

SAFETY DATA SHEET

RENLAM M-1 CI

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

Product name : RENLAM M-1 CI
Product type : Liquid.
Product description : Preparation
Use of the substance/mixture : Resin for tooling systems

Supplier : Huntsman Advanced Materials (Australia)
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2. HAZARDS IDENTIFICATION

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Xi; R36/38
 R43
 N; R51/53

Human health hazards : Irritating to eyes and skin. May cause sensitisation by skin contact.

Environmental hazards : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 11 for more detailed information on health effects and symptoms.

Hazard classification : HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

This material is classified as hazardous according to the health criteria of ASCC.

Poison schedule (Australia) : S5

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Preparation

Ingredient name	CAS number	%	Number	Classification
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) See section 16 for the full text of the R-phrases declared above	25068-38-6	60 - 100	01-2119456619-26	Xi; R36/38 [1] R43 N; R51/53

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3. COMPOSITION/INFORMATION ON INGREDIENTS

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance

[4] vPvB-substance

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

First-aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See Section 11 for more detailed information on health effects and symptoms.

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 1126; New Zealand 0800 764 766.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : In a fire or if heated, a pressure increase will occur and the container may burst. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Carbon oxides, Burning produces obnoxious and toxic fumes.

5. FIRE-FIGHTING MEASURES

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

7. HANDLING AND STORAGE

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. Refer to special instructions/safety data sheet. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
- Packaging materials**
- Recommended** : Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
polyethylene glycol 200 - 600	TRGS900 AGW (Germany, 2/2010). TWA: 1000 mg/m ³ 8 hour(s). Form: inhalable fraction PEAK: 8000 mg/m ³ 15 minute(s). Form: inhalable fraction

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

If cured material made from this product is to be cut or sanded, ensure that dust is kept below the Worksafe Exposure Standard for inspirable dusts (10mg/m³) or the ACGIH Exposure Standard for respirable dusts (3mg/m³).

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Refer to Australian/New Zealand Standard AS/NZS 1715 and AS/NZS 1716 for guidance on selection and use of respiratory devices.

Hand protection : Material of gloves for long term application (BTT>480min):

(BTT = Break Through Time)

Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber

Material of gloves for short term/splash application (10min<BTT<480min):

nitrile rubber

Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US).

Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers.

Additional information can be found for instance at www.gisbau.de.

Refer to Australian/New Zealand Standard AS/NZS 2161.1: 2000 for guidance on selection and use of protective gloves.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance

- Physical state** : Liquid.
Colour : Light yellow
Odour : Slight

Important health, safety and environmental information

- Boiling point** : >200°C (>392°F)
Flash point : Closed cup: >200°C (>392°F) [DIN 51758 EN 22719 (Pensky-Martens Closed Cup)]
Decomposition temperature : >200°C (>392°F)
Vapour pressure : <0.00001 kPa (<0.000075 mm Hg) [20°C] 20 deg C
Density : 1.1 g/cm³ [25°C (77°F)]
Water solubility : practically insoluble
Viscosity : Dynamic: 1275 to 1625 mPa·s (1275 to 1625 cP) 25 deg C

10. STABILITY AND REACTIVITY

- Chemical stability** : The product is stable.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
 If cured material made using this product is to be machined, or sanded, a dust explosion hazard may be created. All dust generated should be removed as quickly as possible, preferably by the use of a vacuum cleaner.
Conditions to avoid : No specific data.
Materials to avoid : strong acids, strong bases, strong oxidising agents
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
 Carbon oxides, Burning produces obnoxious and toxic fumes.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics

- Absorption** : Not available.
Distribution : Not available.
Metabolism : Not available.
Elimination : Not available.

Potential acute health effects

- Inhalation** : No known significant effects or critical hazards.
Ingestion : Irritating to mouth, throat and stomach.
Ingestion : No adverse health effects expected, however large amounts may cause nausea and vomiting.
Skin contact : Irritating to skin. May cause sensitisation by skin contact.
Eye contact : Irritating to eyes.

Acute toxicity

- | Product/ingredient name | Result | Species | Dose | Exposure |
|---------------------------|------------------|---------|-------------|----------|
| RENLAM M-1 CI | LD50 Oral | Rat | >5000 mg/kg | - |
| Conclusion/Summary | : Not available. | | | |

Potential chronic health effects

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

11. TOXICOLOGICAL INFORMATION

Respiratory	: Where product is used in poorly ventilated areas, and/or in confined spaces and/or at elevated temperatures, vapours may be irritating to the respiratory system.		
Sensitiser			
Product/ingredient name	Route of exposure	Species	Result
RENLAM M-1 CI	skin	Guinea pig	Sensitising
Conclusion/Summary	: Not available. Chronic exposure: Product is a skin sensitiser. Repeated or prolonged skin contact may result in allergic contact dermatitis.		
Carcinogenicity			
Conclusion/Summary	: Not available.		
Mutagenicity			
Conclusion/Summary	: Not available.		
Teratogenicity			
Conclusion/Summary	: Not available.		
Reproductive toxicity			
Conclusion/Summary	: Not available.		
Chronic effects	: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.		
Carcinogenicity	: No known significant effects or critical hazards.		
Mutagenicity	: No known significant effects or critical hazards.		
Teratogenicity	: No known significant effects or critical hazards.		
Developmental effects	: No known significant effects or critical hazards.		
Fertility effects	: No known significant effects or critical hazards.		
Over-exposure signs/symptoms			
Inhalation	: No specific data.		
Ingestion	: No specific data.		
Skin	: Adverse symptoms may include the following: irritation redness		
Eyes	: Adverse symptoms may include the following: irritation watering redness		

12. ECOLOGICAL INFORMATION

Environmental effects : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	-	Acute EC50 9.4 mg/L Fresh water	Algae	72 hours Static
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50 1.7 mg/L Fresh water	Daphnia	48 hours Static
	-	Acute IC50 >100 mg/L Fresh water	Bacteria	3 hours Static
	OECD 203 Fish, Acute Toxicity Test	Acute LC50 1.5 mg/L Fresh water	Fish	96 hours Static
	OECD 211	Chronic NOEC	Daphnia	21 days Semi-

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12. ECOLOGICAL INFORMATION

Daphnia Magna 0.3 mg/L Fresh static
 Reproduction water
 Test

Conclusion/Summary : Not available.

Other ecological information**Biodegradability**

Product/ingredient name	Test	Result	Dose	Inoculum
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	OECD Derived from OECD 301F (Biodegradation Test)	5 % - Not readily - 28 days	20 mg/L Oxygen consumption	-

Conclusion/Summary : Not available.

Product/ingredient name

reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)

Aquatic half-life

Fresh water 4.83 days
 Fresh water 3.58 days
 Fresh water 7.1 days

Photolysis

-

Biodegradability

Not readily

Bioaccumulative potential**Product/ingredient name**

reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)

LogP_{ow}

3.242

BCF

31

Potential

low

Other adverse effects : No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS**Methods of disposal**

: The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.







Hazardous waste

: Yes.

14. TRANSPORT INFORMATION**International transport regulations****Proper shipping name**

- ADR** : Environmentally hazardous substance, liquid, n.o.s. BISPHENOL A EPOXY RESIN DIISOPROPYLNAPHTHALENE ISOMERS (reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700))
- IMDG** : Environmentally hazardous substance, liquid, n.o.s. (DIISOPROPYLNAPHTHALENE ISOMERS) (BISPHENOL A EPOXY RESIN) (Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)). Marine pollutant (Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700), naphthalene, bis(1-methylethyl)-)
- IATA** : Environmentally hazardous substance, liquid, n.o.s. (DIISOPROPYLNAPHTHALENE ISOMERS) (BISPHENOL A EPOXY RESIN) (Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700))

14. TRANSPORT INFORMATION

Regulatory information	UN number	Classes	Packing group	Label	Additional information
Land - road/railway ADR/RID Class	UN3082	9	III	 	Classification code M6 Hazard identification number 90 Hazchem code •3Z
Sea IMDG Class	UN3082	9	III	 	Emergency schedules (EmS) F-A, S-F
Air IATA Class	UN3082	9	III	 	Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 964 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 964

15. REGULATORY INFORMATION

EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :



Xi, N Irritant, Dangerous for the environment

Risk phrases

- : R36/38- Irritating to eyes and skin.
- : R43- May cause sensitisation by skin contact.
- : R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

- : S28- After contact with skin, wash immediately with plenty of soap and water.
- : S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
- : S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

Contains

- : reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)

Exceptional labelling of special preparations

- : Contains epoxy constituents. See information supplied by the manufacturer.

National regulationsAustralia

Poison schedule (Australia) : S5

International regulationsInternational lists

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15. REGULATORY INFORMATION

Europe inventory	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are listed or exempted.
Canada inventory	: All components are listed or exempted.
Australia inventory (AICS)	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Japan inventory (ENCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.

16. OTHER INFORMATION

Full text of R-phrases referred to in sections 2 and 3 - Europe	: R36/38- Irritating to eyes and skin. R43- May cause sensitisation by skin contact. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
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Full text of classifications referred to in sections 2 and 3 - Europe	: Xi - Irritant N - Dangerous for the environment
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References

Epoxy Resins and Curing Agents; Toxicology, Health, Safety and Environmental Aspects (Plastics Europe, May 2006)

History

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Date of previous issue	: No previous validation.
Version	: 1

✔ Indicates information that has changed from previously issued version.

Notice to reader

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

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

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

Enquiries should be addressed to your nearest Huntsman sales office or to:

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16. OTHER INFORMATION

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