



Suite 450
One North Shore Center
12 Federal Street
Pittsburgh, PA 15212

Safety Data Sheet

KR-99PA

1. IDENTIFICATION

Product name KR-99PA
Description Proprietary amine solution
Product class Specialty
Supplier address Suite 450
One North Shore Center
12 Federal Street
Pittsburgh, PA 15212
Telephone numbers
Company Phone Number (412) 321-9800
Emergency Telephone CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification Acute Toxicity: Oral, Category 3
Acute Toxicity: Dermal, Category 3
Skin Corrosion, Category 1
Serious Eye Damage, Category 1
Reproductive Toxicity, Category 2
Signal word Danger
Hazard statements Toxic if swallowed.
Toxic in contact with skin.
Causes severe skin burns and eye damage.
Causes serious eye damage.
Suspected of damaging fertility or the unborn child.

Pictograms of related hazards



Precautionary statements

Prevention

Wash skin thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Wear protective gloves, protective clothing, eye protection, and face protection.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.

Response

Take off immediately all contaminated clothing and wash it before reuse.
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately contact a POISON

CENTER or health care provider.
 IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water or emergency shower.
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately contact a POISON CENTER or health care provider.
 IF exposed or concerned: Get medical attention.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with local, state, and federal regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS #	Weight %
Cyclohexylamine	108-91-8	10–20
Morpholine	110-91-8	1–10
Monoethanolamine (MEA)	141-43-5	1–10
1,3-Propanediamine, N-9-octadecenyl-, (Z)-	7173-62-8	1–10
Oleylamine	112-90-3	<1
Non-hazardous substances	000-00-0	>50

4. FIRST-AID MEASURES

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally to ensure complete rinsing. Remove contact lenses if present and easy to do, then resume rinsing. Get medical attention immediately.

Skin contact Immediately remove all contaminated clothing. Rinse with copious amounts of water; use an emergency shower if available. Wash contaminated clothing before reuse.

Ingestion If swallowed, DO NOT induce vomiting. Rinse mouth and get emergency medical attention. Do not give anything by mouth unless instructed to do so by a poison center or health care provider.

Inhalation If inhaled, move victim to fresh air. Seek emergency medical attention if breathing is difficult; perform artificial respiration if breathing stops.

Note to health care provider Esophageal corrosion may contraindicate the use of gastric lavage and/or activated charcoal.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Water spray, foam, dry chemical, carbon dioxide

Unsuitable extinguishing media No information available

Protective equipment and precautions for firefighters	Stay upwind of the fire. Full protective equipment including self-contained breathing apparatus should be used. Use water to cool closed containers. Contain water runoff if possible.
Specific hazards	Reaction with metals may evolve highly flammable hydrogen gas. Combustion may produce toxic gases.
Hazardous combustion products	Nitrogen oxides, corrosive vapor, hydrogen gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate the area of all non-essential personnel. Do not touch spilled material without proper protective equipment. Ventilate the area and mitigate further release if it is safe to do so. Avoid contact with eyes.
Methods for clean-up	
<u>Small spills</u>	Contain spill and soak up with an inert absorbent material and place residues in a properly labeled container for disposal. Avoid discharge into sewer or surface water.
<u>Large spills</u>	Contain spill using trenches, diking, or absorption with an inert material (i.e. sand or earth). Reclaim spilled material into recovery or salvage drums or tank truck for proper disposal.

7. HANDLING AND STORAGE

Advice on safe handling	Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash hands thoroughly after handling.
Storage conditions	Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.
Suitable materials of construction	Corrosion-resistant container; original container only is recommended.
Unsuitable materials of construction	Metals

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye/face protection	Chemical splash goggles, face shield
Skin protection	Chemical-resistant gloves and body-covering clothing
Respiratory protection	Observe published airborne exposure limits. NIOSH approved respirator should be used in accordance with OSHA respiratory protection requirements (29 CFR 1910.134).
Engineering controls	Adequate ventilation, eye-wash station, and emergency shower
General hygiene considerations	Do not eat, drink, or smoke while handling this product.

Chemical Name	OSHA PEL	ACGIH TLV
Cyclohexylamine	None established	None established
Morpholine	70 mg/m ³	20 ppm
Monoethanolamine (MEA)	6 mg/m ³	3 ppm; STEL: 6 ppm
1,3-Propanediamine, N-9-octadecenyl-, (Z)-	None established	None established
Oleylamine	None established	None established
Non-hazardous substances	PEL 6	TLV 6

9. PHYSICAL AND CHEMICAL PROPERTIES

pH	>12.5
Appearance	Clear colorless to pale yellow-amber liquid
Odor	Amine
Odor Threshold	No information available
Melting/freezing point	No information available
Initial boiling point/boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper/lower flammability or explosive limits	No information available
Vapor pressure	No information available
Vapor density	No information available
VOC content	No information available
Specific gravity	0.935-1.015
Solubility	Complete
Partition coefficient n-octanol/water	No information available
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	No information available

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of storage and handling.
Hazardous polymerization	Polymerization will not occur.
Conditions to avoid	Heat, ignition sources, incompatibilities
Incompatibilities	Strong acids, oxidizers, aluminum and other amphoteric metals
Hazardous decomposition products	Reaction with nitrates may evolve carcinogenic nitrosamines.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure Skin, eyes, ingestion

Acute toxicity

Cyclohexylamine

Parameter	Result
LD ₅₀ , Oral (rat)	11 mg/kg
LD ₅₀ , Dermal (rabbit)	277 mg/kg
LC ₅₀ , Inhalation (rat)	7,500 mg/m ³

Morpholine

Parameter	Result
LD ₅₀ , Oral (rat)	1,450 mg/kg
LD ₅₀ , Oral (mouse)	525 mg/kg
LC ₅₀ , Inhalation (mouse)	1,320 mg/m ³ /2H
LC ₅₀ , Inhalation (rat)	8,000 ppm
Sensitization, Dermal (guinea pig)	Not sensitizing

Monoethanolamine (MEA)

Parameter	Result
LD ₅₀ , Oral (rat)	1,720 mg/kg
LD ₅₀ , Oral (mouse)	700 mg/kg
LD ₅₀ , Dermal (rabbit)	1,025 mg/kg

1,3-Propanediamine, N-9-octadecenyl-, (Z)-

Parameter	Result
LD ₅₀ , Oral (rat)	253 mg/kg
Draize, Skin (rabbit)	Severe Irritation
Draize, Eye (rabbit)	Corrosive

Oleylamine

Parameter	Result
LD ₅₀ , Oral (rat)	300-2,000mg/kg

Acute symptoms and effects

Eye	Eye irritation with or without pain, burning, itching, redness, discharge, and serious eye damage.
Skin	Skin irritation with or without pain, burning, itching, redness, and swelling. Symptoms may be exacerbated by open wounds, excoriations, rashes, or other skin breaches.
Ingestion	Gastrointestinal distress with or without nausea, vomiting, and diarrhea. May cause irritation or corrosion of the oral and esophageal mucosa.
Inhalation	Upper respiratory irritation with or without cough, watering of the eyes, and postnasal drip. Inhalation may cause central nervous system depression with or without dizziness, drowsiness, fatigue, syncope, shortness of breath, and loss of consciousness. Aspiration of liquid or vomit may cause severe respiratory distress, airway corrosion, and acute lung damage.

Reproductive effects	Exposure to cyclohexylamine has been implicated in damaging fertility or causing harm to unborn offspring in animal studies.
Teratogenicity	No information available
Mutagenicity	No information available
Embryotoxicity	No information available
Sensitization to product	No information available
Synergistic products	No information available
Carcinogenicity	Morpholine has been evaluated by the IARC and categorized as "not classifiable as to carcinogenicity in humans" (group 3).
Chronic	No information available

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Cyclohexylamine

Parameter	Result
96 hr LC ₅₀ , Rainbow trout	44-90 mg/L
48 hr EC ₅₀ , Daphnia magna	58-80 mg/L

Morpholine

Parameter	Result
96 hr LC ₅₀ , Bluegill sunfish	>350 mg/L
48 hr EC ₅₀ , Daphnia magna	100-119 mg/L

Monoethanolamine (MEA)

Parameter	Result
96 hr LC ₅₀ , Bluegill sunfish	329 mg/L
96 hr LC ₅₀ , Rainbow trout	>150 mg/L

Oleylamine

Parameter	Result
96 hr LC ₅₀ , Fathead minnow	0.01-0.1 mg/L
48 hr EC ₅₀ , Daphnia magna	0.01-0.1 mg/L

Persistence	No information available
Bioaccumulative potential	No information available
Mobility	No information available

13. DISPOSAL CONSIDERATIONS

Disposal	Dispose of in accordance with federal, state, and local regulations. Do not discharge into sewer or surface water.
RCRA status	As sold, discarded product would be considered a RCRA hazardous waste based on the corrosive characteristics. The EPA hazardous waste number is D002.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	UN2734
Proper shipping name	Amines, liquid, corrosive, flammable (contains cyclohexylamine, morpholine)
Primary hazard class/division	8
Secondary hazard	3
Packing group	II
Label	Corrosive

15. REGULATORY INFORMATION

OSHA Hazard Communication Status	Acute Toxicity: Oral, Category 3 Acute Toxicity: Dermal, Category 3 Skin Corrosion, Category 1 Serious Eye Damage, Category 1 Reproductive Toxicity, Category 2
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EPA Registration Number	Not applicable
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TSCA	The ingredients of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.
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CERCLA

EPA Hazardous Substances (40 CFR 302)

Chemical Name	Reportable Quantity (RQ)
Cyclohexylamine	None
Morpholine	None
Monoethanolamine (MEA)	None
1,3-Propanediamine, N-9-octadecenyl-, (Z)-	None
Oleylamine	None
Non-hazardous substances	None

SARA Title III (Sections 302, 311, 312, and 313)

Section 302 Extremely Hazardous Substances (40 CFR 355)

Chemical Name	CAS#	RQ	TPQ
Cyclohexylamine	108-91-8	10,000 lb	10,000 lb

Section 311 and 312 Health and Physical Hazards

Immediate	Delayed	Fire	Pressure	Reactivity
Yes	No	No	No	No

Section 313 Toxic Chemicals (40 CFR 372)

Chemical Name	CAS Number	Percent by Weight
None		

16. OTHER INFORMATION

HMIS Ratings	Health—2; Flammability—0; Reactivity—0
NFPA Ratings	Health—2; Flammability—0; Reactivity—0
HMIS/NFPA Rating Scale	Minimal—0; Slight—1; Moderate—2; Serious—3; Severe—4
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Version	1

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