

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME: FORMULA 455  
 PRODUCT USE: CONDENSATE CORROSION INHIBITOR  
 RESTRICTIONS ON USE: Refer to label, available technical information, and other appropriate sections of this SDS.  
 UN NUMBER: 3267  
 PROPER SHIPPING NAME: CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS DIETHYLAMINOETHANOL), 8, PGIII  
 MANUFACTURER'S NAME: Garratt-Callahan Company  
 ADDRESS: 50 Ingold Road, Burlingame, CA 94010-2206  
 EMERGENCY PHONE: **North America: CHEMTREC: 1-800-424-9300**  
**Outside North America: +1-703-527-3887**  
 BUSINESS PHONE: Product Information: 650-697-5811  
 MSDS NUMBER: SD4455  
 DATE OF REVISION: 7/22/2014

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**HAZARD STATEMENT:**

- H303: May be harmful if swallowed.
- H315: Causes skin irritation.
- H320: Causes eye irritation.
- H335: May cause respiratory irritation.



**PRECAUTIONARY STATEMENTS: (PREVENTION)**

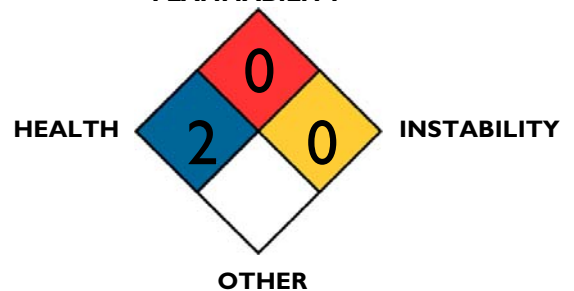
- PI01: If medical advice is needed, have product container or label at hand.
- PI02: Keep out of reach of children.
- PI03: Read label before use.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

<b>HEALTH HAZARD (BLUE)</b>	<b>2</b>
<b>FLAMMABILITY HAZARD (RED)</b>	<b>0</b>
<b>REACTIVITY HAZARD (YELLOW)</b>	<b>0</b>

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard

**NFPA RATING  
 FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
DIETHYLAMINOETHANOL	100-37-8	202-845-2	0257	20

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this MSDS to the health professional with the individual. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

WARNING: May be harmful if swallowed. Causes skin and eye irritation. May cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

ACUTE: irritation of skin, eyes, respiratory and gastrointestinal systems.

CHRONIC: irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P302+P352: IF ON SKIN: Wash with water. Minimum rinsing time is for 15 minutes. P362+P364: Take off contaminated clothing and wash before reuse. P332+P313: If skin irritation occurs: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum rinsing time is for 15 minutes. P337+P313: If eye irritation persists get medical advice/attention.

**INHALATION:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**INGESTION:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

<b>SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:</b>	Product is non-flammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:</b>	Not established
<b>SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:</b>	Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways. Heated product will emit ammoniacal fumes.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls. P391: Collect spillage.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P403+P233: Store in a well ventilated place. Keep container tightly closed. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
DIETHYLAMINOETHANOL	100-37-8	2 ppm (skin)	NE	10 ppm, 50 mg/m3(skin)	NIOSH 10 ppm, 50mg/m3 (skin)

NE = Not Established

**INGESTION:** Wash all exposed skin/hair thoroughly after handling. Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE and COLOR:	Clear pale yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C :	Not established
ODOR :	Amine	VAPOR DENSITY (Air=1):	Not established
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	0.95 - 1.05
pH:	11.0 - 13.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	Not established	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	Not established	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	> 210°F	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	< 1	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established		

## SECTION 10 - STABILITY AND REACTIVITY

**REACTIVITY:** Product is not reactive under standard ambient temperature and pressure.

**STABILITY:** Stable under normal condition of use and storage.

### POSSIBILITY OF

**HAZARDOUS REACTIONS:** None known.

**CONDITIONS TO AVOID:** See incompatible materials.

**INCOMPATIBLE MATERIALS:** Acids, Oxidizing agents

### HAZARDOUS

**DECOMPOSITION PRODUCTS:** Ammonia, oxides of nitrogen

## SECTION 11 - TOXICOLOGICAL INFORMATION

**TOXICOLOGICAL EFFECTS:** No data available for this product.

**LIKELY ROUTES OF EXPOSURE:** Skin/eye contact and inhalation.

**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.

### DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND

**LONG TERM EXPOSURES:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.

### NUMERICAL MEASURES OF

**TOXICITY:** Not established for this product.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

## SECTION 12 - ECOLOGICAL INFORMATION

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ECOTOXICITY:** Data not available for this product.

**PERSISTANCE AND DEGRADABILITY:** No data available for this product.

**BIOLOGICAL ACCUMULATION POTENTIAL:** No data available for this product.

**MOBILITY IN SOIL:** No data available for this product.

**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for this product.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**DISPOSAL:** P501: Dispose of contents/container in accordance with local/regional/national/international regulations. Rinse empty containers with water and use the rinse water to prepare the working solution. Refer to Section 8 for exposure controls - personal protection.

## SECTION 14 - TRANSPORTATION INFORMATION

### PROPER SHIPPING NAME

**DOT:** UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.  
(CONTAINS DIETHYLAMINOETHANOL), 8, PGIII  
Emergency Response Guidebook, Guide No.: 153  
Passenger Aircraft Qty: 5L  
Cargo Aircraft Qty: 60L

**IMDG/IMO:** UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.  
(CONTAINS DIETHYLAMINOETHANOL), 8, PGIII

**IATA/ICAO:** UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.  
(CONTAINS DIETHYLAMINOETHANOL), 8, PGIII



## ENVIRONMENTAL HAZARDS

(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK** (according to annex II marpol 73/78 and the IBC code): Not applicable.

**SPECIAL PRECAUTIONS FOR USER**: None known.

PRODUCT REQUIRES CORROSIVE LABEL

## SECTION 15 - REGULATORY INFORMATION

### United States and International Regulations

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

#### **CHEMICAL NAME**

DIETHYLAMINOETHANOL	SARA 302 (40CFR 355, APPENDIX A) - NO
	SARA 304 (40CFR TABLE 302.4) - NO
	SARA 313 (40CFR 372.65) - NO

#### **U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** None

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**SARA Title 311/312, Hazard Category:** Acute Health: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

**California Safe Drinking Water and Toxic Enforcement Act (proposition 65):** No component of this product is on the Proposition 65 list.

#### **International Regulations**

**CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL or NDSL Inventories or are exempt from listing.

**CANADIAN WHMIS CLASSIFICATION:** A component of this product (Diethylaminoethanol, CAS# 100-37-8) is classified as B3, D1B, E.

## SECTION 16 - OTHER INFORMATION

**PREPARED BY:** GARRATT CALLAHAN

**DATE OF REVISION:** 7/22/2014 Supercedes: 11/5/2010

Formula 455 is registered with the NSF to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds for category codes G6, with NSF Reg. No. 045912.

FORMULA 455 has been certified by the Orthodox Union as Kosher Pareve under the UK ID number of OUV3-606CAF5 when prepared in either the Addison, Illinois or Burlingame, California facilities.

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