AMCO 644 SDS

Section 1 Identification

Product:	AMCO 644
Other Means of Identification:	Clear, colorless, basic liquid with a fishy, 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:	Amco, Inc. P.O.Box 754 Chagrin Falls, OH 44022
Emergency Phone:	Chemtrec (800) 424-9300
Office Phone:	(440) 247-7533

Section 2 Hazard(s) Identification

Emergency Overview:	Corrosive. Clear, colorless, basic liquid with an amine (ammonia) odor. Product is corrosive to eyes, skin, and respiratory system. Skin absorption, inhalation, or ingestion may also result in toxic effects. May react with acids. Container head space gases may be flammable if exposed to a source of ignition.
Classification 29 CFR 1910.1200:	Product is hazardous by OSHA criteria.
Signal Word:	DANGER
Hazard Statement(s):	Causes severe skin burns and eye damage Harmful in contact with skin Harmful if inhaled Causes damage to gastrointestinal system by ingestion May cause damage to respiratory system by inhalation (aerosol or mist)

Flammable liquid and vapor

Pictogram(s):

Corrosion

Precautionary Statements:	Do not get in eyes, on skin, or on clothing. Wear eye protection and protective industrial rubber gloves. When conditions warrant use, add face shield, apron, and/or rubber boots. Do not breathe dusts or mists. Wash gloves and contaminated surfaces thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Keep away from sparks and open flame - No Smoking. Keep container tightly closed. Keep only in original container. In case of fire, use whatever extinguishing media is appropriate for surrounding fire. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for 15 minutes. Immediately, call a doctor. If on skin (or hair): Immediately, take off all contaminated clothing. Rinse skin with water. Use safety shower if available. Immediately, call a doctor. If skin irritation or rash occurs: Get medical attention. Wash contaminated clothing before reuse. 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. Immediately, call a poison control center or doctor.
Note to Physicians	No additional information

	Keep only in original container. Store in a well ventilated place. Store locked up. Dispose of contents or container in accordance with local state and federal regulations.
Hazards Not Otherwise Classified:	Headspace gases in open units or residual gases in empty units may represent a fire hazard if exposed to a source of ignition. Product contains 5-10% morpholine. Morpholine has a flash point of 98 degrees F. The lower explosive limit (LEL) is 1.4% (V). Product contains 20-40% diethylaminoethanol (DEAE). DEAE has a flash point of 140 degrees F. The lower explosive limit (LEL) is 6.7% (V).
Ingredients with Unknown Toxicity:	None
Potential Environmental Effects:	Significant contamination of small bodies of surface water or localized areas at the point of a spill may elevate pH levels above tolerable levels for aquatic organisms.

Section 3 Composition/Information on Ingredients

Hazardous Ingredient(s)	CAS#	% by Wt
Cyclohexalamine	101-98-8	35.0

The exact percent by weight of the ingredients in this formulation is proprietary.

Section 4 First-Aid Measures

Eyes:	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for 15 minutes. Immediately, call a doctor.
Skin:	If on skin (or hair): Immediately, take off all contaminated clothing. Rinse skin with water. Use safety shower if available. Immediately, call a doctor.
Inhalation:	If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a doctor.

Ingestion:	If swallowed: Rinse mouth. Do NOT induce vomiting. 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 by skin contact ingestion, or inhalation include CNS abnormalities, drowsiness, dizziness, cough, pulmonary edema, cyanosis of the extremities, diarrhea, nausea, and vomiting.
Delayed Effects:	No data available.

Immediate 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 a lukewarm water source 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 symtoms listed above.

Section 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.
Specific Hazards:	Product is corrosive to eyes, skin, and respiratory system. Closed containers may rupture (due to buildup of pressure) when exposed to extreme heat. Product contains 5-10% morpholine. Morpholine has a flash point of 98 degrees F. The lower explosive limit (LEL) is 1.4% (V). Product contains 20-40% diethylaminoethanol (DEAE). DEAE has a flash point of 140 degrees F. The lower explosive limit (LEL) is 6.7% (V). Headspace gases in open units or residual gases in empty units may represent a fire hazard if exposed to a source of ignition. If containers rupture or if units are open to the air, headspace gases may be released and accumulate at floor level. Gas may spread across a floor to a source of ignition and flash back.
Special PPE & Precautions:	Wear self-contained breathing apparatus and full turn-out gear. If possible, move containers away from fire. Cool fire exposed containers with water spray. If containers rupture or leak, product may evolve oxides of nitrogen and oxides of carbon.

Section 6 Accidental Release Measures

Personal Precautions, PPE, & Emergency Procedures:	Wear chemical splash goggles and protective industrial rubber gloves. When conditions warrant use, add face shield, apron, and/or rubber boots. If spill escapes to sanitary sewer, notify local public works authorities. If spill escapes to the environment, notify state and federal EPA and, if appropriate, the Coast Guard.
Containment & Clean-Up:	Eliminate sources of ignition. Contain and collect spills with commercial absorbents. Unused product or spill cleanup residues may be RCRA hazardous waste by the characteristic of corrosivity (D002). Consult local authorities for appropriate waste disposal options in your location.

Section 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 against physical damage. Protect label. Empty containers retain product residues and all label hazards are still present until container is thoroughly cleaned. Note ingredient flash points and lower explosive limits in stated in Section 2 and repeated in Section 5. Headspace gases in open units or residual gases in empty units may represent a fire hazard if exposed to a source of ignition. . The recommended disposal for rinse waters from empty units is discharge to the treated system.

Section 8 Exposure Controls/Personal Protection

Exposure limits for the formulated product are not established. Exposure limits for hazardous ingredients are:

Ingredient	Source & Parameter	Exposure Limit
Cyclohexalamine	ACGIH TWA TLV	10 ppm. skin
	OSHA TWA PEL	10 ppm, skin
	NIOSH IDLH	100 ppm

1/ The ACGIH and OSHA listings for morpholine and diethylaminoethanol includes a “skin” notation. This underscores the potentially significant contribution of dermal contact and absorption in overexposure incidents.

NOTE: OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH – National Institute for Occupational Safety and Health; PEL – Permissible Exposure Limit; TWA – Time Weighted Average; TLV – Threshold Limit Value; REL – Recommended Exposure Limit; STEL – Short Term Exposure Limit; IDLH - Immediately Dangerous to Life or Health.

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

Section 9 Physical and Chemical Properties

Appearance (physical state, color, etc.):	clear, colorless, basic liquid
Odor:	fishy amine odor similar to ammonia
Odor threshold:	not known
pH:	>11.0
Melting point/freezing point:	<32º F
Initial boiling point and boiling range:	>212º F
Flash point:	>200 F
Evaporation rate:	Similar to water
Flammability (solid, gas):	Not a flammable liquid
Lower/Upper flammability or explosive limits:	Ingredient LEL/UEL: Morpholine 1.4%/11.2% DEAE 6.7%/11.7
Vapor pressure:	Not known
Vapor density:	Not known, amine ingredients ~3.0
Relative density:	Specific gravity, 0.95 – 0.98
Solubility(ies):	Completely miscible in water
Partition coefficient: n-octanol/water:	Not known
Auto-ignition temperature:	Not known, amine ingredients – 509-527º F

Decomposition temperature:	Not known, > 212º F
Viscosity:	Not known

Section 10 Stability and Reactivity

Reactivity:	Product may react with strong acids and strong oxidizers.
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

Section 11 Toxicological Information

Likely Routes of Exposure:	Eye or skin contact.
Symptoms Related to Physical, Chemical, and Toxicological Characteristics:	Product is corrosive to eyes, skin, mucous membranes, and other tissues. Contact will irritate or burn eyes and skin. Permanent damage to eyesight is possible. Permanent scars are possible. Damage (tissue corrosion) 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, diarrhea, nausea, and vomiting.
Delayed Effects:	Dermatitis, pulmonary edema; chemical pneumonitis.
Immediate Effects:	Irritation or burns to eyes, skin, upper respiratory system, or other tissues.
Chronic Effects:	None known.
Numerical Measures of Toxicity:	No toxicology available on the formulated product. Toxicology data for product ingredients:

Carcinogenicity:	None of the product ingredients are listed as carcinogens by IARC, NTP, or OSHA.

Section 12 Ecological Information

Ecotoxicity:	No ecotoxicity data available for the formulated product. Significant contamination of small bodies of surface water or localized areas at the point of a spill may elevate pH levels above tolerable levels for aquatic organisms.
Persistence and Degradability:	Not known. Amine ingredients are biodegradable.
Bioaccumulative Potential:	Not known. Bioaccumulation unlikely. Amine ingredients are biodegradable.
Mobility in Soil:	Not known. Water solubility may enhance mobility in groundwater.
Other Adverse Effects:	None known.

Section 13 Disposal Considerations

Product is consumed during recommended 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). Dispose of contents or container in accordance with local, state, and federal regulations.

Section 14 Transport Information

UN Number:	UN 3267
UN Proper Shipping Name:	Corrosive liquids, basic, organic, n.o.s. (Contains diethylaminoethanol and morpholine)
Transport Hazard Class(es)	8
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 II corrosive base. No extraordinary measures are required for shipment in bulk tanks including totes. See 49 CFR 172.101 & 49 CFR172.102.

Special Precautions:	If needed, see Column 7 entries in the DOT hazardous materials table and associated designations at 49 CFR172.102 for detailed descriptions of authorized containers, tank material specifications, maximum degree of filling, minimum pressure tests, and other information.

Section 15 Regulatory Information

US EPA SARA Title III, EPCRA

Section 311/312	Acute, chronic
US EPA CERCLA	If product is designated waste, substance is hazardous per the corrosivity characteristic (D002).
US EPA TSCA:	All ingredients listed or exempt

Section 16 Other Information

NFPA Hazard Ranking

Health	Fire	Reactivity	Special
3	1	0	Corr

HMIS Hazard Ranking

Health	Fire	Reactivity	PPE
3	1	0	n & p or X (defined below)

n – splash goggles
p – gloves
X – consult supervisor

References

1. Manufacturers' SDS on file for raw materials used in this product.
2. 29 CFR 1910.1200. Current OSHA e-CFR edition as of April 2014.
3. ANSI Z400.1/Z129.1-2010. Hazard Evaluation and Safety Data Sheet and Labeling Preparation. American Nationals Standards Institute, Inc., New York, NY. 2010.

4. The Globally Harmonized system of Classification and Labeling of Chemicals. (Purple Book) United Nations. 2010.
5. ACGIH. Threshold Limit Values and Biological Exposures Indices. 2014.
6. 49 CFR 172.101, Hazardous Materials Table. Current DOT e-CFR edition as of April 2014.
7. EPA List of Lists. Current edition as of April 2014.

Date of Preparation
January 15, 2015