



MATERIAL SAFETY DATA SHEET

Revision Date: 30/08/2013
Date Issued: 30/08/2013

REACTOR R-75 AD

I. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

TRADE NAME: REACTOR R-75 AD
PRODUCT CLASS: ALIPHATIC POLYISOCYANATE (HDI) IN ORGANIC SOLVENT
CHEMICAL FAMILY: POLYISOCYANATE (HDI)
HEALTH: WARNING

INFORMATION ON

MANUFACTURER/SUPPLIER: EL NERVION S.A DE C.V.
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TLALNEPANTLA, EDO. MÉXICO, 54090
MÉXICO
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II. COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	COMPONENTS	CAS NUMBER	CONCENTRATION [%]
01	ALIPHATIC POLYISOCYANATE RESIN	CONFIDENTIAL	100,00

III. HAZARDS IDENTIFICATION

Emergency Overview

Physical Appearance

Form: Liquid
Colour: Light yellow
Odour: Negligible, odorless
Water solubility: Insoluble, reacts slowly with water to liberate gas
pH: Not applicable

EXPOSURE EFFECTS: Flammable. Could be released gases / toxic fumes during combustion and / or thermal decomposition. A closed container may burst under extreme heat or when the content has been contaminated with water. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Vapors or mist may pose a risk of fire and explosion if exposed to high heat or ignition. Vapors can travel to areas outside the workplace before lighting / back to vapor source. Ground containers and equipment before making the transfer to avoid static sparks. Has been associated with prolonged and repeated occupational overexposure to solvents with brain damage and nervous system permanently. Intentional misuse by deliberately concentrating or inhaling solvents may be harmful or fatal. Cause respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. The damage to the lungs and respiratory sensitization may be permanent. Cause skin irritation. May cause allergic



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skin reaction. Skin sensitizer. April animal experiments and other research indicate that diisocyanates Contact with skin may play a role in the causes of sensitization to isocyanates and respiratory reaction. Cause eye irritation, may cause lung damage, can affect the nervous system, can cause brain damage, liver damage, can cause kidney damage. Contains material which may cause cancer.

Potential health effects

OVER-EXPOSURE (prolonged or repeated use): CAN AGGRAVATE OR ACCENTUATE ANY OF THESE EFFECTS.

SKIN CONTACT: Causes irritation with symptoms of redness, itching and inflammation. May cause sensitization. Persons previously sensitized can experience ic allergic reactions of the skin with symptoms of reddening, itching, swelling and rashes. Cured material is difficult to remove.

INHALATION: Vapors or mist diisocyanate or polyisocyanate at concentrations above exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, cough, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with preexisting non-specific bronchial hyperreactivity can respond to concentrations below the exposure limits or patterns with similar symptoms, as well as attacks of asthma or asthma-like symptoms. The exposure far above the permitted limits or guidelines, can lead to bronchitis, bronchial spasm and pulmonary edema (fluid in the lungs). They do have reported cases of hypersensitivity or chemical pneumonitis, with flu-like symptoms (eg fever , chills). These symptoms may occur up to several hours after exposure. These effects are usually reversible.

EYES CONTACT: Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary injury to the cornea. Vapor may cause irritation with symptoms of burning and tearing.

INGESTION: May cause irritation. Symptoms may include abdominal pain, nausea, vomiting and diarrhea.

PRIMARY ROUTE(S) OF ENTRY: SKIN CONTACT, INHALATION, CONTACT, INGESTION, EYES.

CARCINOGENICITY: No carcinogenic substances as defined by IARC, NTP and / or OSHA.

IV. FIRST AID MEASURES

GENERAL ADVICE

Remove or removing contaminated or saturated clothing immediately and dispose of safety.

Inhalation

Move to on area free from further exposure. Seek immediate medical attention. Apply oxygen or artificial respiration if needed. Asthma symptoms may develop and may be immediate or delayed for several hours. Extreme asthmatic reactions can endanger life.



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Skin contact

Immediately remove contaminated clothing and shoes. Wash with soap and water. Use warm water if possible. Wash clothing before reuse. For severe exposures, immediately contact under a safety shower and start washing. Consult a physician if irritation develops and persists.

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use warm water possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if you are easily removable, and continue eye irrigation for at least 15 minutes. Seek medical attention if irritation develops.

Ingestion

Do not induce vomiting rinse mouth with water. Do not give anything by mouth to an unconscious person. Seek medical attention.

Notes to physician

After absorbing large amount of substance, apply therapy for irritative effects. If substance has been swallowed, early endoscopy is recommended in order to assess mucosa lesions in the oesophagus and stomach which may appear. If necessary, suck away leftover substance. Allergic reactions cannot be excluded. Apply treatment of allergic reaction if necessary.

Eyes: Stain for evidence of injury to the cornea. If the cornea has burns, apply a preparation of antibiotic / steroid, as needed. The vapors in the workplace also produce reversible corneal apitelial affecting vision.

Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestión: Treat symptomatically. There is no specific antidote. Induce vomiting is contraindicated because of the irritating nature of the compound.

Inhalation: Treatment is essentially symptomatic. A person with a dermal sensitization reaction to this material or lung should be removed from subsequent exposure to any diisocyanate.

V. FIRE-FIGHTING MEASURES

FLASH POINT:	> 482°F (250°C) (DIN EN 22719)
LOWER EXPLOSIVE LIMIT:	Not determined
UPPER EXPLOSIVE LIMIT:	Not determined
AUTOIGNITION TEMPERATURE:	Approx. 869 °F (465 °C)
FLAMMABILITY-OSHA:	COMBUSTIBLE - CLASS II
OSHA FLAMMABILITY CLASSIFICATION:	FLAMMABLE LIQUID

SUITABLE EXTINGUISHING MEDIA: Foam, carbon dioxide, dry chemical, water fog (water spray for large fires).



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SPECIFIC HAZARDS DURING FIRE FIGHTING: In case of fire, cool containers at risk with water. Closed container may explode if strongly heated. Flammable liquid. Vapors may reach an ignition source and flash back. Explosive mixtures may form at temperatures at or above the flash point.

EXTINGUISHING MEDIA WHICH MUST NOT BE USED FOR SAFETY REASONS: Not applicable.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, toxic gases or fumes.

OSHA FLAMMABLE CLASS: Combustible Liquid, Class II.

VI. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Wear suitable protective clothing, gloves and eye/face protection. Use self-contained breathing apparatus and chemically protective clothing. Evacuate personnel to safe areas.

SPILLS AND LEAKS:

Evacuate personnel not required for emergency control. Cordon off the area and prevent access. Remove sources of ignition. Notify management. Put on personal protective equipment. Check the source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Spill or leak more (stagnant liquid): Liquid released can be pumped to a closed metal container, but not sealed, for disposal. The process may generate heat. Spill or leak lower (weat surface): Cover spill area with suitable absorbent material. Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open top metal containers. Repeat applications decontamination solution followed by absorbent material until the surface. For this purpose have been used Swype® test kits. Place lid loosely and allow containers to vent for 72 hours to allow exhaust carbon dioxide (CO₂).

STEPS TO BE TAKEN IN CASE OF SPILL: Ventilate area, remove or remove possible sources of sparks or flame and stir-absorbent inert material.

Additional procedures for spill / neutralization

- (1) Colorimetric decontaminant solution Laboratories Inc. (CLI).
- (2) A mixture of 75% water, 20% of a nonionic surfactant (eg. Plurafac SL-62, Tergitol TMN-10) and 5% n-propanol.
- (3) A mixture of 80% water and 20% of a nonionic surfactant (eg. Plurafac SL-62, Tergitol TMN-10).
- (4) A mixture of 90% water, 3-8% concentrated ammonium hydroxide or ammonia, and 2% of liquid detergent.



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STEPS TO BE TAKEN IN CASE OF SPILL:

◆ **SMALL SPILL:** ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

◆ **LARGE SPILL:** ELIMINATE ALL IGNITION SOURCES. PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND CLAY, EARTH, FLOOR ABSORBENT AND SHOVEL INTO CONTAINERS. PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER, BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

◆ **SMALL SPILL:** ALLOW VOLATILE PORTION TO EVAPORATE IN HOOD. ALLOW SUFFICIENT TIME FOR VAPOURS TO COMPLETELY CLEAR HOOD DUCT WORK. DISPOSE OF REMAINING MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS.

◆ **LARGE SPILLS:** DESTROY BY LIQUID INCINERATION. CONTAMINATED ABSORBENT MAY BE DEPOSITED IN LANDFILL IN ACCORDANCE WITH LOCAL STATE AND FEDERAL REGULATIONS.

VII. HANDLING AND STORAGE

HANDLING

General Procedures Handling

Advice on Safe Handling: Wear respiratory protection when spraying.
Ensure adequate ventilation.
Use only in well-ventilated areas. Avoid breathing vapors and/or aerosols. Avoid contact with skin and eyes. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid contact with eyes. Use personal protective equipment. When using, DO NOT EAT, DRINK OR SMOKE.

Advice on protection against fire and explosion: Take necessary action to avoid static charges, keep away from ignition sources.

STORAGE

Requirements for storage areas and containers

Keep containers tightly closed in cool, dry, well ventilated place.

Storage Temperature:

Minimum: -29.2 °F (-34 °C)

Maximum: 122 °F (50 °C)



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Shelf life:

6 months @ 77 ° F (25 ° C): After the date of manufacture.

Precautions for handling / storage

Do not breathe vapors, mists, or dusts. Use gives adequate ventilation to maintain levels of diisocyanates in the air below the exposure limits. Use respiratory protection if heated, sprayed or use the material in a confined space, or exceeded the exposure limit.

Inhalation. Material can cause sensitization asthmatic either a single inhalation exposure to relatively high concentrations, or by repeated inhalation exposures at lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates not be exposed to vapors or spray mists. Avoid contact with skin and eyes. Use suitable eye protection and skin. Wash thoroughly after handling the material.

Do not breathe smoke and gases created by overheating or burning of this material. Decomposition products can be highly toxic and irritating. Store in airtight containers to prevent moisture contamination. Do not reseal containers if they are suspected of being contaminated.

Further Information

Keep tightly sealed in original packing.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures

Provide for good ventilation if vapours/aerosol are formed.

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

Personal protective equipment

General protective measures: Avoid contact with eyes and skin.

Hygiene measures: No smoking, eating or drinking allowed when using this product. Wash hands before breaks and at end of work shift or using the toilet.

Respiratory protection: Wear appropriate respirator when ventilation is inadequate. In case of formation of vapors/aerosols: respiratory protective equipment, cartridge for organic gases and vapors.

Hand protection: Gloves made of nitril (NBR)
Gloves made of butyl (IIR)
Neoprene gloves
The breakthrough time of the selected glove(s) must be greater than the intended use period.

Eye protection: Chemical resistant goggles must be worn.



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Protective clothing: Light protective clothing is required.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid
Colour: Slightly yellow
Odour: Negligible, odorless
Water solubility: Insoluble, reacts slowly with water to liberate CO₂ gas
pH: Not determined
Melting temperature: Not applicable.
Boiling temperature: Not applicable, decomposition.
Vapour pressure: Approximately HDI polyisocyanate 5.2×10^{-9} @ 68°F (20°C) mmHg
Flash point: > 482°F (250°C) (DIN 22719)
Density: Approx. 1.1600 g/cm³
Viscosity: 2800 cPs

X. STABILITY AND REACTIVITY

Thermal decomposition: Not determined

Hazardous reactions: No hazardous reactions known with proper storage and handling.

Hazardous polymerization: No

Stability: This product is stable under normal storage conditions.

Hazardous decomposition products: (BY FIRE, BURNING OR WELDING): Carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), dense black smoke, hydrogen cyanide, isocyanate, isocyanic acid, other compounds not determined.

Materials to avoid: water, amines, strong bases, alcohols, copper alloys.

Conditions to avoid: Heat, open flame, arc or sparks.

Dangerous reactions: Contact with moisture, other materials that react with isocyanates, or temperatures above 177°C (350°F) may cause polymerization.



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XI. TOXICOLOGICAL INFORMATION

LD50 (ACUTE ORAL TOX) : Estimated to be greater than 2,000 mg/kg (rats)
LD50 (ACUTE DERMAL TOX) : OECD TG 404, 4 hours, slightly irritating (rabbits)
LD50 (ACUTE INHALATION TOX) : Rabitt, OECD TG 405, non-irritating
EFFECTS OF CHRONIC EXPOSURE: Not available.
SENSITIZATION: dermal: sensitizer (guinea pig maximization test)
Skin: Non-sensitizer (guinea pig)
Inhalation: Non-sensitizer (guinea pig)
CARCINOGENICITY: Not available.
REPRODUCTIVE TOXICITY: Not available.
TERATOGENICITY: Not available.
MUTAGENECITY: Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic
Activation: with / without)

XII. ECOLOGICAL INFORMATION

No ecotoxicological studies are available. The product is considered to be water pollutant. Do not allow to enter soil, waterways or waste water canal.

Ecotoxicity effects

Aquatic toxicity:

Biodegradation

2% Exposure time: 28 days, is not readily biodegradable.

Toxicity to fish:

CL50:> 28.3 mg / l (Zebra fish (Brachydanio rerio, 96 h)

Acute toxicity to aquatic invertebrates:

EC50:>=100 mg / L (water flea (Daphia magna), 48 h)

Toxicity to aquatic plants:

EC50:> 1.000 mg / L, (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to microorganisms

EC50:> 10,000 mg / L, (Microorganisms in Activated Sludge, 3 h)

Toxicity to other organisms:

No data available.

Persistence and degradability

Mobility:

No data available.

Bioaccumulation:

No data is available on the product itself.

COV' s:

<520 g/L



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XIII. DISPOSAL CONSIDERATIONS

The arrangement shall be in accordance with federal environmental control laws, existing state and local. Incineration is the preferred method.

Product disposal and Disposal requirements:

In accordance with local authority regulations, take to special waste incineration plant.

Contaminated packaging:

Empty containers with product residues; observe all precautions for the product. Not hot or weld empty containers cut electric or gas because vapors and gases are formed highly toxic. If empty contaminated packaging are recycled or disposed of the receiver must be informed about potential hazards.

DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

XIV. TRANSPORT INFORMATION

DOT (INLAND)

Proper Shipping name:	Reactor R-75 AD
Class:	3
UN/ID No:	1263
Packing Group:	III
Risk label:	3

IATA/ICAO (AIR TRANSPORT)

Proper Shipping name:	Reactor R-75 AD
Class:	3
UN/ID No:	1263
Packing Group:	III
Risk label:	3

IMDG/IMO (SHIPPING)

Proper Shipping name:	Reactor R-75 AD
Class:	3
UN/ID No:	1263
Packing Group:	III
Risk label:	3



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XV. REGULATORY INFORMATION

Federal regulations of the United States

Standard Classification Hazard Communication OSHA: **dangerous**

HMIS RATINGS

XVI. OTHER INFORMATION

NFPA RATING

HEALTH: 2
FLAMMABILITY: 1
REACTIVITY 1
OTHER: G

HEALT: 2*
FLAMMABILITY: 3
PHYSICAL HAZARD: 1
*= Chronic hazard

THE INFORMATION PROVIDED IN THIS SAFETY DATA SHEET IS CORRECT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF AT THE DATE OF ITS PUBLICATION. THE INFORMATION GIVEN IS DESIGNED ONLY AS A GUIDANCE FOR SAFE HANDLING, USE, PROCESSING, STORAGE, TRANSPORTATION, DISPOSAL AND RELEASE AND IS NOT TO BE CONSIDERED A WARRANTY OR QUALITY SPECIFICATION. THE INFORMATION RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED AND MAY NOT BE VALID FOR SUCH MATERIAL USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS, UNLESS SPECIFIED IN THE TEXT.

<END OF MSDS>