CHARDON LABORATORIES, INC.
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Reynoldsburg, Ohio 43068
(614) 860-1000

SAFEY DATA SHEET

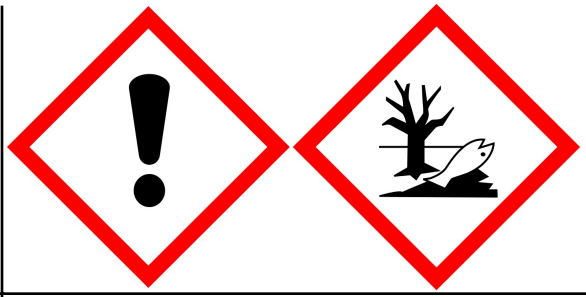
RL-22

1. PRODUCT IDENTIFICATION

Trade Name:	RL-22
Product Description:	Liquid
Product Code:	RL22
Other Means of Identification:	Clear, colorless, basic liquid with an amine odor similar to ammonia.
Recommended Use and Restrictions on Use:	Steam line neutralizing amine. Ingredients approved for use in boiler water and steam lines in food processing facilities (21 CFR 173.310) except for use in systems in which steam contacts milk or milk products. Not for use in dairies where steam generated contacts milk or milk products. Not for use in drinking water.
Source:	Chardon Laboratories
Address:	7300 Tussing Road, Reynoldsburg, OH 43068
Website:	www.chardonlabs.com
Email:	sds@chardonlabs.com
Phone:	614-860-1000
Emergency Phone:	Chemtrec: 800-424-9300

2. HAZARD(S) IDENTIFICATION

Emergency Overview:	Corrosive. Clear, colorless, basic liquid with an amine odor similar to ammonia. Product is corrosive to eyes, skin and respiratory system. Skin absorbtion, inhalation or ingestion may also result in toxic effects. May react with acids. Container head space gasses may be flammable if exposed to ignition source.
Classification:	Flammable liquid, Category 3 Acute oral toxicity, Category 4 Acute skin toxicity, Category 4 Skin irritation, Category 2 Eye irritation, Category 2 Acute aquatic toxicity, Category 3
Signal Word:	DANGER
Label elements:	Causes severe skin burns and eye damage. Harmful in contact with skin. May cause allergic skin reaction. Harmful if inhaled. Causes damage to gastrointestinal system by ingestion. May cause damage to respiratory system by inhalation of aerosols or mist. Flammable liquid and vapor.
Hazard pictograms:	

	
Precautionary statements:	Do not get in eyes, on skin or on clothing. Wear chemical splash goggles and protective industrial rubber gloves. When conditions warrant use, add face sheild, apron and rubber boots. Do not breathe dusts or mists. Wash gloves and contaminated surfaces thoroughly after handling. Contaminated work clothing must not be allowed out fo the workplace. Keep container tightly closed. Keep only in original container. Store securely in a well ventilated place. Avoid release to the environment. In case of fire, use whatever extinguishing media is appropriate for surrounding fire. Dispose of contents or container in accordance with local, state and federal regulations. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing for 15 minutes. Immediately call a doctor. If on skin or hair: Immediately remove all contaminated clothing. Rinse skin with water. Use safety shower if available. Immediately call a doctor. Wash contaminated clothing before reuse. If skin irritation or rash occurs, get medical attention. If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a doctor. If swallowed: Rinse mouth. Do NOT induce vomiting unless and/or until directed to do so by a medical professional. Immediately call a poison control center or doctor.
Hazards Not Otherwise Classified:	Headspace gases in open containers or residual gases in empty containers may represent a fire hazard if exposed to a source of ignition. Product contains 5-20% cyclohexylamine which has a flash point of 79º F. The lower explosive limit (LEL) is 1.6% (V). Product contains 5-20% diethylaminoethanol (DEAE) which has a flash point of 140º F and an LEL of 6.7% (V).
Ingredients of Unknown Toxicity:	None
Potential Environmental Effect:	Significant contamination of small bodies of surface water or localized areas at the point of a spill may also elevate pH levels above tolerable levels for aquatic organisms.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	% by Weight
Cyclohexylamine	108-91-8	5-20
Diethylaminoethanol	100-37-8	10-30

4 FIRST AID MEASURES	
Eyes:	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing for 15 minutes. Immediately call a doctor.
Skin:	If on skin or hair: Immediately remove all contaminated clothing. Rinse skin with water. Use safety shower if available. Immediately call a doctor. Wash contaminated clothing before reuse.
Inhalation:	If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If eperiencing respiratory symptoms, call a doctor.
Ingestion:	If swallowed: Rinse mouth. Do NOT induce vomiting unless and/or until directed to do so by a medical professional. Immediately call a poison control center or doctor.
Acute Symptoms:	Irritation or burns to eyes, skin or mucous membranes. Injury may result in permanent damage to eyesight or permanent scars on skin. Symptoms of toxic effects following overexposure to skin contact, ingesstion or inhalation include CNS abnormalities, drowsiness, dizziness, cough, pulmonary edema, cyanosis of the extremities, diarrhea, nausea and vomiting.
Delayed Effects:	Repeated dermal exposure to cyclohexylamine ingredient may result in sensitization.
Immedicate or Special Treatment Requirements:	After contact with product, immediately flush eyes and/or skin with water for 15 minutes. If safety shower or eye wash is plumbed to cold water, it may be necessary to move victim to a locker room shower or elsewhere to obtain warm water before the 15 minute flush is complete. After the 15 minute flush, seek medical treatment. Product contains organic amines that may permeate skin or mucous membranes. Systemic toxicity by dermal absorption, inhalation and ingestion is possible. Monitor kidney and liver function and observe for symptoms listed above.

5. FIRE FIGHTING MEASURES	
Suitable Extinguishing Media:	Use media appropriate for surrounding fire. Water content in product will reduce product's ability to sustain combustion.
Special Hazard:	Product is corrosive to eyes, skin and respiratory system. Closed containers may rupture due to build up of pressure when exposed to extreme heat. Product contains 5-20% cyclohexylamine which has a flash point of 79º F. The lower explosive limit (LEL) is 1.6% (V). Product contains 10-30% diethylaminoethanol (DEAE) which has a flash point of 140º F and an LEL of 6.7% (V). Headspace gases in open containers or residual gases in empty containers may represent a fire hazard if exposed to a source of ignition. If containers rupture or if open to the air, headspace gases may be released and accumulate at floor level. Gas may spread across floor to a source of ignition and flash back.
Special PPE & Precautions:	Wear self-contained breathing apparatus and full turn out gear. Approach fire from upwind direction. If possible, move containers away from fire. Cool containers exposed to fire with water spray. If containers rupture or leak, product may evolve nitrogen and oxides of carbon.

6. ACCIDENTAL RELEASE MEASURES	
Personal Precautions, PPE and Emergency Procedures:	Wear chemical splash goggles and protective industrial rubber gloves. When conditions warrant use, add face sheild, apron and rubber boots. Product may be slippery underfoot. If spill escapes to sanitary sewer, notify local public works authorities. If spill escapes to environment, notify state and federal EPA, and, if appropriate, the Coast Guard. The CERCLA RQ for cyclohexylamine is 10,000 pounds. Product contains 5-20% cyclohexylamine.
Containment and Clean Up:	Eliminate sources of ignition. Contain and collect spills with commercial absorbants. Unused product or spill clean up residues may be RCRA hazardous waste by the characteristic of corrosivity (D002). Consult local authorities for appropriate waste disposal options in your location.

7. HANDLING AND STORAGE	

Precautions for Safe Handling:	Open container slowly until pressure is relieved. Avoid spillage. Clean up small spills and drips promptly. Protect product from contamination. Protect product from sources of ignition. Avoid contact between this product and other chemicals, especially acids and oxidizers.
Conditions for Safe Storage:	Store product in closed container in well ventilated, secure area. Protect containers from physical damage. Protect label to preserve text. Empty containers retain product residues and all label hazards are still present until container is thoroughly cleaned. The recommended disposal for rinse waters from empty containers is discharge to treated system. Note ingredient flash points and lower explosive limits stated in Section 2 and repeated in Section 5. Headspace gases in open containers or residual gases in empty containers may represent fire hazards if exposed to a source of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient	Source & Parameter	Exposure Limit
Cyclohexylamine	ACGIG TWA TLV	10 ppm
	OSHA TWA PEL	None
Diethylaminoethanol	ACGIG TWA TLV, Skin	10 ppm
	OSHA TWA PEL, Skin	10 ppm
	NIOSH IDLH	100 ppm

Engineering Controls:	General exhaust ventilation is adequate. Employ work practices and product transfer practices that avoid spills, drips or contact with any incompatible material.
Individual Protection/PPE:	Wear chemical splash goggles and protective rubber gloves. When conditions warrant use, add face shield, apron and rubber boots.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless, basic liquid
Form:	Liquid
Color:	Colorless
Odor:	Amine odor similar to ammonia
Odor Threshold:	Not known
pH:	>11.0
Melting Point/Freezing Point:	<32º F
Boiling Point/Boiling Range:	>212º F
Flash Point:	~130º F
Evaporation Rate:	Similar to water
Upper/Lower Flammability or Explosive Limits:	Ingredient LEL/UEL: Cyclohexylamine: 1.6%/9.4% Diethylaminoethanol: 6.7%/11.7%
Vapor Pressure:	Not known
Vapor Density:	Not known
Relative Density:	Specific gravity 0.95-1.05

Solubility in Water:	Completely miscible in water
Partition Coefficient (n-octonal/water)	Not known
Flammability (solid, gas):	Flammable liquid
Ignition Temperature:	Not known; amine ingredients 509-527º F
Auto Igniting:	None
Decomposition Temperature:	Not known, >212º F
Viscosity:	Not known

10 STABILITY AND REACTIVITY

Reactivity:	Product may react violently with acid and will react exothermically with water.
Chemical Stability:	Stable at ambient temperatures and pressures.
Possibility of Hazardous Reactions:	May react with strong acids and strong oxidizers. Polymerization will not occur.
Conditions to Avoid:	Contact with strong acids and strong oxidizers. Avoid exposure to sources of ignition.
Incompatible materials:	Strong acids and strong oxidizers.
Hazardous Decomposition Products:	Oxides of nitrogen and oxides of carbon.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Eye or skin contact.
Symptons Related to Physical, Chemical and Toxicological Characteristics:	Product is corrosive to eyes, skin, mucous membranes and other tissues. Contact will burn or irritate eyes and skin. Permanent damage to eyesight is possible. Permanent scars are possible. Tissue damage to critical respiratory or gastrointestinal systems is possible following overexposure by inhalation or ingestion. Symptoms of toxic effects following overexposure by skin contact, ingestion or inhalation include liver and kidney damage, CNS abnormalities, drowsiness, dizziness, cough, pulmonary edema, cyanosis of the extremities, diahhrea, nausea and vomiting.
Delayed Effects:	Dermititis, pulmonary edema and chemical pneumonitis may occur.
Immediate Effects:	Irritation or burns to eyes, skin, upper respiratory system or other tissue
Chronic Effects:	Repeated dermal exposure to cyclohexylamine ingredient may result in sensitization. High dose exposure to cyclohexylamine has produced embryotoxicity, low birth count, post natal mortality and decreased body weight in laboratory animals. Note: None of the product ingredients are listed as carcinogens by IARC, NTP or OSHA.
Ingredient	Toxicological Data for Ingredient
Cyclohexylamine	Oral rat LD50: 303 mg/kg
	Dermal rabbit LD50: >631 mg/kg, <1000 mg/kg
	Inhalation rat 4 hr LC50: 900 mg/m3
Diethylaminoethanol	Oral rat LD50: 1300 mg/kg
	Dermal rabbit LD50: >1110 mg/kg
	Inhalation mouse LC50: 5000 mg/m3

12. ECOLOGICAL INFORMATION

Ecotoxicity:	

	Significant contamination of small bodies of surface water or localized areas at the point of a spill may also elevate pH levels above tolerable levels for aquatic organisms.
Ingredient	Aquatic Toxicity Data
Cyclohexylamine	Rainbow trout 96 hr LC50: 98 mg/L
Diethylaminoethanol	Daphnia magna 48 hr LC50: 44 mg/L
Persistence and Degradability:	Not known. Amine ingredients are biodegradable.
Bioaccumulative Potential:	Not known. Bioaccumulation is unlikely. Amine ingredients are biodegradable.
Mobility in Soil:	Not known.
Other adverse effects:	None known.

13. DISPOSAL CONSIDERATIONS

Product is consumed during recomended use. Flush container residues to the treated system. If product is not consumed in use, material is RCRA hazardous waste due to the corrosivity characteristic (D002). State and local disposal regulations may differ from federal disposal regulations. Dispose of contents or containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION

UN Number:	UN2920
UN Proper Shipping Name:	Corrosive liquid, flammable, NOS (contains cyclohexylamine and diethylaminoethanol)
Transport Hazard Class(es):	8, subsidiary 3
Packing Group:	PG II
Environmental Hazards:	Does not contain ingredient(s) listed as marine pollutant.
Transport in Bulk:	Product container meets or exceeds DOT requirements. Material is a Packing Group III corrosive base. No extraordinary measures are required for shipment in bulk tanks including totes. See 49 CFR 172.101and 49 CFR 172.102.
Special Precautions:	If needed, see Column 7 entries in the DOT Hazardous Material Table and associated designations at 49 CFR 172.102 for detailed descriptions of authorized containers, tank material specifications, maximum degree of filling, minimum pressure tests and other information.

15. REGULATORY INFORMATION

US EPA EPCRA SARA Section 312:	Acute, chronic, fire
US EPA EPCRA SARA Section 313:	Cyclohexylamine ingredient is listed as an EPCRA Extremely Hazardous Substance, 40 CFR 355 Appendix A.
US EPA CERCLA	If product is designated waste, substance is hazardous per the corrosivity characteristic (D002) and the ignitable characteristic (D001).
US EPA TSCA	All ingredients listed or exempt.

16. OTHER INFORMATION

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

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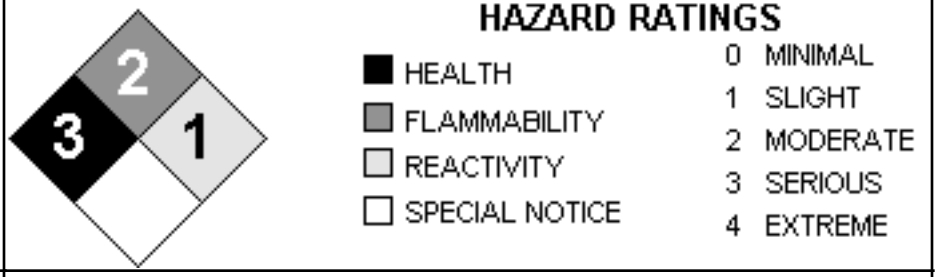
NFPA Codes:	
Abbreviations and acronyms:	ACGIH: American Conference of Governmental Industrial Hygienists CAS: Chemical Abstracts Service (division of the American Chemical Society) CERCLA: Comprehensive Environmental Response, Compensation and Liability Act CFR: Code of Federal Regulations CNS: Central Nervous System DOT: US Department of Transportation EC50: Effective Concentration, 50 percent EPA: Environmental Protection Agency NIOSH: National Institute for Occupational Safety and Health HMIS: Hazardous Materials Identification System IARC: International Agency for Research on Cancer IATA: International Air Transport Association IDLH: Immediately Dangerous to Life or Health LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent LEL: Lower Explosive Limit NFPA: National Fire Protection Association NTP: National Toxicity Program OSHA: Occupational Safety and Health Administration PEL: Permissible Exposure Limit PPE: Personal Protective Equipment RCRA: Resource Conservation and Recovery Act REL: Recommended Exposure Limit RQ: Reportable Quantity SARA: Superfund Amendments and Reauthorization Act STEL: Short Term Exposure Limit STOT: Single Target Organ Toxicity TLV: Threshold Limit Value TSCA: Toxic Substances Control Act TWA: Time Weighted Average UEL: Upper Explosive Limit