



MATERIAL SAFETY DATA SHEET (MSDS)

Product Name:	EMUNIL (Usp Grade)	Document code:	PSJ-RD-FR-22-00
Chemical name:	1,2,3-Propanetriol, Glycerol, Glycerin / C3H8O3	Revision number:	00
Chemical class:	Simple Triol Compound	Revision date:	

COMPANY IDENTIFICATION

Manufacturer: PADIDEH SHIMI JAM CO.

Tell: +98(21)88580000

Address: No.16, Western Fourth Golbarg St., Baharestan St., Dadman Blvd., TEHRAN, IRAN

HAZARDS IDENTIFICATION

Environmental Effects

GHS Classification of Substance in accordance to Regulation (EC) No. 1272/2008 (CLP/GHS):

Not a hazardous substance or mixture.

OSHA Hazard Communication Standard:

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS Label Elements: None

Potential health effects

Eyes: Can be irritating to the eyes.

Skin: Can be irritating to the skin.

Inhalation: Can be harmful if inhaled./ Avoid breathing mist.

Ingestion: Can be harmful if ingested.

COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Percent
Glycerin	56-81-5	Min 99

FIRST AID MEASURES

Description:

General Advice: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Take care to self-protect by avoiding becoming contaminated. **Most Important Symptoms and Effects, Both Acute and Delayed**

	Symptoms/Injuries:	First Aid:
Skin	n/a	Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Remove clothing before washing.
Eye	Redness of the eye tissue. Lacrimation	Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist if irritation persists
Ingestion	Nausea. Vomiting. Diarrhea.	DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.
Inhalation	Irritation of the respiratory tract. Irritation of the nasal mucous membranes.	Remove the victim into fresh air. If signs/ symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

AFTER ABSORPTION OF HIGH QUANTITIES:	Headache. Dehydration. Disturbances of heart rate. Change in the aerogramme/blood composition. Decreased renal function.
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INGESTION OF LARGE QUANTITIES:	immediately to hospital. Indication of Any Immediate Medical Attention and Special Treatment Needed If medical advice is needed, have product container or label at hand. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
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FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing media: Use dry powder, foam, carbon dioxide or water for extinguishing. For larger fires use water spray or alcohol resistant foam.

Unsuitable extinguishing media : No data available.

Special Hazards Arising from the Substance or Mixture

Fire hazard:

Direct fire hazard: Combustible, keep away from open flame, no smoking.

Indirect fire hazard: Temperature above flashpoint: higher fire/explosion hazard.

Explosion hazard: No direct explosion hazard.

Reactivity: Decomposes on exposure to temperature rise: release of toxic/corrosive/ combustible gases/vapors (acrolein). Upon combustion CO and CO₂ are formed. May polymerize on exposure to temperature rise. violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: (increased) risk of fire/explosion.

Advice for Firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire.

Protection during firefighting: Firefighters should wear full protective gear. Use self-contained breathing equipment if in confined place. Do not enter fire area without proper protective equipment, including respiratory protection.

Other Information: Refer to Section 9 for flammability properties

ACCIDENTAL RELEASE MEASURES

Personal precautions

General Measures: Mark the danger area. Exposure to heat: have neighborhood close doors and windows. Exposure to fire/heat: consider evacuation. Wash contaminated clothes. Use gloves, face shield

For Non-emergency Personnel

Protective equipment: Use appropriate personal protection equipment (PPE).

Emergency procedures: Evacuate unnecessary personnel.

For Emergency Responders

Protective equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency procedures: Ventilate area.

Environmental Precautions: Do not allow to flow into drainage system.

Methods and Material for Containment and Cleanup

For containment: Collect leakage in sealable containers, soak up with sand or other inert absorbent and remove to safe place. Flush away remainder with water.

Methods for cleaning up: Clear up spills immediately and dispose of waste safely





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HANDLING AND STORAGE

Precautions for Safe Handling

Prevention of user exposure: Put on appropriate personal protective equipment. Use gloves and wear goggles when handling. Avoid breathing mist.

Prevention of fire and explosion: Handling temperature $\geq 10^{\circ}\text{C}$ above melting point

Precautions while moving the product: 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.

Hygiene Measures: Workers should wash hands and face before eating, drinking and smoking.

Conditions for Safe Storage, Including any Incompatibilities

Storage precautions: Keep in a cool and dry place. Keep separate from oxidants. Avoid extreme heat and cold. Avoid direct fire. Store in clean, dry, and preferably stainless steel or HDPE vessels. In bulk, store at ambient temperature. Temperature higher than necessary degrades quality at rate dependent on time and temperature of exposure. Exposure to ultraviolet light, especially sunlight, must be minimized to prevent quality loss.

Incompatible products:

KEEP SUBSTANCE AWAY FROM: heat sources, oxidizing agents, (strong) acids, (strong) bases.

Packaging materials: Packaging should be closable, dry, clean, correctly labelled, and meet the legal requirements. Secure fragile packaging in solid containers. Suitable storage includes steel, aluminum, iron, synthetic material, glass.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Occupational Exposure Controls: n/a

Technical measures: n/a

Control parameters

Components	Type	Value
Glycerin	TWA	Min 99

Appropriate Engineering Controls

Recommended monitoring procedures	Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed. Individual Protection Measures
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Individual Protection Measures

Personal Protective Equipment	Gloves. Safety glasses. Protective clothing. Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A
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Materials for Protective Clothing

GIVE GOOD RESISTANCE	natural rubber, neoprene, PVC, Viton.
GIVE LESS RESISTANCE	styrene-butadiene rubber
GIVE POOR RESISTANCE	polyurethane

Eye Protection	Use protective goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.
Hand Protection	suitable protective gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Skin and Body Protection	suitable protective clothing.

Respiratory Protection

Mist formation	aerosol mask with filter type P1. On heating: gas mask with filter type A.
Environmental Exposure Controls	If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.
Other Information	When using, do not eat, drink or smoke.





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PHYSICAL & CHEMICAL PROPERTIES

Physical State	Clear, colorless, hygroscopic viscous liquid
Color	colorless
Odor	odorless
Molecular Weight	92.09 g/mol

Safety Data

pH	Neutral
Initial boiling point and boiling range	290 - 295 °C @ 760mm Hg
Flash point	>199 °C
Evaporation rate	n/a
Flammability (solid, gas)	n/a
Upper/lower flammability or explosive limits	n/a
Vapor pressure	< 0.001 hPa @ 20°C
Vapor pressure	0.0033 hPa @ 50°C
Vapor density	3.2 (relative, air=1)
Relative density	1.0 @ 20 °C at saturated mixture vapor/air (air=1)
Solubility(ies):	Infinite g/100 ml in water @ 20 °C
Partition coefficient	n-octanol/water: -2.6
Auto-ignition temperature	429 °C
Decomposition temperature	290 °C
Viscosity	1400 mPas (20 °C)
Log Pow	-1.76/2.6
Melting point/freezing point	18 °C
Boiling Point	290 °C

STABILITY & REACTIVITY

Reactivity	Vapor mixes readily with air.
Decomposes on exposure to temperature rise	release of toxic, corrosive, combustible gases/ vapors (acrolein). Upon combustion CO and CO2 are formed. May polymerize on exposure to temperature rise.
Reacts violently with (strong) oxidizers	(increased) risk of fire/explosion.
Reacts with (some) acids	(increased) risk of fire/explosion.
Chemical stability	Hygroscopic. Able to polymerize above 149 °C. Decomposes when heated above 290 °C.
Possibility of Hazardous Reactions	None known
Conditions to Avoid	None known
Incompatible materials	Reacts violently with strong oxidants
Hazardous Decomposition Products	Low toxicity in original state and not considered hazardous to human beings.
On heating/burning	release of toxic/combustible gases/vapors (acrolein).

TOXICOLOGICAL INFORMATION

Acute toxicity by oral route, inhalation and dermal route	Not Classified
Skin irritation/corrosion	Can be irritating to the skin.
Eye irritation	Can be irritating to the eyes.
Skin sensitization	Can be harmful if absorbed through skin.
Respiratory irritation	Can be harmful if inhaled. Can be irritating to the respiratory tract. Avoid exposure to mist.

CMR Effects

Mutagenicity	Not mutagenic (Ames test)
Carcinogenicity	n/a
Reproductive toxicity	n/a
Developmental toxicity	n/a
Repeated dose toxicity - Oral route	n/a
Toxicokinetic	n/a
Chronic/Other Effects	n/a





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ECOLOGICAL INFORMATION

Components	Test Results
Ecology - General	No supplementary information available.
Ecology - Air	TA-Luft Klasse 5.2.5.
Ecology - Water	Mild water pollutant (surface water) Not harmful to fishes (LC50 (96h) >1,000 mg/l) Not harmful to aquatic organisms (EC50 >1,000 mg/l). Not harmful to algae Not harmful to bacteria Bioaccumulation: not applicable Sludge digestion is inhibited at >1,000 mg/l 50% Readily biodegradable in water (OECD 301D: 82%; 20 days)

DISPOSAL CONSIDERATIONS

Methods of Disposal of Waste Residue: Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite, or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Wash down leftovers with plenty of water. Wash clothing and equipment after handling. Do not discharge into surface water.

Disposal of Contaminated Packaging: Waste incineration with the approval of the responsible local authority.

TRANSPORT INFORMATION

UN Number	not regulated as a hazardous material.
UN proper shipping name	n/a
Transport hazard class(es)	Not hazardous according to RID/ADR, GGVs/GGVE, ADN, IMDG, ICAO-TI/IATA-DGR.
Packing group	n/a
Environmental hazards (e.g.: Marine pollutant (Yes/No))	No
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	n/a
Special precautions	n/a

OTHER INFORMATION

Disclaimer

To the best of our knowledge the information contained herein is accurate. However, neither KIC Chemicals, Inc., nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist

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