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

4,4'-isopropylidenediphenol:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT - single exposure**Components:**

2,2'-iminodi(ethylamine):

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol:

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

STOT - repeated exposure**Components:**

diethylmethylbenzenediamine:

Exposure routes: Ingestion

Target Organs: Pancreas, Liver, Kidney

Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Components:**

diethylmethylbenzenediamine:

Species: Rat, male and female

NOAEL: 8 - 10 mg/kg

Application Route: Ingestion

Exposure time: 2,160 h

Method: Subchronic toxicity

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511



HUNTSMAN

Enriching lives through innovation

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

isophorone diamine:

Species: Rat, male and female
NOEC: 60 mg/kg, 200 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 216 h
Number of exposures: 6 h
Method: Subchronic toxicity

metaxylenediamine:

Species: Rat, male and female
NOEL: 150 mg/kg
Application Route: oral (gavage)
Exposure time: 672 h
Number of exposures: 7 d
Dose: 0, 10, 40, 150 and 600 mg/kg/d
Method: OECD Test Guideline 407

Species: Rat, male and female
NOEC: 0.6 mg/m³
Application Route: Inhalation
Exposure time: 13 weeks
Number of exposures: 6 hours per day, 5 days per we
Dose: 0, 0.64, 5.1, 31 mg/m³
Method: OECD Test Guideline 413
Target Organs: Lungs

2,2'-iminodi(ethylamine):

Species: Rat, male and female
NOEC: 70 - 80 mg/m³
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 360 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOAEL: 114 mg/kg/d
Application Route: Skin contact
Exposure time: 9,600 h
Number of exposures: 6 d
Method: Chronic toxicity

4,4'-isopropylidenediphenol:

Species: Dog, male and female
NOEC: 75 mg/kg, 10 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511 **FREEMAN**

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

Species: Rat, male and female
LOAEL: 600 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subchronic toxicity

Components:

metaxylenediamine:

Repeated dose toxicity - Assessment : Harmful if swallowed or if inhaled., May be harmful in contact with skin., Causes severe skin burns and eye damage.
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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

diethylmethylbenzenediamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 200 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38412

isophorone diamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 110 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

metaxylenediamine:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 87.6 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

2,2'-iminodi(ethylamine):

Toxicity to fish : LC50: 430 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

4,4'-isopropylidenediphenol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h

Components:

diethylmethylbenzenediamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.5 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

isophorone diamine:

Toxicity to daphnia and other aquatic invertebrates : EC50: 23 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

metaxylenediamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15.2 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

2,2'-iminodi(ethylamine):

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 32 mg/l
Exposure time: 48 h

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
 Date of first issue: 05/26/2016

Test Type: static test
 Test substance: Fresh water

4,4'-isopropylidenediphenol:
 Toxicity to daphnia and other
 aquatic invertebrates : EC50: 3.9 - 10.2 mg/l
 Exposure time: 48 h

(Ceriodaphnia dubia (Water flea)):

Components:

diethylmethylbenzenediamine:
 Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): ca. 104
 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

isophorone diamine:
 Toxicity to algae : EC50: 37 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.3.

metaxylenediamine:
 Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 32.1 mg/l
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201

2,2'-iminodi(ethylamine):
 Toxicity to algae : EbC50 (Selenastrum capricornutum (green algae)): 1,164
 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

4,4'-isopropylidenediphenol:
 Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1
 mg/l
 Exposure time: 96 h

Components:

diethylmethylbenzenediamine:
 M-Factor (Acute aquatic
 toxicity) : 1

Components:

2,2'-iminodi(ethylamine):
 Toxicity to fish (Chronic
 toxicity) : NOEC: 10 mg/l
 Exposure time: 28 d
 Test Type: semi-static test
 Test substance: Fresh water

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
 Date of first issue: 05/26/2016

Method: OECD Test Guideline 210

4,4'-isopropylidenediphenol:
 Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.016 mg/l
 Exposure time: 444 d
 Test Type: flow-through test
 Test substance: Fresh water
 Method: Fish Life Cycle Toxicity
 Remarks: Toxic to aquatic organisms.

Components:

metaxylenediamine:
 Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 4.7 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Method: OECD Test Guideline 211

2,2'-iminodi(ethylamine):
 Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5.6 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.20

Components:

4,4'-isopropylidenediphenol:
 M-Factor (Chronic aquatic toxicity) : 1

Components:

diethylmethylbenzenediamine:
 Toxicity to microorganisms : EC50 (Pseudomonas putida): >= 170 mg/l
 Exposure time: 24 h
 Test Type: static test
 Test substance: Fresh water

isophorone diamine:
 Toxicity to microorganisms : EC10: 1,120 mg/l
 Exposure time: 18 h
 Method: Measured
 : (Pseudomonas putida): 1,120 mg/l
 Exposure time: 18 h
 Test Type: static test
 Test substance: Fresh water

metaxylenediamine:
 Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
 Exposure time: 0.5 h
 Test Type: static test
 Method: OECD Test Guideline 209

Components:

2,2'-iminodi(ethylamine):

**REN® 1511 US**

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 56 d
Method: OECD Test Guideline 222

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment**Components:**

2,2'-iminodi(ethylamine):

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Components:

4,4'-isopropylidenediphenol:

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:**

diethylmethylbenzenediamine:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: < 60 %
Exposure time: 28 d

Result: Not readily biodegradable.
Biodegradation: < 1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

isophorone diamine:

Biodegradability : Inoculum: activated sludge
Concentration: 6.9 mg/l
Result: Not readily biodegradable.
Biodegradation: 8 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.A.

metaxylenediamine:

Biodegradability : Inoculum: activated sludge
Concentration: 14.2 mg/l
Result: Not readily biodegradable.
Biodegradation: 49 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511 **FREEMAN**

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

2,2'-iminodi(ethylamine):
Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 87 %
Exposure time: 21 d
Method: OECD Test Guideline 301D

4,4'-isopropylidenediphenol:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1 - 2 %
Exposure time: 28 d

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

Components:

diethylmethylbenzenediamine:
Photodegradation : Test Type: Air
Rate constant: < .00001

2,2'-iminodi(ethylamine):
Photodegradation : Test Type: Air
Rate constant: 500000
Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Components:

diethylmethylbenzenediamine:
Bioaccumulation : Bioconcentration factor (BCF): 13.82
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 2.75
Remarks: Does not bioaccumulate.

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

metaxylenediamine:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 0.3
Remarks: Does not bioaccumulate.

2,2'-iminodi(ethylamine):
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.3 - 6.3
Exposure time: 42 d
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

Components:

diethylmethylbenzenediamine:
Partition coefficient: n-
octanol/water : log Pow: 1.17 (25 °C)
Method: OECD Test Guideline 107

isophorone diamine:
Partition coefficient: n-
octanol/water : log Pow: 0.99 (23 °C)
pH: 6.34
Method: OECD Test Guideline 107

metaxylenediamine:
Partition coefficient: n-
octanol/water : log Pow: 0.18 (25 °C)
pH: 10.3 - 10.4
Method: OECD Test Guideline 107

2,2'-iminodi(ethylamine):
Partition coefficient: n-
octanol/water : log Pow: -1.58 (20 °C)
pH: 7

Mobility in soil

Mobility : No data available

Components:

diethylmethylbenzenediamine:
Distribution among
environmental compartments : Koc: 132 - 170
Koc: 31.72 - 551

isophorone diamine:
Distribution among
environmental compartments : Koc: 928

2,2'-iminodi(ethylamine):
Distribution among
environmental compartments : Koc: 19111

Stability in soil : No data available

Other adverse effects

Environmental fate and
pathways : No data available

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

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 : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very 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

IATA

UN/ID No. : UN 2735

Proper shipping name : Polyamines, liquid, corrosive, n.o.s.
(ISOPHORONE DIAMINE, DIETHYLENE TRIAMINE)

Class : 8

Packing group : II

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511
FREEMAN

HUNTSMAN
Enriching lives through innovation

REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

Labels : Corrosive
Packing instruction (cargo aircraft) : 855
Packing instruction (passenger aircraft) : 851

IMDG

UN number : UN 2735
Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(ISOPHORONE DIAMINE, DIETHYLENE TRIAMINE)
Class : 8
Packing group : II
Labels : 8
EmS Code : F-A, S-B
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

DOT Classification

UN/ID/NA number : UN 2735
Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(ISOPHORONE DIAMINE, DIETHYLENE TRIAMINE)
Class : 8
Packing group : II
Labels : CORROSIVE
ERG Code : 153
Marine pollutant : yes(DIETHYLTOLUENEDIAMINE, 4,4'-ISOPROPYLIDENEDIPHENOL)

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

4,4'-isopropylidenediphenol	80-05-7	1.998 %
-----------------------------	---------	---------

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016

California Prop. 65

WARNING: This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV	: The formulation contains substances listed on the Swiss Inventory, Not in compliance with the inventory
DSL	: This product contains one or several components that are not on the Canadian DSL nor NDSL.
AICS	: Not in compliance with the inventory
NZIoC	: Not in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: Low volume exemption, On the inventory, or in compliance with the inventory
TCSI	: Not 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)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)	
diethylmethylbenzenediamine	68479-98-1

SAFETY DATA SHEET

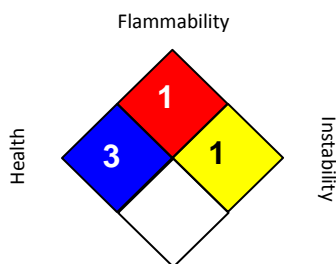
REN® 1511 US

Version 1.1 Revision Date: 07/18/2017 SDS Number: 400001012654 Date of last issue: 05/26/2016
Date of first issue: 05/26/2016

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

HEALTH	*	3
FLAMMABILITY		1
PHYSICAL HAZARD		1

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 : 07/18/2017

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / C : Ceiling limit

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.

SAFETY DATA SHEET

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511



HUNTSMAN

Enriching lives through innovation

REN® 1511 US

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	07/18/2017	400001012654	Date of first issue: 05/26/2016
