

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME:	FORMULA LC5
PRODUCT USE:	BOILER WATER TREATMENT
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	UN 1824
PROPER SHIPPING NAME:	UN 1824, SODIUM HYDROXIDE SOLUTION, 8, PGII
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
SDS NUMBER:	SD1007
DATE OF REVISION:	7/7/2017

SECTION 2 - HAZARDS IDENTIFICATION

SIGNAL WORD: WARNING

GHS HAZARD STATEMENT:

H290: May be corrosive to metals. 1
H303: May be harmful if swallowed. 5
H315: Causes skin irritation. 2
H319: Causes serious eye irritation. 2A
H402: Harmful to aquatic life. 3



GHS PREVENTATIVE STATEMENTS:

P101: If medical advice is needed, have product container or label at hand.
P102: Keep out of reach of children.
P103: Read label before use.
P234: Keep only in original packaging.
P273: Avoid release to the environment.
P264: Wash all exposed skin/hair thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	3	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
PHYSICAL HAZARD (YELLOW)	0	
PERSONAL PROTECTION		

**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>
SODIUM HYDROXIDE	1310-73-2	215-185-5	0360	15-27

SECTION 4 - FIRST AID MEASURES

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual.

WARNING: May be corrosive to metals. May be harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Harmful to aquatic life. 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 soap and water. Minimum flushing 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 continuously 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 flushing time is for 15 minutes. P337+P313: If eye irritation persists get medical advice/attention.

INHALATION: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS: Water fog, foam, dry chemical powder and carbon dioxide (CO2). Use extinguishing agent suitable for type of surrounding fire. Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: The product itself does not burn. May decompose upon heating to produce corrosive and/ or toxic fumes. Contact with metal may release flammable hydrogen gas.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS: 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.

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. P273: Avoid release to the environment. P390: Absorb spillage to prevent material-damage.

Small Spill: Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

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. P391: Collect spillage.

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. Use caution when combining with water; DO Not add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. P273: Avoid release to the environment.

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, well ventilated, dry location, away from direct sunlight, away from incompatible materials. Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. Store in corrosive resistant container with a resistant inner liner. Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel. FRP, or Derakane vinyl ester resin. Do not allow material to freeze. P406: Store in a corrosion resistant container with a resistant inner liner.

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

<u>CHEMICAL NAME</u>	<u>CAS#</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	<u>OTHER</u>
		<u>TWA</u>	<u>STEL</u>	<u>TWA</u>	
SODIUM HYDROXIDE	1310-73-2	NE	2 mg/m ³ (ceiling)	2 mg/m ³ (ceiling)	NIOSH REL 2mg/m ³

NE = Not Established

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

RESPIRATORY PROTECTION: Avoid breathing dust/fume/gas/mist/vapours/spray. 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 filters are recommended if operations may produce mists or sprays from this product.

EYE PROTECTION: P264: Wash all exposed skin/hair thoroughly after handling. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection. P280: Wear protective gloves/protective clothing/eye protection/face 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:	Water white liquid	VAPOR PRESSURE, mm Hg @ 20°C:	13
ODOR :	Not established	VAPOR DENSITY (Air=1):	Not established
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.25 - 1.30
pH:	11.0-14.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	12°C (53.6°F)	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	140°C (248°F)	AUTOIGNITION TEMPERATURE:	Not flammable
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	<1	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not applicable	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 and storage.

POSSIBILITY OF HAZARDOUS

REACTIONS: May react with acids, organic materials or water.

CONDITIONS TO AVOID: Avoid exposure or contact to extreme temperature and incompatible chemical.

INCOMPATIBLE MATERIALS: Strong acids, flammable liquids, metals such as manganese, aluminum, zinc, tin, chromium, brass and bronze.

HAZARDOUS DECOMPOSITION

PRODUCTS: Thermal decomposition products of this solution acid include carbon oxides and sodium compounds.

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.

PERSISTENCE 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 the components of this product

SECTION 13 - DISPOSAL CONSIDERATIONS

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

SECTION 14 - TRANSPORTATION INFORMATION

PROPER SHIPPING NAME

DOT: UN 1824, SODIUM HYDROXIDE SOLUTION, 8, PGII
Emergency Response Guidebook, Guide No.: 154
Passenger Aircraft Qty: 1L
Cargo Aircraft Qty: 30L

IMDG/IMO: UN 1824, SODIUM HYDROXIDE SOLUTION, 8, PGII
IATA/ICAO: UN 1824, SODIUM HYDROXIDE SOLUTION, 8, PGII



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

SODIUM HYDROXIDE	SARA 302 (40CFR 355, APPENDIX A) - NO
	SARA 304 (40CFR TABLE 302.4) - YES
	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 SDS 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

CANADIAN WHMIS CLASSIFICATION: A component (Sodium Hydroxide, CAS # 1310-73-2) of this product has a classification of: CLASS E: Corrosive Material.

SECTION 16 - OTHER INFORMATION

PREPARED BY: GARRATT CALLAHAN

DATE OF REVISION: 7/7/2017 Supercedes: 4/19/2017

Formula LC5 is registered with the NSF to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds for category codes A2, G1, G6; with NSF Reg. No. 045915.

This product has been certified by the Orthodox Union as Kosher Pareve under the UK ID number of OUV3-6DE26F8 when prepared in either the Addison, Illinois or Burlingame, California facilities.

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