Walter Louis
FLUID TECHNOLOGIES
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After Hours: CHEMTREC 1-800-424-9300

SAFETY DATA SHEET (GHS Format)
Also available for download at:
http://www.WalterLouis.com/MSDS/

SECTION 1 – PRODUCT AND COMPANY INFORMATION

Product Identifiers
Product name: 0023 Steamline Treatment
Product Application: Condensate return anti-corrosive
Emergency telephone number: CHEMTREC (800) 424-9300 **Poison Control**: 1-800-222-1222

SECTION 2 – HAZARD IDENTIFICATION

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Aquatic Acute 3 Hazardous to the aquatic environment - acute

Skin Corr./Irritation	1B Skin corrosion/irritation
Acute Toxicity	3 (dermal) Acute toxicity
Acute Toxicity	4 (oral) Acute toxicity
Metal Corrosion	1 Substance or mixture corrosive to metals
Reproductive	2 (fertility) Reproductive toxicity
Flammable Liquid	3 Flammable liquid
Eye Damage/Irritation	1 Serious eye damage/eye irritation

Signal Word: **DANGER**

Pictograms: Skull and Crossbones, Corrosion, Flame, Health

Hazard Statements:
H226 Flammable liquid and vapour.
H290 May be corrosive to metals.
H311 Toxic in contact with skin.
H302 Harmful if swallowed.
H361 Suspected of damaging fertility.
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary Statements (Prevention):
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust or mist.
P273 Avoid release to the environment.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P270 Do not eat, drink or smoke when using this product.
P264 Wash with plenty of water and soap thoroughly after handling.

P233 Keep container tightly closed.
P234 Keep only in original container.
P242 Use only non-sparking tools.
P240 Ground/bond container and receiving equipment.

Precautionary Statements (Response):
P310 Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P352 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P390 Absorb spillage to prevent material damage.
P370 + P378 In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):
P405 Store locked up.
P406 Store in corrosive resistant/… container with a resistant inner liner.
P403 + P235 Store in a well-ventilated place. Keep cool.

Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.

HNOC:* None known

Supplemental Info:

HMIS Rating:	Health hazard: 3	Flammability: 3	
	Chronic Health Hazard: *	Physical Hazard 1	
NFPA Rating:	Health hazard: 3	Fire Hazard: 3	Reactivity Hazard: 1

* Hazards not otherwise classified (HNOC) or not covered by GHS

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredient	CAS	Wt%
Cyclohexylamine	108-91-8	57-63%

SECTION 4 – FIRST AID MEASURES

Description of first aid measures
General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If in eyes: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

If inhaled: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. If available, immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin, clothing, hair: Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

If swallowed: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms and effects, both acute and delayed:
Potential acute health effects
Inhalation : Toxic if inhaled. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.
Skin contact : Causes severe burns. Toxic in contact with skin.
Eye contact : Causes serious eye damage.

Over-exposure signs/symptoms
Inhalation : No specific data.
Ingestion : Adverse symptoms may include the following: stomach pains
Skin contact : Adverse symptoms may include the following: pain or irritation, redness. Blistering may occur.
Eye contact : Adverse symptoms may include the following: pain, watering, redness

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Symptomatic and supportive therapy as needed. Following severe exposure, medical follow-up should be monitored for at least 24 hours as delayed pulmonary edema may develop.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

The most important known symptoms and effects are described in Section 2 and/or in Section 11.

SECTION 5 – FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing media: Extinguish fire using an agent suitable for type of surrounding fire. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use water spray to keep fire-exposed containers cool. DO NOT use a straight water jet (Smooth-bore nozzle) into containers.

Special hazards arising from the substance or mixture.
Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous Thermal Decomposition Byproducts: Carbon oxides, Nitrogen oxides (NOx)

Special Protective Actions for Firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk.
Use water spray to keep fire-exposed containers cool.

Special Protective Equipment for Firefighters: Firefighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Further information: Product itself is not explosive.
If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

SECTION 6 – ACCIDENTIAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate

ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.
Reference to other sections: For disposal see Section 13.
Note: If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling:
Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

General occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8 – EXPOSURE CONTROL AND PERSONAL PROTECTION

Control parameters

Components with workplace control parameters:

Cyclohexylamine:

ACGIH TLV: Absorbed through skin: TWA: 10 ppm 8 hours. 30 ppm 15 minutes.

NIOSH PEL: Absorbed through skin: TWA: 10 ppm 10 hours. 30 ppm 15 minutes.

Exposure controls

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment..

General Hygiene:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand & Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Control of environmental exposure: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

General Information:

Physical State:	Clear pale yellow liquid with strong amine odor
Boiling Point/Range:	212 F
Flash Point:	185 F
Auto Ignition Temp:	Not Determined
Lower Flammability Limit:	Not Determined
Upper Flammability Limit:	Not Determined
Vapor Pressure (psi @100°F):	Not Determined
Vapor Density:	Not Determined
Freezing Point/Melting Point:	Not Determined
Solubility (Water):	Complete
Specific Gravity:	0.940 (7.84 lb/gal)
Evaporation Rate:	Not Determined
Viscosity (SSU@ 100°F):	Not Determined
pH:	11.40
Volatility:	Not Determined

Note: Physical Data is typical values based on material tested, but may vary based on composition. Values should not be accepted as guaranteed for every lot or as specifications for this product.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: No data available
Chemical stability: Stable under recommended usage and storage conditions.
Possibility of hazardous reactions: None known
Conditions to avoid: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatible materials: Strong acids, oxidizers.
Hazardous decomposition products: No data available. In the event of fire: see section 5

SECTION 11 – TOXICOLOGICAL INFORMATION

Information on toxicological effects:
Oral LD50 rat 303 mg/kg (BASF-Test)
Inhalation LC50 rat > 32.9 mg/l for 4 hr
Dermal LD50 rabbit > 631 - < 1,000 mg/kg
Irritation / corrosion: Corrosive! Damages skin and eyes. May cause severe damage to the eyes.
Skin: rabbit: Corrosive (BASF-Test)
Eye: rabbit: Risk of serious damage to eyes. (BASF-Test)

Chronic Toxicity/Effects
Genetic toxicity
Assessment of mutagenicity: Most of the results from the available studies show no evidence of a mutagenic effect.
Carcinogenicity: IARC, ACGIH, NTP, and OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. IARC Class 3.
Reproductive toxicity: No known significant effects or critical hazards.
Specific target organ toxicity - single exposure: No data available
Specific target organ toxicity - repeated exposure: No data available

Aspiration hazard; No data available
Additional Information: None.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity:
Aquatic toxicity:
Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.
Toxicity to fish:
LC50 (96 h) 44 mg/l, Oncorhynchus mykiss (static)
Aquatic invertebrates
EC50 (24 h) 49 mg/l, Daphnia magna (DIN 38412 Part 11, static)
Aquatic plants
EC50 (96 h) 20 mg/l (growth rate), Selenastrum capricornutum (static)

Persistence and degradability:
Readily biodegradable (according to OECD criteria).
Bioaccumulative potential: LOW
Mobility in soil: The substance will slowly evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 – DISPOSAL CONSIDERATION

Waste treatment methods Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging: Dispose of as unused product. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally.
Note: This product is intended to be used boiler water pre-treatment systems and discharged to sanitary sewer in its diluted state in boiler blowdown water. Concentrated product may be diluted to a similar working concentration and flushed to sewer, or soaked up with absorbent material and landfilled in accordance with local, state, and federal regulations.

SECTION 14 – TRANSPORT INFORMATION

14. Transport information (USDOT):

Proper shipping Name:	Cyclohexylamine Solution
Hazard Class(es):	Corrosive (8) Flammable (3)
UN/ID No	UN2357
Packing Group	II
Reportable Quantity (RQ)	>10,000 lbs (calculated)

Description: N/A

SECTION 15 – REGULATORY INFORMATION

National Fire Protection Association (NFPA) Ratings:

TSCA (Toxic Substance Control Act): Components of this product are listed on the TSCA Inventory.
DSL: This product, or its components, are listed on or are exempt from the Canadian Domestic Substances List (DSL).
CERCLA: (Comprehensive Emergency Response Compensation, and Liability Act): Product is not found in "List of Hazardous Substances and Reportable Quantities" (40 CFR 302.4): None
RCRA: (Resource Conservation/Recovery Act): No

SARA 302 Components SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302: None.
SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards Acute Health Hazard, Chronic Health Hazard, Fire Hazard
California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16 – OTHER INFORMATION

Disclaimer: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet. However, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by the vendor for any damage or injury resulting from abnormal use, from failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.