



MATERIAL SAFETY DATA SHEET

Revision Date: 22/10/2013

Date Issued: 22/10/2013

REACTOR R-387

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

TRADE NAME: REACTOR R-387
PRODUCT CLASS: AMINE
CHEMICAL FAMILY: MODIFIED CYCLOALIPHATIC AMINE
HEALTH: WARNING

INFORMATION ON

MANUFACTURER/SUPPLIER: EL NERVION S.A DE C.V.
ALDAMA # 5, SAN. JERÓNIMO TEPETLACALCO,
TLALNEPANTLA, EDO. MÉXICO, 54090
MÉXICO
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II. COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	COMPONENTS	CAS NUMBER	CONCENTRATION [%]
01	RESIN CURING AGENT	CONFIDENTIAL	24.00
02	MODIFIED SALT TOLERANCE	CONFIDENTIAL	0.70
03	CLAY ORGANOPHILIC	CONFIDENTIAL	1.30
04	PYROGEN SILICA MICRONIZED	CONFIDENTIAL	1.15
05	MAGNESIUM SILICATE	14807-96-6	34.0
06	MODIFIED POLYSILOXANE	CONFIDENTIAL	0.10
07	METHYL TOLUENE	1330-20-7	13.0
08	EPOXY SOLVENT MIXTURE	MIX	22.0

III. HAZARDS IDENTIFICATION

Emergency Overview

Physical Appearance

Form: Liquid creamy
Colour: Beige
Odour: Ammoniacal
Water solubility: Insoluble
pH: Not applicable

EXPOSURE EFFECTS: Flammable. Could be released gases / toxic fumes during combustion and / or thermal decomposition. A closed container can explode with extreme heat. 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



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can travel to areas outside the workplace before lighting / back to vapor source. Containers should be grounded and the 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. Airways. The damage to the lungs and respiratory sensitization may be permanent. Cause skin irritation. May cause allergic skin reaction. Skin sensitizer.

Potential health effects

The EXPOSURE (prolonged or repeated use) may aggravate or accentuate any of these effects.

SKIN CONTACT: Harmful in contact with skin. Causes burns to skin. If absorbed through the skin, can cause effects on the central nervous system such as headache, nausea, dizziness, confusion, breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

INHALATION: Toxic by inhalation. Can cause severe burns of eyes, skin and respiratory tract. It can cause effects on the central nervous system such as headache, nausea, dizziness, confusion, breathing difficulties. Severe cases of overexposure can result in respiratory failure. Very toxic by inhalation of mists and / or aerosols industrial chemicals as this material acute toxicity values of aerosol, as shown in section 11, are not classified as toxic by inhalation, as defined by national transport United States and abroad.

EYES CONTACT: Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The exposed individuals can see circles around bright lights. This effect is temporary and has no known residual effect. The vapour can cause corneal edema (glauropsia) atmosphere when in contact with eyes. Causes eye burns. May cause blindness. Severe eye irritation.

INGESTION: Harmful is swallowed. If ingested, severe burns of the mouth and throat, as well as a danger of perforation of esophagus and stomach. It can cause effects on the central nervous system such as headache, nausea, vomiting, abdominal pain, dizziness, confusion, breathing difficulties. Severe cases of overexposure can result in respiratory failure.

MEDICAL CONDITIONS AGGRAVATED: Eye disorders of the skin disease and allergies. Adverse skin effects (such as rash, irritation or corrosion). Adverse respiratory effects (such as cough, chest tightness or shortness of breath).

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



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IV. FIRST AID MEASURES

GENERAL ADVICE

Consult a physician. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should immediately begin CPR.

Inhalation

If inhalation of mists or spray, take the affected person and take it to a cool place. Appearance of any inconvenience that include severe irritation of the mucus lining (nose, throat, and eyes), sneezing, coughing and tears flow. In case of persistent discomfort, seek medical attention immediately. If breathing has stopped or is labored give assisted respirations, supplemental oxygen may be indicated. If the heart has stopped trained personnel should begin cardiopulmonary resuscitation immediately, move to a place with fresh air.

Skin contact

Immediately remove all contaminated clothing and strange chemical if possible to do so without delay. Rinse immediately with plenty of water for at least 20 minutes. Cover wound with sterile gauze. Remove contaminated clothing and shoes.

Eye contact

In case of contact, immediately flush eyes with plenty of water, or if necessary, with eye rinsing solution. If you have persistent discomfort, consult an ophthalmologist.

Ingestion

Malaise if medical attention immediately. Do not induce vomiting. If the person vomits and is lying on her back, will be placed in the recovery position, prevent aspiration of vomit, turn the victim's head to the side.

NOTE TO PHYSICIANS: Application of corticosteroid cream has been effective in treating skin irritation.

V. FIRE-FIGHTING MEASURES

FLASH POINT:	230 °F (110 °C)
LOWER EXPLOSIVE LIMIT:	Not determined
UPPER EXPLOSIVE LIMIT:	Not determined
AUTOIGNITION TEMPERATURE:	Not determined
FLAMMABILITY-OSHA:	COMBUSTIBLE - CLASS II
OSHA FLAMMABILITY CLASSIFICATION:	CORROSIVE LIQUID

SUITABLE EXTINGUISHING MEDIA: Alcohol resistant foam, carbon dioxide, dry chemical, water fog (water spray for large fires), dry sand, limestone powder.

SPECIFIC HAZARDS DURING FIRE FIGHTING: In case of fire cool endangered containers with water. Closed container may rupture if strongly heated. Flammable liquid. Vapors may



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reach an ignition source and flash back. The staff at risk is downwind should be evacuated.

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: Incomplete combustion may produce carbon monoxide, carbon dioxide, toxic gases or fumes.

SPECIAL HAZARDS: You can generate ammonia gas. May generate toxic gases nitrogen oxide. Water use can lead to the formation of very toxic aqueous solutions. Do not allow run-off from fire fighting to enter drains or water courses. Incomplete combustion, can form carbon monoxide. Ammonia can be released at high temperatures. In case of incomplete combustion, increased formation of nitrogen oxides (NO_x) can be produced. Staff located downwind should be evacuated. Burning produces obnoxious and toxic 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.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area, remove sources of spark or flame, and remove with inert absorbent.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

- **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.



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

VII. HANDLING AND STORAGE

HANDLING

General Procedures Handling

Advice on Safe Handling: Do not use sodium nitrite or other agents nitrosating in formulations containing this product is suspected to cause cancer, could form nitrosamines. Ensure adequate ventilation. Use only in well-ventilated areas. Avoid breathing vapors and/or aerosols. Avoid contact with skin and eyes. Sprinklers emergency eyewash stations should be accessible. Avoid contact with eyes. Use personal protective equipment. When using, DO NOT EAT, DRINK OR SMOKE.

Advice on protection against fire and explosion: Take precautionary measures against static charges; keep away from sources of ignition.

STORAGE

Requirements for storage areas and containers

Keep containers tightly closed in cool, well-ventilated place. Do not store near acids.

Shelf life:

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

Further Information

Keep tightly sealed in original packing, do not store in reactive metal containers.

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.



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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: Not required for well ventilated areas. 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: Impervious gloves
PVC disposable gloves
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.

Protective clothing: Light protective clothing is required.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid creamy
Colour: Beige-arena
Odour: Ammoniacal
Water solubility: Insoluble
pH: Not applicable
Melting temperature: Not measured
Boiling temperature: >392°F (200°C)
Vapour pressure: Not determined
Flash point: 230 °F (110 °C)
Density: 1,1000 - 1,3000 g/cm³
Viscosity: 3,000 - 5,000 Cps

X. STABILITY AND REACTIVITY

Thermal decomposition: Not determined

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

Hazardous polymerization: No



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Stability:	This product is stable under normal storage conditions.
Hazardous decomposition products:	<u>(BY FIRE, BURNING OR WELDING):</u> Carbon dioxide (CO ₂), carbon monoxide (CO), nitrogen oxides (NO _x), (the Nitrogen oxide can react with vapors water to form corrosive nitric acid TLV=2 ppm), dense black smoke, ammonia, nitrosamines, aldehydes, flammable hydrocarbon fragments (eg acetylene) and certain other compounds.
Materials to avoid:	Organic acids (eg acetic acid, citric acid, etc., mineral acids, slowly corrodes product copper, aluminum, zinc and galvanized surfaces, CARE! N-nitrosamines, many of which are known to be powerful carcinogens may be formed when the product comes into contact with acid nitroso, nitrates or atmospheres with high concentrations of nitrous oxide, nitrous acid and other nitrosating agents, oxidizing agents. Hypochlorite sodium, reactive metals (sodium, calcium, zinc, etc). Materials react with hydroxyl compounds, oxidizing.
Conditions to avoid:	Heat, open flame, arc or sparks.
Dangerous reactions:	Not determined.

XI. TOXICOLOGICAL INFORMATION

LD50 (ACUTE ORAL TOX) :	No data available for this product.
LD50 (ACUTE DERMAL TOX) :	No data available for this product.
LD50 (ACUTE INHALATION TOX) :	No data available for this product. female)
EFFECTS OF CHRONIC EXPOSURE:	This product contains no carcinogens listings according to IARC, ACGIH, NTP and / or OSHA concentrations of 0.1 percent or greater. Contact repeated or prolonged cause sensitization, asthma. The results of a series of tests short-term genotoxicity made this material or its components indicate activity mutagenic. Rats exposed to 800 mg/Kg of alcohol benzyl orally for thirteen weeks showed central nervous system depression and changes histopathological brain, thymus and muscle skeletal. Level not Observed Adverse Effect (NOAEL) was 400 mg/Kg. There was no evidence of carcinogenicity in a two-year in rats and mice. Product components can affect the nervous system.
SENSITIZATION:	dermal: Severe skin irritation.
CARCINOGENICITY:	Not available.
REPRODUCTIVE TOXICITY:	Not available.



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TERATOGENICITY: Not available.
MUTAGENECITY: Not available.

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

No data available for this product.

Toxicity to other organisms:

No data available for this product.

Persistence and degradability

Mobility:

No data available.

Bioaccumulation:

No data is available on the product itself.

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:

According to local regulations, will take the Incineration of hazardous waste.

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 containers are recycled or disposed of, the receiver must be informed about possible hazards.

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



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XIV. TRANSPORT INFORMATION

DOT

Proper Shipping name: Reactor R-387
Class: 8
UN/ID No: 2735
Packing Group: II
Risk label: 3

IATA/ICAO

Proper Shipping name: Reactor R-387
Class: 8
UN/ID No: 2735
Packing Group: II
Risk label: 3

IMDG/IMO

Proper Shipping name: Reactor R-387
Class: 8
UN/ID No: 2735
Packing Group: II
Risk label: 3

TDG

Proper Shipping name: Reactor R-387
Class: 8
UN/ID No: 2735
Packing Group: II
Risk label: 3

XV. REGULATORY INFORMATION

Federal regulations of the United States

Standard Classification Hazard Communication OSHA: **dangerous**

XVI. OTHER INFORMATION

HEALTH: 3
FLAMMABILITY: 1
REACTIVITY: 0
OTHER: G

HEALTH: 3
FLAMMABILITY: 1
PHYSICAL HAZARD: 0



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0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme
* = Chronic Hazard for
Health.

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.

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