MATERIAL SAFETY DATA SHEET

Georgia Steel & Chemical Co., Inc.
10820 Guilford Rd
Annapolis Junction, MD 20701

Product Information: (301) 317-5502
Emergency: (800) 296-0351
Document Number: MSDS106 Rev: F
Date Revised: 11/14/05

Section 1 – Identification	
Product Number:	AF351
Product Name:	Anti-Foam
Product Type:	Foam Reducing Agent

Hazard Rating	
Health	1
Fire	1
Reactivity	0
Personal Protective Equipment	B

Scale:	4- Extreme
	3- High
	2- Moderate
	1- Slight
	0- Insignificant

Section 2 – HAZARDOUS COMPONENTS						
Hazardous Materials (HAZMAT):			**OSHA**		**ACGIH**	
Component	**CAS #**	**% Weight**	**STEL**	**PEL**	**TLV**	**15-min-Ceiling**
None	-	-	-	-	-	-
Active Ingredients	-					
Other Ingredients	-					

Section 3 - PHYSICAL / CHEMICAL CHARACTERISTICS			
Appearance:	Milky	**Vapor Density:**	Not Determined
Color:	White	**Vapor Pressure:**	Not Determined
State:	Liquid	**Percent Volatile By Weight (%):**	Not Determined
Odor:	Very Little Odor	**Evaporation Rate (ETHER = 1):**	N/A
pH:	-	**Melting Point:**	N/A
Viscosity:	Not Determined	**Boiling Point:**	212°F
Specific Gravity (H_20 =1):	1.0	**Solubility in Water:**	Miscible In Most Proportions

Section 4 – FIRE AND EXPLOSION HAZARD DATA				
Flash Point:	> 212^{0}F 100^{0}C (Closed Cup)			
Special Fire Fighting Procedures:	Self-contained breathing apparatus and protective clothing should be worn in fighting fires involving chemicals.			
Unusual Fire and Explosion Hazards:	None Known			
Flammable limits:	**Lower Level:**	N/A	**Upper Level:**	N/A

Section 5 – REACTIVITY DATA	
Stability:	Stable
Conditions to Avoid:	N/A
Materials to Avoid:	Oxidizing Material Can Cause Irritation
Hazardous Decomposition or Byproducts:	Sulfur Oxides, Nitrogen Oxides, Chlorine Compounds Silicon Dioxide, Carbon Dioxide, and Traces of Incompletely Burned Carbon Products
Hazardous Polymerization:	Will Not Occur

MATERIAL SAFETY DATA SHEET

Section 6 – HEALTH HAZARD DATA	
Primary Route of exposure:	Eye, Skin, Inhalation, Ingestion
Health Effects of overexposure:	**Eye:** Direct contact may cause temporary discomfort with mild redness and dryness similar to windburn. **Skin:** A single relatively short exposure causes no known adverse effect. Severe repeated prolonged exposures (24 to 28 hours) might irritate. **Inhalation:** Irritates respiratory passages and eyes very slightly. **Ingestion:** Small amounts transferred to the mouth by fingers during use, etc., should not Injure. Swallowing large amount may cause digestive discomfort.
Signs or Symptoms of Overexposure (Acute):	-
Signs or Symptoms of Overexposure (Chronic):	No known adverse chronic health effects, but unnecessary exposure to any chemical should be avoided. This product, as with any chemical, may enhance allergic conditions in certain people. We do not know of any medical conditions that might be aggravated by exposure to this product. No Injury from silica dusts should occur during reasonable use. If use creates respirable particles some respiratory system Injury may occur.
Carcinogenicity:	-

Section 7 – SPILL OR LEAK PROCEDURES	
Clean Up:	Use Absorbent Material to Collect and Contain for Salvage or Disposal
Disposal:	Georgia Steel & Chemical suggests that all local, state, and federal regulations concerning health and pollution be reviewed to determine approved disposal procedures. Contact Georgia Steel & Chemical if there are any questions on disposal. Product Contains No Ingredient Subject to D.O.T. or E.P.A. CERCLA/SARA Environmental Release Reporting Regulations.
Handling and Storage:	These precautions are for room temperature handling, use at elevated temperatures, or aerosol/spray application, may require added precautions. Good practice requires that gross amount of any chemical be removed from the skin as soon as practical, especially before eating or smoking. Keep from freezing. Use reasonable care and caution.

Section 8 – CONTROL MEASURES	
Eye Protection:	USE PROPER PROTECTION-SAFETY GLASSES, as a Minimum
Skin Protection:	Washing at Mealtime and End of Shift Is Adequate
Repertory Protection:	No Respiratory Protection Should Be Needed
Ventilation Procedures:	Local exhaust

Section 9 – EMERGENCY AND FIRST AID PROCEDURES	
Inhalation:	No First Aid Should Be Needed
Skin Contact:	Wipe Off And Flush With Water
Eye Contact:	Flush Immediately With Water
Ingestion:	No First Aid Should Be Needed
Notes for Physician:	-

Section 10 – ADDITION PRECAUTIONS	
DOT:	None
KEEP OUT OF THE REACH OF CHILDREN.	

ABBREVIATIONS:

ACGIH	=	American Conference of Government Industrial Hygienists
IATA	=	International Air Transport Association
ICAO	=	International Civil Aviation Organization
OSHA	=	Occupational Safety and Health Administration
PEL	=	Permissible Exposure Limit
STEL	=	Short-Term Exposure Limit
TLV	=	Threshold Limit Value
TWA	=	Time Weighted Average
WHIMS	=	Workplace Hazardous Materials Information System
N/A	=	Not Applicable
N/E	=	Not Established

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, **NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN FOR THE CONTINUING ACCURACY OF THIS INFORMATION.**

MATERIAL SAFETY DATA SHEET

Georgia Steel & Chemical Co., Inc.
10820 Guilford Rd
Annapolis Junction, MD 20701

Product Information: (301) 317-5502
Emergency: (800) 296-0351
Document Number: MSDS107 Rev: E
Date Revised: 11/14/05

Section 1 – Identification	
Product Number:	FK265
Product Name:	Heavy-Duty Detergent / Degreaser
Product Type:	Cleaner and degreaser for safety equipment

Hazard Rating	
Health	3
Fire	0
Reactivity	0
Personal Protective Equipment	B

Scale:
4- Extreme
3- High
2- Moderate
1- Slight
0- Insignificant

Section 2 – HAZARDOUS COMPONENTS						
Hazardous Materials (HAZMAT):			**OSHA**		**ACGIH**	
Component	**CAS #**	**% Weight**	**TWA**	**STEL (ppm)**	**PEL (ppm)**	**15-min-Ceiling**
2-butoxyethanol	111-76-2	7	-	25 (Skin)	25 (Skin)	-

Active Ingredients:	-
Other Ingredients:	-
This product contains no other components considered hazardous according to the criteria of 29 CFR 1910.1200	

Section 3 – PHYSICAL / CHEMICAL CHARACTERISTICS			
Color:	Blue	**Vapor Pressure (mmHg 20C):**	Not Established
State:	Liquid	**Melting Point (°F):**	Not Applicable
Odor:	Non-descript odor	**Solubility in Water:**	Complete
pH:	12.8-13.2	**Evaporation Rate:**	Not Established
Viscosity:	Not Applicable	**Percent Volatile:**	Not Applicable
Specific Gravity (H_20 =1):	1.03	**Boiling Point (°F):**	212

Section 4 – FIRE AND EXPLOSION HAZARD DATA				
Flash Point:	200°F (PMCC)			
Special Fire Fighting Procedures:	None			
Unusual Fire and Explosion Hazards:	Not Applicable, product does not support combustion.			
Flammable limits:	**Lower Level:**	-	**Upper Level:**	-

Section 5 – REACTIVITY DATA	
Stability:	Stable
Conditions to Avoid:	-
Materials to Avoid:	Do not mix with other chemicals.
Hazardous Decomposition or Byproducts:	-
Hazardous Polymerization:	Will not occur

Section 6 – HEALTH HAZARD DATA	
Primary Route of exposure:	Eyes, Inhalation, ingestion,
Health Effects of overexposure:	Eyes: Causes eye damage. Skin: Avoid exposure (may cause irritation) IF SWALLOWED: Harmful. Causes stomach distress.
Signs or Symptoms of Overexposure (Acute):	Eyes: Redness, Tearing, Burning
Signs or Symptoms of Overexposure (Chronic):	2-Butoxyethanol has been found to cause blood, kidney and liver effects in laboratory animals. Inhalation: Nausea, Headache, irritated nasal passages Skin: Redness, dryness, irritation Ingestion: Gastrointestinal disturbances Effects of overexposure:
Carcinogenicity	None

Section 7 – SPILL OR LEAK PROCEDURES	
Clean Up:	Mop up or absorb or use solid absorbent and shovel into containers for disposal. Small spills less than five gallons may be disposed of in wastewater treatment systems. Larger spills should be collected and disposed of in approved sanitary landfill.
Disposal:	Product is biodegradable, does not contain phosphates and is non-toxic in use dilution. Dispose in compliance with Federal, State, and Local laws and 40 CFR.
Handling and Storage:	Keep away from food and water supplies. Handling and Storage: Keep out of reach of children.

Section 8 – CONTROL MEASURES	
Eye Protection:	Splash proof goggles
Skin Protection:	Protective gloves: Chemically resistant
Repertory Protection:	None necessary
Ventilation Procedures:	Local exhaust

Section 9 – EMERGENCY AND FIRST AID PROCEDURES	
Inhalation:	-
Skin Contact:	Avoid overexposure. If irritation develops, wash area with water for 15 minutes with soap and water. If irritation persists, seek medical attention.
Eye Contact:	Immediately flush with plenty of cool running water. Remove contact lenses. Continue flushing for at least 15 minutes, holding eyelids apart to ensure rinsing the entire eye. Call a physician.
Ingestion:	Give promptly a large quantity of egg whites or gelatin solution. If these are not available, drink large quantities of water. Call a physician immediately. Never give anything by mouth or induce vomiting in an unconscious person. Inhalation: Move to fresh air. If symptoms persist, seek medical attention.
Notes for Physician:	-

Section 10 – ADDITION PRECAUTIONS	
DOT:	Not DOT Regulated.
KEEP OUT OF THE REACH OF CHILDREN.	

ABBREVIATIONS:

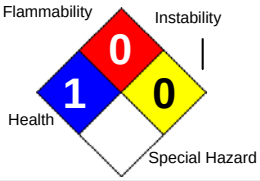
ACGIH	=	American Conference of Government Industrial Hygienists
IATA	=	International Air Transport Association
ICAO	=	International Civil Aviation Organization
OSHA	=	Occupational Safety and Health Administration
PEL	=	Permissible Exposure Limit
STEL	=	Short-Term Exposure Limit
TLV	=	Threshold Limit Value
TWA	=	Time Weighted Average
WHIMS	=	Workplace Hazardous Materials Information System
N/A	=	Not Applicable
N/E	=	Not Established

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, **NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN FOR THE CONTINUING ACCURACY OF THIS INFORMATION.**

MATERIAL SAFETY DATA SHEET

Eclipse

HEALTH	1
FLAMMABILITY	0
PHYSICAL	0
PPE	C



Printed: 09/13/2012
Revision: 09/12/2012
Supercedes Revision: 07/31/2012

1. Product and Company Identification

Product Name: Eclipse

Manufacturer Information

Company Name: Washing Systems LLC
167 Commerce Boulevard
Loveland, OH 45140

Emergency Contact: Chemtrec (800)424-9300

Preparer Name: Washing Systems LLC (513)870-4546

Intended Use: Laundry Detergent

2. Hazards Identification

Emergency Overview: Warning! May cause eye, skin, respiratory, and digestive tract irritation.

Target Organs: Eyes, skin, respiratory tract, digestive tract.

Potential Health Effects (Acute and Chronic): Eyes: Causes eye irritation. May cause transient corneal injury.

Skin. May cause irritation. May cause dermatitis.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: May cause irritation. Inhalation of vapors may cause drowsiness and dizziness. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, and loss of consciousness).

LD 50 / LC 50: Refer to Section 11.

Signs and Symptoms Of Exposure: Nausea, vomiting, diarrhea. Drowsiness. Dizziness. Burning sensation, redness, swelling, blurred vision, coughing, difficulty breathing. Unconsciousness. Death.

Medical Conditions Generally Aggravated By Exposure: None known.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration
1. Alcohols C10-16, ethoxylated	68002-97-1	20.0 -40.0 %
2. Dipropylene glycol methyl ether	34590-94-8	10.0 -25.0 %

4. First Aid Measures

Emergency and First Aid Procedures:

Eyes: In case of contact, immediately flush eyes with plenty of water for at least {15} minutes. Get medical aid.

Skin: Flush skin with plenty of soap and water. Get medical aid if irritation develops and persists.

Ingestion: Do NOT induce vomiting. If swallowed, wash out mouth with water provided person is conscious. Get medical aid immediately.

Inhalation: If inhaled, remove to fresh air. Get medical aid if irritation develops and persists.

5. Fire Fighting Measures

Flash Pt: > 698.00 F (370.0 C) Method Used: Pensky-Marten Closed Cup

Explosive Limits: LEL: N.D. UEL: N.D.

Autoignition Pt: NA

Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Flammable Properties and Hazards: Non-combustible. Container explosion may occur under fire conditions.

Hazardous Combustion Products: Carbon monoxide. Carbon dioxide.

Suitable Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Unsuitable Extinguishing Media: Do NOT use straight streams of water.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Use proper personal protective equipment as indicated in Section {8}. Spills/Leaks: Keep unauthorized personnel away. Keep out of low areas. Do not touch or walk through spilled material. Stay upwind. Provide ventilation. Stop leak if you can do it without risk. SMALL SPILLS: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Ventilate area and wash spill site after material pickup is complete. LARGE SPILLS: Contact emergency responder for advice.

7. Handling and Storage

Precautions To Be Taken in Handling: Keep container tightly closed. Do not get in eyes, on skin or on clothing. Do not ingest or inhale. Do not breathe spray or mist. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

Precautions To Be Taken in Storing: Store in a tightly closed container. Store away from incompatible substances. Prolonged stroage may cause oxygen to degradate the product.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TWA	Other Limits
1. Alcohols C10-16, ethoxylated	68002-97-1	No data.	No data.	No data.
2. Dipropylene glycol methyl ether	34590-94-8	PEL: 100 ppm; STEL 150 ppm	TLV: 100 ppm; STEL 150 ppm STEL: 150 ppm	No data.

Respiratory Equipment (Specify Type): Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Eye Protection:	Chemical safety goggles.
Protective Gloves:	Wear appropriate protective gloves to prevent skin exposure.
Other Protective Clothing:	Wear appropriate protective clothing to prevent skin exposure.
Engineering Controls (Ventilation etc.):	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Work/Hygienic/Maintenance Practices:	Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Melting Point:	NP
Boiling Point:	NA
Decomposition Temperature:	NA
Autoignition Pt:	NA
Flash Pt:	> 698.00 F (370.0 C) Method Used: Pensky-Marten Closed Cup
Specific Gravity (Water = 1):	0.99
Density:	61.78 LB/CF
Vapor Pressure (vs. Air or mm Hg):	NA
Vapor Density (vs. Air = 1):	NA
Evaporation Rate:	NA
Solubility in Water:	Soluble
Percent Volatile:	NA
Saturated Vapor Concentration:	NA
Viscosity:	<=50 cP at 75.0 F (23.9 C)
Octanol/Water Partition Coefficient:	NA
pH:	6 - 8 (1%)
Appearance and Odor:	Appearance: Yellow. Odor: alcohol-like. Odor Threshold: {NA}

10. Stability and Reactivity

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Excess heat. Prolonged exposure to air.
Incompatibility - Materials To Avoid:	Acids. Inorganic acids. Strong bases. Salts of strong bases. Aluminum. Strong oxidizing agents. Halogens.
Hazardous Decomposition Or Byproducts:	Carbon dioxide. Carbon monoxide. Organic compounds.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	Product will not undergo polymerization.

11. Toxicological Information

Toxicological Information:	Ingredient: CAS# 68002-97-1 Alcohols C10-16, ethoxylated: Oral, rat: LD50 >1000 mg/kg; Dermal, rabbit: LD50 3,000-8,000 mg/kg; Inhalation, rat: LC50 0.22-8 mg/L. Ingredient: CAS # 34590-94-8 Dipropylene Glycol Methyl Ether: Oral, rat: LD50 > 2000 mg/kg. Dermal, rabbit: LD50 > 2000 mg/kg.

Chronic Toxicological Effects: This product may contain trace amounts of ethylene oxide <0.1%. It is not expected to result in significant exposures or present a health hazard.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Alcohols C10-16, ethoxylated	68002-97-1	No	No	No	No
2. Dipropylene glycol methyl ether	34590-94-8	No	No	No	No

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

General Ecological Information: Ingredient: CAS# 68002-97-1: Alcohols C10-16, ethoxylated:
Ecotoxicity: LC50 daphnia magna: 0.5- 2.32 mg/L 48-H. LC50 Green Algae 2.7 mg/L 72-H Toxic to aquatic organisms.

Biodegradability: OECD 301B: >60% (28 d) Readily Biodegradable.

Ingredient: CAS# 34590-94-8: Dipropylene glycol monomethyl ether:
Pimephales promelas: LC50>10000 mg/L 96-H; Daphnia magna: LC50: 1919 mg/L 48-H; Log Pow=20.

13. Disposal Considerations

Waste Disposal Method: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in {40} CFR Parts {261.3}. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not regulated as a hazardous material.

Additional Transport Information: No data available.

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)
1. Alcohols C10-16, ethoxylated	68002-97-1	No	No	No
2. Dipropylene glycol methyl ether	34590-94-8	No	No	No

EPA Hazard Categories: This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard

[ ] Yes [X] No Chronic (delayed) Health Hazard

[ ] Yes [X] No Fire Hazard

[ ] Yes [X] No Sudden Release of Pressure Hazard

[ ] Yes [X] No Reactive Hazard

16. Other Information

Company Policy or Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or

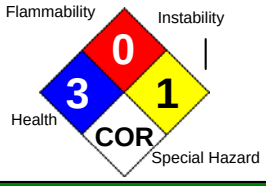
consequential damages which may result from the use of or reliance on any information contained in this document.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

MATERIAL SAFETY DATA SHEET

Express

HEALTH	3
FLAMMABILITY	0
PHYSICAL	1
PPE	D



Printed: 07/31/2012
Revision: 07/31/2012
Supercedes Revision: 08/17/2010

1. Product and Company Identification

Product Code: EXPRESS

Product Name: Express

Manufacturer Information

Company Name: Washing Systems LLC
167 Commerce Boulevard
Loveland, OH 45140

Emergency Contact: Chemtrec (800)424-9300

Intended Use: INDUSTRIAL ALKALI

Part Number: ILA058 ILA170 ILA3718 ILA700 ILATOTE ILATT

2. Hazards Identification

Emergency Overview: Danger! Corrosive. Causes eye and skin burns. Causes permanent eye damage. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Hygroscopic (absorbs moisture from the air).

Target Organs: Eyes, skin, mucous membranes.

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes

Potential Health Effects (Acute and Chronic): Eye: Causes eye burns. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. May cause deep, penetrating ulcers of the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color. Effects may be delayed.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause systemic effects.

Inhalation: Breathing airborne dusts or mists: Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Irritation may lead to chemical pneumonitis and pulmonary edema.

Chronic: Prolonged or repeated skin contact may cause dermatitis.

LD 50 / LC 50: Refer to Section 11.

Signs and Symptoms Of Exposure: Burns and irritation.

Medical Conditions Generally Aggravated By Exposure: No data available.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration
1. Sodium hydroxide {Caustic soda; Lye solution}	1310-73-2	20.0 -40.0 %

4. First Aid Measures

Emergency and First Aid Procedures:

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 60 minutes. DO NOT INTERRUPT FLUSHING to transport victim. Get medical attention immediately.

Skin: Immediately flush skin with plenty of water for at least 60 minutes while removing contaminated clothing and shoes. DO NOT INTERRUPT FLUSHING to transport victim. Get medical attention immediately.

Ingestion: If swallowed, do NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical aid if irritation develops and persists.

5. Fire Fighting Measures

Flash Pt: NP Method Used: Not Applicable

Explosive Limits: LEL: N.A. UEL: N.A.

Autoignition Pt: NP

Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Additional protective clothing required, such as a chemical suit, due to corrosive nature of substance. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Contact with moisture or water may generate sufficient heat to ignite nearby combustible materials. Contact with metals may evolve flammable hydrogen gas.

Flammable Properties and Hazards: Container explosion may occur under fire conditions.

Hazardous Combustion Products: Toxic fumes of sodium oxide.

Suitable Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers.

Unsuitable Extinguishing Media: Carbon dioxide.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Keep unauthorized personnel away. Do not touch or walk through spilled material. Provide ventilation. Stop leak if you can do it without risk. Avoid runoff into storm sewers and ditches which lead to waterways. SMALL SPILLS: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. -OR- Neutralize spill with a weak acid such as vinegar. Do not get water on spilled substances or inside containers. LARGE SPILLS: Contact emergency responder for advice.

7. Handling and Storage

Precautions To Be Taken in Handling: Keep container tightly closed. Use only with adequate ventilation. Do not allow water to get into the container because of violent reaction. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Wash thoroughly after handling. Discard contaminated shoes.

Precautions To Be Taken in Storing: Containers must be tightly closed to prevent the conversion of NaOH to sodium carbonate by the CO2 in air. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Store protected from moisture.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA TWA	ACGIH TWA	Other Limits
1. Sodium hydroxide {Caustic soda; Lye solution}	1310-73-2	PEL: 2 mg/m3 CEIL: 2 mg/m3	CEIL: 2 mg/m3	No data.

Respiratory Equipment (Specify Type): Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use.

Eye Protection: Goggles and face shield.

Protective Gloves: Wear appropriate protective gloves to prevent skin exposure.

Other Protective Clothing: Wear appropriate protective clothing to prevent skin exposure.

Engineering Controls (Ventilation etc.): Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Work/Hygienic/Maintenance Practices: Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: [ ] Gas [X] Liquid [ ] Solid

Melting Point: NP

Boiling Point: NA

Autoignition Pt: NP

Flash Pt: NP Method Used: Not Applicable

Specific Gravity (Water = 1): 1.33

Density: 11.1 LB/GA

Vapor Pressure (vs. Air or mm Hg): NA

Vapor Density (vs. Air = 1): NA

Evaporation Rate: NA

Solubility in Water: > 1%

Percent Volatile: NP

Saturated Vapor Concentration: NA

Viscosity: NA

Octanol/Water Partition Coefficient: NA

pH: 12.3 (@ 1%)

Appearance and Odor: Colorless liquid.
Odor: No apparent odor. Odor Threshold: {NA}

10. Stability and Reactivity

Stability: Unstable [ ] Stable [X]

Conditions To Avoid - Instability: Moisture. Contact with water. Prolonged exposure to air.

Incompatibility - Materials To Avoid: Water. Metals. Acids. Aluminum. Zinc. Organic halogens.

Hazardous Decomposition Or Byproducts: Toxic fumes of sodium oxide.

Possibility of Hazardous Reactions: Will occur [ ] Will not occur [X]

Conditions To Avoid - Hazardous Reactions: Product will not undergo polymerization.

11. Toxicological Information

Toxicological Information: Oral, rat: LD50 >500 mg/kg.

Ingredient: CAS# 1310-73-2. Sodium Hydroxide:
Dermal, rabbit: LD50 1350 mg/kg; Oral, rat: LD50 220 mg/kg.

Chronic Toxicological Effects: No data available.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Sodium hydroxide {Caustic soda; Lye solution}	1310-73-2	No	No	No	No

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

General Ecological Information: Aquatic Toxicity: Value: <125 ppm/96hr/mosquito fish/TLm/freshwater. LC50 daphnia magna: 100 ppm. LC50 brook trout: 25 ppm/24 hr. Toxic to aquatic organisms.

Biodegradability: None.
Bioaccumulation Potential: No indication of bioaccumulation. May raise pH of surface waters.

13. Disposal Considerations

Waste Disposal Method: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name: SODIUM HYDROXIDE, Solution.

DOT Hazard Class: 8

DOT Hazard Label: CORROSIVE

UN/NA Number: UN1824

Packing Group: II

Additional Transport Information: No data available.

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)
1. Sodium hydroxide {Caustic soda; Lye solution}	1310-73-2	No	Yes 1000 LB	No

EPA Hazard Categories: This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard

[ ] Yes [X] No Chronic (delayed) Health Hazard

[ ] Yes [X] No Fire Hazard

[ ] Yes [X] No Sudden Release of Pressure Hazard

[X] Yes [ ] No Reactive Hazard

16. Other Information

Company Policy or Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

MATERIAL SAFETY DATA SHEET

Georgia Steel & Chemical Co., Inc.
10820 Guilford Rd
Annapolis Junction, MD 20701

Product Information: (301) 317-5502
Emergency: (800) 296-0351
Document Number: MSDS111 Rev C
Date Revised: 11/14/05

Section 1 – Identification	
Product Number:	FG350
Product Name:	Fresh Gear®
Product Type:	Quaternary ammonium germicidal detergent disinfectant

Hazard Rating	
Health	3
Fire	0
Reactivity	0
Personal Protective Equipment	B

Scale:
4- Extreme
3- High
2- Moderate
1- Slight
0- Insignificant

Section 2 – HAZARDOUS COMPONENTS

Hazardous Materials (HAZMAT):			**OSHA**		**ACGIH**	
Component	**CAS #**	**% Weight**	**TWA**	**STEL**	**PEL**	**15-min-Ceiling**
Didecyl dimethyl ammonium chloride	7173-51-5	9.70	N/E	N/E	N/E	N/E
n-Alkyl (C_{14} 50%, C_{12} 40%, C_{16} 10%) dimethyl benzyl ammonium chloride	8001-54-5	6.47	N/E	N/E	N/E	N/E
Inert ingredients		83.83				

Section 3 – PHYSICAL / CHEMICAL CHARACTERISTICS

Color:	*Clear Blue	**Boiling Point:**	212°F
State:	Liquid	**Melting Point:**	N/A
Odor:	Pleasant lemon odor	**Solubility in Water:**	Complete
pH:	7.2 (8.2 in use dilution) Same as water	**Percent Volatile:**	77.9 (by weight)
Vapor Density:	Same as water	**Evaporation Rate:**	1.0
Specific Gravity (H_20 =1):	1.0	**Vapor Pressure (mmHg 20°C):**	Not Known

*Exposure to sunlight may alter the color of this product but it does not have any adverse affect on the disinfectant properties of this product

Section 4 – FIRE AND EXPLOSION HAZARD DATA

Flash Point:	>200° F			
Special Fire Fighting Procedures:	Must wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing. Cool fire exposed containers with water spray.			
Unusual Fire and Explosion Hazards:	Products of combustion are toxic.			
Flammable limits:	**Lower Level:**	N/A	**Upper Level:**	N/A

Section 5 – REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	None known
Materials to Avoid:	Strong oxidizing or reducing agents
Hazardous Decomposition or Byproducts:	Thermal decomposition may produce toxic vapors/fumes of hydrogen chloride, amines and other organic materials, and oxides of carbon and nitrogen.
Hazardous Polymerization:	May not Occur

MATERIAL SAFETY DATA SHEET

Section 6 – HEALTH HAZARD DATA						
Primary Route of exposure:	Ingestion, Skin, Eyes					
Health Effects of overexposure:	Based on information available for similar products, it is anticipated that direct contact with the product concentrate may produce severe eye and skin irritation and/or burns and possible irreversible damage. Solvent vapors or mists of product can produce irritation of the mucous membranes. Ingestion can produce immediate burning pain in the mouth, throat and abdomen; severe swelling of the larynx; skeletal muscle paralysis affecting the ability to breath; circulatory shock; and/or convulsions.					
Signs or Symptoms of Overexposure (Acute):	**Eyes**: Redness, tearing. **Skin**: irritation seen as redness. **Ingestion**: Burning pain in mouth, throat, abdomen, circulatory shock, and convulsions					
Carcinogenicity:	**NTP:**	No	**IARC:**	No	**OSHA Reg:**	No

Section 7 – SPILL OR LEAK PROCEDURES	
Clean Up:	Mop up or absorb or use solid absorbent and shovel into containers for disposal.
Disposal:	Dispose in compliance with Federal, State, and Local laws and 40 CFR. Open dumping is prohibited. Do not reuse empty container and wash hands thoroughly after using product
Handling and Storage:	Keep container closed when not in use. Keep away from food and water supplies and store below 140° F.

Section 8 – CONTROL MEASURES	
Eye Protection:	Wear chemical splash goggles where there is a potential for eye contact. Use safety glasses with side shields under normal conditions.
Skin Protection:	Rubber or neoprene gloves
Respiratory Protection:	In processes where significant amount of mists or vapors may be generated, and proper environmental controls are absent, a NIOSH/MSHA jointly approved respirator is advised.
Ventilation Procedures:	In processes where mists or vapors may be generated, proper ventilation must be provided in accordance with good ventilation practices.

Section 9 – EMERGENCY AND FIRST AID PROCEDURES	
Inhalation:	Unlikely to occur, however, in the event of inhalation move victim to fresh air. If not breathing, clean airway and start artificial respiration. If victim is having difficulty breathing, give supplemental oxygen. Seek immediate medical attention.
Skin Contact:	Wash with mild soap and water for 15 minutes. Remove contaminated clothing and launder before reuse. Seek immediate medical attention.
Eye Contact:	Flush with large amounts of water for 15 minutes lifting upper and lower lids occasionally to rinse the entire surface of the eye. Get medical attention.
Ingestion:	DO NOT INDUCE VOMITING! Immediately give 3-4 glasses of milk (if unavailable, give water). If vomiting occurs, give fluids again. Get immediate medical attention. Have a physician determine if the patient's condition allows for induction of vomiting or evacuation of the stomach. Do not give anything by mouth to a convulsing or unconscious person.
Notes for Physician:	Probable mucus damage may contraindicate the use of gastric lavage. Supplemental oxygen and other measures to support breathing may be needed to combat circulatory shock. Persistent convulsions may be controlled by the cautious intravenous injection of a short acting barbiturate drug.

Section 10 – ADDITION PRECAUTIONS	
DOT Shipping Name:	Consumer Commodity, ORM-D (4x1 gallon)
DOT Label:	Not required on one-gallon containers.
DOT Hazard Classification:	Not required on one-gallon containers.
KEEP OUT OF THE REACH OF CHILDREN.	

ABBREVIATIONS:

ACGIH	=	American Conference of Government Industrial Hygienists
IATA	=	International Air Transport Association
ICAO	=	International Civil Aviation Organization
OSHA	=	Occupational Safety and Health Administration
PEL	=	Permissible Exposure Limit
STEL	=	Short-Term Exposure Limit
TLV	=	Threshold Limit Value
TWA	=	Time Weighted Average
WHIMS	=	Workplace Hazardous Materials Information System
N/A	=	Not Applicable
N/E	=	Not Established

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, **NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN FOR THE CONTINUING ACCURACY OF THIS INFORMATION.**

HYDRO DYNAMICS

DIVISION OF TRICORN INC
P.O. BOX 796
SHILLINGTON, PA 19607
(610) 777-6823
FAX (610) 777-6858

I PRODUCT IDENTIFICATION

Manufacturer's Name: HYDRO DYNAMICS

Address: 333 Trout Lane
PO Box 796
Shillington, PA 19607

Emergency Telephone: 800-255-3924

Telephone: 610-777-6823

Product Name: HD-8100

II HAZARDOUS INGREDIENTS

Component	%	CAS#	ACGIH TLV
Sodium Hydroxide	40-55	1310-73-2	2MG/M3 (C)
Furandione, polymer with ethenylbenzene, sulfonated, sodium salt		68037-40-1	% by Weight 1-3
Proprietary Solvent(s)		proprietary	6-9

II HEALTH HAZARD INFORMATION

Emergency Overview:

Color: colorless to slightly colored
Physical Form: liquid
Odor: odorless
Signal Word: **DANGER**
Major Health Hazards: CORROSIVE. CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN, EYES & GASTROINTESTINAL TRACT. CAUSES PERMANENT EYE DAMAGE.
Physical Hazards: Mixing with water, acid or incompatible materials may cause splattering and release of heat.

Ecological Hazards: This material has exhibited moderately toxicity to aquatic organisms.

Precautionary Statements: Do not get in eyes, on skin or on clothing. Do not breathe vapor or mist. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.

Potential Health Effects:

Inhalation:
Short Term Exposure: irritation (possibly severe), burns, pulmonary edema
Long Term Exposure: to our knowledge, no effects are known

Skin Contact:
Short Term Exposure: irritation (possible severe), burns
Long Term Exposure: dermatitis

Eye Contact:
Short Term Exposure: irritation (possible severe), burns, eye damage, blindness
Long Term Exposure: visual disturbances

Ingestion:
Short Term Exposure: irritation (possibly severe), burns, eye damage, blindness
Long Term Exposure: to our knowledge, no effects are known

Carcinogen Status:
OSHA: No
NTP: No
IARC: No

IV FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

Skin Contact: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

Eye Contact: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

Note To Physician: The absence of visible signs or symptoms of burns does not reliably exclude the presence of actual tissue damage. Probably mucosal damage may contraindicate the use of gastric lavage.

V FIRE AND EXPLOSION INFORMATION

Fire and Explosion Hazards: Negligible fire hazard.
Extinguishing Media: Use extinguishing agents appropriate for surrounding fire.
Fire Fighting: Move container from fire area if it can be done without risk. Cool containers with water. Wear NIOSH approved positive-pressure self-contained breathing apparatus. Avoid contact with skin.
Sensitivity To Mechanical Impact: Not sensitive
Sensitivity To Static Discharge: Not Sensitive
Flash Point: not flammable

VI HANDLING OF SPILLS OR LEAKS

In Case of Spill: Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Completely contain spilled material with dikes, sandbags, etc. Keep out of water supplies and sewers. Reprocess or reuse if possible. Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Remaining material may be diluted with water and neutralized with dilute acid. Flush spill area with water, if appropriate. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

VII HANDLING AND STORAGE

Storage: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see Section 10 of the MSDS).

Handling: Avoid breathing vapor or mist. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

VIII EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

Sodium Hydroxide: 2 mg/m3 OSHA TWA
2 mg/m3 OSHA ceiling (Vacated by 58 FR 35338, June 30, 1993)
2 mg/m3 ACGIH ceiling

Ventilation: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

Eye Protection: Wear safety glasses with side shields. Wear chemical safety goggles with a faceshield to protect against skin contact when appropriate. Provide an emergency eye was fountain and quick drench shower in the immediate work area.

Clothing: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Contaminated clothing should be removed, then discarded or laundered. Always place pants legs over boots.

Gloves: Wear appropriate chemical resistant gloves.

Protective Material Types: butyl rubber, natural rubber, neoprene, nitrile, polyvinyl chloride (PVC), Tychem (R)

Immediately Dangerous To Life Or Health: 10 mg/m3

Respirator: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respiratory is required. If eye irritation occurs, a full face style mask should be used. When an air-purifying respirator is not adequate or when there are vapor concentrations above 10 ppm or for spills and/or emergencies, a NIOSH approved self-contained breathing apparatus or airline respirator, with full-face piece, is required. A respiratory protection program that meets 20 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

IX PHYSICAL DATA

Physical State:	liquid
Appearance:	clear to opaque
Color:	colorless to slightly colored
Odor:	odorless
Boiling Point:	230-291 F (110-144 C)
Freezing Point:	-26 to 59 F (-32 to 15 C)
Vapor Pressure:	13-135 mmHg @ 60 C
Vapor Density:	Not available
Specific Gravity (water=1):	1.2 0 – 1.23 @ 15.6 C
Density:	10.0 – 10.3 lbs/gal @ 15.6 C
Water Solubility:	100%
pH:	14.0 (7.5% Solution)
Volatility:	Not available

Odor Threshold: Not available
Evaporation Rate: Not available
Coefficient Of Water/Oil Distribution: Not available

X STABILITY & REACTIVITY DATA

Reactivity: Stable at normal temperatures and pressure.
Conditions to Avoid: Mixing with water, acid or incompatible materials may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars or food beverage products in enclosed spaces.
Incompatibilities: acids, halogenated compounds, prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys.
Hazardous Decomposition: Thermal decomposition products: none known.
Polymerization: Will not polymerize.

XI TOXICOLOGICAL INFORMATION

Toxicity Data: Sodium Hydroxide: 1350 mg/kg Dermal-Rabbit LD50. The severity of the tissue damage is a function of its concentration, the length of tissue contact time and local tissue conditions. After exposure there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes and mucous membranes. This material may cause severe burns and permanent damage to any tissue it comes into contact. Inhalation will cause severe irritation, possible burns with pulmonary edema, which may lead to pneumonitis. Skin contact with this material may cause severe irritation and corrosion of tissue. Eye contact can cause severe irritation, corrosion with possible corneal damage and blindness. Ingestion may cause irritation, corrosion/ulceration, nausea and vomiting. In general, chronic effects are due to long-term irritation. This material may cause dermatitis on the skin or recurrent corneal ulceration and visual disturbances. In rare cases reports have noted long-term inhalation causes bronchial inflammatory reaction or obstructive airway dysfunction.
Medical Conditions Aggravated By Exposure: respiratory system (including asthma and other breathing disorders)
Ecotoxicity Data:
Fish Toxicity: This material has exhibited moderate toxicity to aquatic organisms. For sodium hydroxide: 100 ppm LC50 Daphnia; 25 ppm 24 hours LC50 Brook trout; 48 ppm LC50 King salmon; 33 – 100 ppm 48 hours LC50 Shrimp; 330 – 1000 ppm 48 hours LC50 Cockle
Fate and Transport:
Biodegradation: This material is inorganic and no subject to biodegradation.
Persistence: This material is alkaline and may raise the pH of surface waters with low buffering capacity. This material is believed to exist in the disassociated state in the environment.
Bioconcentration: This material is believed not to bioaccumulate.
Other Ecological Information: This material has exhibited slight toxicity to terrestrial organisms.

X11 DISPOSAL CONDSIDERATIONS

Reuse or reprocess if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CRF 262. Hazardous Waste Number(s): D002.

XIII TRANSPORT INFORMATION

U.S.DOT 40 CFR 172.101:
Proper Shipping Name: Sodium hydroxide solution
ID Number: UN1824

Hazard Class or Division: 8
Packing Group: II
Labeling Requirements: 8
DOT Hazardous Substances(S): Sodium hydroxide 1000 lb(s) (454 kg(s)

Canadian Transportation of Dangerous Goods:
Shipping Name: Sodium hydroxide solution
UN Number: UN1824
Class: 8
Packing Group/Risk Group: II

XVI REGULATORY INFORMATION

U.S. Regulations:
CERCLA Sections 102a/103 Hazardous Substances (40 CFR 302.4):
Sodium Hydroxide: 1000 Lbs RQ

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR 355.30): Not regulated.
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):
Acute: Yes
Chronic: No
Fire: No
Reactive: No
Sudden Release: No

SARA Title III Section 313 (40 CFR 372.65): Not regulated.
OSHA Process Safety (29 CFR 1910.119): Not regulated.
FDA: This material has Generally Recognized as Safe (GRAS) status under specific FDA regulations. Additional information is available from the Code of Federal Register (CFR) which is accessible on the FDA's website.

State Regulations
California Proposition 65: This product is not listed, but it may contain contaminants known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act.

New Jersey Worker and Community Right To Know:
Reporting Requirement:
Water 7732-18-5 48.5-94.5%
Sodium Hydroxide 1310-73-2 5.5-51.5%
Sodium Chloride 7647-14-5 0-5.0%

Right To Know Hazardous Substance List:
Sodium Hydroxide 1310-73-2 5.5-51.5%

Special Health Hazard Substance List:
Sodium Hydroxide 1310-73-2 5.5-51.5%

Pennsylvania Right To Know:
1,2-dichloroethane: (special hazard, environmental hazard, generic environmental hazard); sulfur trioxide: (environmental hazard, generic environmental hazard); sodium hydroxide: (environmental hazard, generic environmental hazard); sulfuric acid: (environmental hazard, generic environmental hazard); hydrogen peroxide: (environmental hazard, generic environmental hazard).

Reporting Requirement:
Water 7732-18-5 48.5-94.5%

Sodium Hydroxide 1310-73-2 5.5-51.5%
Sodium Chloride 7647-14-5 0-5.0%

Hazardous Substance List:
Sodium Hydroxide 1310-73-2 5.5-51.5%

Environmental Hazardous Substance List:
Sodium Hydroxide 1310-73-2 5.5-51.5%

Special Hazardous Substance List:
Not Regulated.

Canadian Regulations:
Controlled Products Regulations (CPR): This product has been classified in accordance with the criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information require by the CPR.

WHMIS Classification: E.

National Inventory Status:
U.S. Inventory (TSCA): All of the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) Export Notification: Not listed.

Canada Inventory (DSL/NDSL): All components of this product are listed on the DSL.

XV COMMENTS

The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. No warranty of merchantability or of fitness for a particular purpose or warranty or guaranty of any other kind, express or implied, is made regarding performance, suitability, stability or otherwise. The information included herein is not intended to be all-inclusive as to the appropriate manner and/or conditions of use, handling and/or storage. Factors pertaining to certain conditions of storage, handling or use of this product may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended to, and nothing herein shall be construed as a recommendation to, infringe any existing patents or violate any laws, rules, regulations or ordinances of any governmental entity.

DATE: December 23, 2009

EOSi
Green Solutions For Achieving Your Limits

MicroC 2000™

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: MicroC 2000™ **Publication Date:** May 31, 2015

Product Code: NA **Replaces:** February 26, 2015

Product Use: A reducing agent for biological processes

Supplier Information:

Environmental Operating Solutions, Inc
160 MacArthur Blvd., Unit 6
Bourne, MA 02532

Phone: 508-743-8440
Fax: 508-743-8443
Website: www.microc.com

EMERGENCY TELEPHONE NUMBER: **CHEMTREC** **800-424-9300**

2. HAZARDS IDENTIFICATION

OSHA Regulatory Status:
This product when used as intended is not hazardous according to 29 CFR 1910.1200

Note: When vaporized, glycerin mist may cause irritation of the respiratory tract.

Potential Health Effects

Routes of Exposure	Ingestion, inhalation, skin contact, eye contact
Eyes	May cause slight irritation
Skin	May cause slight irritation
Inhalation	High mist concentrations may cause irritation of respiratory tract.
Ingestion	May be harmful if swallowed in large quantities

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS #	% by Weight
Glycerin; glycerol	56-81-5	70-74%
Water	7732-18-5	22-26%
Sodium Chloride	647-14-5	4-6%
Methanol	67-56-1	< 1%

4. FIRST AID MEASURES

Eye Contact	Immediately flush eyes thoroughly with plenty of water for 15 minutes and consult a physician immediately.
Skin Contact	Remove contaminated clothing and wash affected area with water and soap. Consult physician if irritation develops
Inhalation	Remove individual to fresh air. Seek medical attention if breathing problems persist
Ingestion	Do not induce vomiting. Rinse mouth thoroughly. Seek medical attention.
General Advice	If individual feels unwell following the exposure to the product consult a physician immediately. Present this Safety Data Sheet to the doctor in attendance
Note to physician	Treat patient symptomatically

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA and NFPA)	Non-flammable Material
Protection of Firefighters:	Wear suitable protective equipment. Wear self contained breathing apparatus if necessary
Extinguishing Media	Use equipment appropriate to the main source of the fire. Water spray, alcohol foam, dry chemical or CO2. Water or alcohol foam may cause frothing
Specific hazards arising from the chemical	Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Spills	Keep unnecessary personnel away from spill. Use personal protective equipment. Ventilate area of leak or spill. Avoid breathing vapors and mist.
Methods for Containment	Eliminate all sources of ignition. Stop flow of material if safe to do so. Dike spilled material. Absorb spill with inert absorbent material. Sand, earth and vermiculite are suitable absorbent materials.
Environmental Precautions	Prevent further leakage. Contain spill if safe to do so. Do not let product enter storm drains if possible.

7. HANDLING AND STORAGE

Precautions for Safe Handling	See other relevant sections of this SDS. Avoid contact with skin and eyes. Avoid breathing mist. Use with adequate ventilation. Do not handle and store near open flames, high heat or sources of ignition.
Storage	Keep containers closed when not in use. Minimize evaporative losses. Keep away from ignition sources.
Incompatible Materials for Storage	None known

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

INSUFFICIENT DATA ON MIXTURE. DATA ON INDIVIDUAL COMPONENTS PROVIDED BELOW

Component	Concentration in Product	ACGIH TLV	OSHA TABLE Z-1 Limits for Air Contaminants	NIOSH
Glycerin CAS No: 56-81-5	70-74% w/w	Form: Glycerin Mist TWA: 10 mg/m3	Form: Total Dust PEL: 15 mg/m3 Form: Respirable Fraction PEL: 5 mg/m3	Insufficient Data on Glycerin Mist
Methanol CAS No: 67-56-1	< 1 % w/w	TWA: 260 mg/m3	PEL: 260 mg/m3	TWA: 260 mg/m3

Engineering Controls — Use proper equipment and storage conditions to control airborne levels below recommended exposure limits.

Personal Protective Equipment

Eye Protection: — Use normal eye protection practices such as safety glasses with side shields. Use chemical goggles if risk of splashing is high.

Skin Protection — Handle with chemical resistant gloves. Dispose of contaminated gloves after use. Nitrile gloves recommended.

Respiratory Protection — If workers could be exposed to concentrations above the exposure limits in Section 8, use a full face respirator with multipurpose combination cartridges.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Flash Point**	None to Boil (ASTM D93)
Color	Light brown	**Boiling Point**	Not determined
Odor	Musty – Sweet Odor	**Evaporation Rate**	Not determined
Odor Threshold	Not determined	**UEL/LEL**	Not determined
		Flammability (solid, gas)	Not determined
pH	4.00-11.00	**Vapor Pressure**	Not determined
Solubility in Water	Highly soluble in water	**Vapor Density**	Not determined
		Relative Density	Not Determined
Bulk Density	10.22 lbs/gal	**Partition Coefficient**	Not determined
Specific gravity	1.225@ 20°C	**Autoignition Temperatures**	
		Decomposition	
Viscosity	45 cPs @ 20C	**Temperature**	Not determined

10. STABILITY AND REACTIVITY

Reactivity	Avoid contact with oxidizing agents (e.g. nitric acid, peroxides, chromates)
Chemical Stability	Stable under normal storage conditions
Possibility of hazardous reactions	None known
Conditions to Avoid	Heat, flames, sparks. Contact with oxidizing agents
Incompatible Materials	None known
Hazardous Decomposition Products	Oxides of carbon under high heat

11. TOXICOLOGY

INSUFFICIENT DATA ON MIXTURE. DATA ON INDIVIDUAL COMPONENTS PROVIDED BELOW

Eye Contact	The components in this product may result in mild eye irritation from contact with liquid or vapors. Symptoms include redness, swelling, watering.
Skin Contact	The components in this product may result in mild skin irritation. Symptoms include redness, itching, burning, dermatitis.
Inhalation	Breathing high mist concentrations may be harmful. Inhalation can cause irritation of the throat and lungs.
Ingestion	Ingestion of this product may result in nausea, vomiting and diarrhea. Aspiration into the lungs can cause damage and inflammation to the lungs.
Target Organs	Lungs, Kidneys
Prolonged Exposure	Symptoms include nausea, headache, vomiting

Glycerin; Glycerol CAS No. 56-81-5

Acute Toxicity	Dermal LD50 = > 10,000 mg/kg (Rabbit) Inhalation LC50 = > 570 mg/m^3 1 hr (Rat) Oral LD50 = 12,600 mg/kg (Rat)
Carcinogenicity	Not listed by ACGIH, IARC, NIOSH, NTP or OSHA
Mutagenicity	No data available
Reproductive Toxicity	No data available

Methanol 67-56-1

Acute Toxicity	Dermal LD50 = 15,800 mg/kg (Rabbit) Inhalation LC50 = 64,000 mg/m^3 4 hr (Rat) Oral LD50 = 5,600 mg/kg (Rat)
Carcinogenicity	Not listed by ACGIH, IARC, NIOSH, NTP or OSHA
Mutagenicity	No data available
Reproductive Toxicity	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity	Glycerin: 96 hr LC50: 51,000-57,000 mg/L (Rainbow Trout), > 5000 mg/L Goldfish Methanol: 96 hr LC50: > 15,400-29,400 mg/L (Fish)
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Other adverse effects	No data available

13. DISPOSAL CONSIDERATIONS

This product as supplied is not classified as a RCRA hazardous waste according to 40 CFR 261. However it should be fully characterized prior to disposal as contamination with other materials may subject it to hazardous waste regulations. RCRA requires the user of the product to determine whether the product meets RCRA criteria for hazardous waste. Always consult with local, state and federal regulations prior to disposal.

14. TRANSPORTATION INFORMATION

US Domestic DOT	Not Regulated
Shipping Name	Glycerin; Glycerol
IMDG	Not dangerous goods
IATA	Not dangerous goods
Marine pollutant	No

15. REGULATORY INFORMATION

United States

Toxic Substances Control Act

The components of this product are listed on the TSCA Inventory of Existing Chemical Substances

Section 302 (EHS) TPQ	Not applicable
Section 304 (EHS) TPQ	Not applicable

SARA Section 311/312 Hazard Categories

Acute - NO
Chronic – NO
Physical - None
Pressure Hazard - NO
Fire Hazard - NO

SARA Section 313

This product may contain trace amounts of a chemical that is subject to reporting requirements of SARA

Methanol CAS # 67-56-1 Typical % Weight in Product 0.0-0.10%

CERCLA

This product may contain trace amounts of a chemical that is subject to reporting requirements of CERCLA

Methanol RQ # 5,000. Typical % Weight in Product 0.0-0.10%

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): None

State Right to Know Regulations

Chemical Name: Glycerin

California – Proposition 65	Not applicable
Massachusetts Right to Know	Glycerin
Minnesota Hazardous Substances List	Glycerin mist
New Jersey Right to Know	None
Pennsylvania Right to Know	Glycerin
Rhode Island Right to Know	Glycerin

16. ADDITIONAL INFORMATION

MSDS REVISION STATUS: May 31, 2015| Replaces February 26, 2015

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. WE BELIEVE THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF ITS PUBLICATION DATE, BUT MAKE NO WARRANTY THAT IT IS. IF THIS MSDS IS MORE THAN THREE YEARS OLD YOU SHOULD CONTACT THE SUPPLIER TO MAKE CERTAIN THAT THE INFORMATION IS CURRENT.

Safety Data Sheet
Pulse Shield

SDS Revision Date: 05/06/2015

1. Identification

1.1. Product identifier

Product Identity	Pulse Shield
Alternate Names	Pulse Shield

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use	Water repellent
Application Method	See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name	Gurtler Industries, Inc. 15475 South LaSalle St. South Holland, IL 60473 US
Emergency	
CHEMTREC (USA)	(800) 424-9300
24 hour Emergency Telephone No.	(708) 331-2550
Customer Service: Gurtler Industries, Inc.	INFOTRAC - (800) 535-5053

2. Hazard(s) identification

2.1. Classification of the substance or mixture

No applicable GHS categories.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

No applicable GHS categories.

[Prevention]:

No GHS prevention statements

[Response]:

No GHS response statements

[Storage]:

No GHS storage statements

[Disposal]:

No GHS disposal statements

3. Composition/information on ingredients

There are no ingredients in this product which are classified as hazardous, and/or no hazardous ingredients above the GHS cut off percentage.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.

Eyes Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.

Skin Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.

Ingestion Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Overview Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

Chronic effects: Prolonged or repeated exposure can cause drying, defatting and dermatitis. See section 2 for further details.

5. Fire-fighting measures

5.1. Extinguishing media

Treat for surrounding material.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Oxides of Carbon

5.3. Advice for fire-fighters

Firefighters should wear full protective clothing including self-contained breathing apparatus.

ERG Guide No. ----

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Personal precautions: Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective space clothing. Keep people away from and upwind of spill/leak.

Environmental precautions: Do not discharge into lakes, streams, ponds or public waters.

Methods for containment: Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up: Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills to original containers for re-use.

7. Handling and storage

7.1. Precautions for safe handling

Use good industrial hygiene practices in handling this material.
When using do not eat or drink.
Avoid contact with skin and clothing.
Avoid contact with eyes.
Avoid breathing vapors or mists of this product.
Keep container tightly closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Store in a closed container away from incompatible materials.

Incompatible materials: Acids. Oxidizers

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

There are no ingredients in this product which are classified as hazardous, and/or no hazardous ingredients above the GHS cut off percentage.

8.2. Exposure controls

Respiratory	If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.
Eyes	Protective safety glasses recommended
Skin	Rubber gloves recommended.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	White Liquid
Odor	Characteristic
Odor threshold	Not Measured
pH	Not Measured
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	> 208.40 F/98 C
Flash Point	None
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	Not Measured
Vapor Density	Not Measured
Specific Gravity	1.006 (H2O = 1)
Solubility in Water	Dispersible
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

Strong Oxidizers

10.4. Conditions to avoid

Do not mix with other chemicals.

10.5. Incompatible materials

Acids. Oxidizers

10.6. Hazardous decomposition products

Oxides of Carbon

11. Toxicological information

Acute toxicity

There are no ingredients in this product which are classified as hazardous, and/or no hazardous ingredients above the GHS cut off percentage.

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

There are no ingredients in this product which are classified as hazardous, and/or no hazardous ingredients above the GHS cut off percentage.

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable	Not Regulated	Not Regulated
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	**DOT Hazard Class:** Not Applicable	**IMDG:** Not Applicable **Sub Class:** Not Applicable	**Air Class:** Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable

14.5. Environmental hazards

IMDG Marine Pollutant: No

14.6. Special precautions for user

No further information

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

SDS Revision Date: 05/06/2015

WHMIS Classification Not Regulated

US EPA Tier II Hazards

Fire: No
Sudden Release of Pressure: No
Reactive: No
Immediate (Acute): No
Delayed (Chronic): No

EPCRA 311/312 Chemicals and RQs:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute

Proposition 65 - Carcinogens (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%) :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Pennsylvania RTK Substances (>1%) :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

Not Applicable

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

End of Document

MATERIAL SAFETY DATA SHEET

Georgia Steel & Chemical Co., Inc.
10820 Guilford Rd
Annapolis Junction, MD 20701

Product Information: (301) 317-5502
Emergency: (800) 424-9300
Document Number: MSDS103 Rev: F
Date Revised: 11/14/05

Section 1 – Identification	
Product Number:	RP355
Product Name:	Rinse Agent
Product Type:	Rinse agent for respirators and safety eyewear

Hazard Material Rating	
Health:	2
Fire:	0
Reactivity:	0
Personal Protective Equipment:	B

Scale:
4- Extreme
3- High
2- Moderate
1- Slight
0- Insignificant

Section 2 – HAZARDOUS COMPONENTS

Hazardous Materials (**HAZMAT**):			**OSHA**		**ACGIH**	
Component	**CAS #**	**% Weight**	**STEL**	**PEL**	**TWA**	**15-min-Ceiling**
Water	7732-18-5	70-75	.	-	-	-
Sodium Xylene Sulfonate	1300-72-7	<20	N/E	N/A	N/E	N/E
Acrylic Co-polymer	66019-18-9	<10	N/E	N/A	N/E	N/E
Dipropylene glycol methyl ether	34590-94-8	<10	N/E	N/A	N/E	N/E

Active Ingredients:	-
Other Ingredients:	-

Section 3 – PHYSICAL / CHEMICAL CHARACTERISTICS

Appearance:	Purple Liquid	**Melting Point:**	-
Color:	Purple	**Solubility in Water:**	Complete
State:	Liquid	**Evaporation Rate:**	Same as water
Odor:	Non-descript	**Percent Volatile:**	>90
pH:	4.0	**Boiling Point:**	190-212°F
Viscosity:	-	**Vapor Density:**	-
Specific Gravity (H_20 =1):	1.01	**Vapor Pressure:**	-

Section 4 – FIRE AND EXPLOSION HAZARD DATA

Flash Point:	N/E			
Special Fire Fighting Procedures:	Water - Dry Chemical - Foam - Carbon Dioxide			
Unusual Fire and Explosion Hazards:	None			
Flammable limits:	**Lower Level:**	N/A	**Upper Level:**	N/A

Section 5 – REACTIVITY DATA

Stability:	Stable under normal conditions of handling
Conditions to Avoid:	Do not mix with other chemicals-
Materials to Avoid:	-
Hazardous Decomposition or Byproducts:	Thermal Decomposition may generate toxic materials such as oxides of carbon and nitrogen.
Hazardous Polymerization:	Will not occur

MATERIAL SAFETY DATA SHEET

Section 6 – HEALTH HAZARD DATA	
Primary Route of exposure:	Skin, Eyes, Ingestion
Health Effects of overexposure:	N/E
Signs or Symptoms of Overexposure (Acute):	This product can be expected to be an skin and eye irratant.
Signs or Symptoms of Overexposure (Chronic):	N/E
Carcinogenicity:	None

Section 7 – SPILL OR LEAK PROCEDURES	
Clean Up:	Absorb with inert material and place in a container for proper disposal. Flush spill area with water.
Disposal:	Dispose of in accordance with Federal, State, and Local Regulations.
Handling and Storage:	Store in a cool, dry area, and away from excessive heat. Store away from food.

Section 8 – CONTROL MEASURES	
Eye Protection:	Goggles
Skin Protection:	Protective Gloves (Water Impervious)
Respiratory Protection:	Not needed under local ventilation
Ventilation Procedures:	Use with adequate ventilation

Section 9 – EMERGENCY AND FIRST AID PROCEDURES	
Inhalation:	-
Skin Contact:	Remove contaminated shoes and clothing. Wash skin with large amounts of soap and water for at least 15 minutes
Eye Contact:	Flush eyes immediately with large quantities of water for at least 15 minutes. Get medical attention.
Ingestion:	Rinse mouth with water. Take 1-2 glasses of water or milk and get medical attention. Call a Poison Control Center or Physician Immediately. Do not induce vomiting!
Notes for Physician:	Treat exposed patients symptomatically

Section 10 – ADDITION PRECAUTIONS	
DOT:	
KEEP OUT OF THE REACH OF CHILDREN.	

ABBREVIATIONS:
ACGIH = American Conference of Government Industrial Hygienists
IATA = International Air Transport Association
ICAO = International Civil Aviation Organization
OSHA = Occupational Safety and Health Administration
PEL = Permissible Exposure Limit
STEL = Short-Term Exposure Limit
TLV = Threshold Limit Value
TWA = Time Weighted Average
WHIMS = Workplace Hazardous Materials Information System
N/A = Not Applicable
N/E = Not Established

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, **NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN FOR THE CONTINUING ACCURACY OF THIS INFORMATION.**

WashingSystems
INNOVATION / SERVICE / SUSTAINABILITY

SECURE

SAFETY DATA SHEET

1. SECTION 1: IDENTIFICATION

1.1	**Product identifier**	
	Product identifier	Secure
	CAS No.	21351-39-3
1.2	**Recommended use of the chemical and restrictions on use**	
	Identified Use(s)	Sour
	Uses Advised Against	Industrial use only.
1.3	**Supplier's details**	
	Company Identification	Washing Systems LLC 167 Commerce Blvd. Loveland, OH 45140
	Telephone	(513) 870-4830
	Fax	(513) 870-4850
	E-mail	msds@washingsystems.com
1.4	**Emergency Phone No.**	Chemtrec: (800) 424-9300

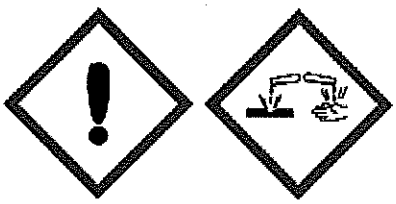
2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Serious eye damage/irritation: Category 1
Skin corrosion/irritation: Category 2
Acute toxicity: Oral Category 4
Substance or mixture corrosive to metals
Specific target organ toxicity — single exposure: Category 3 (Respiratory system)

2.2 Label elements

Hazard Pictogram(s)



Signal Word(s): **DANGER**

Hazard Statement(s):
H315: Causes skin irritation.
H318: Causes serious eye damage.
H302: Harmful if swallowed.
H335: May cause respiratory irritation.
H290: May be corrosive to metals.

Precautionary Statement(s):
P264: Wash thoroughly after handling: hands and exposed skin
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P270: Do not eat, drink or smoke when using this product.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P362: Take off contaminated clothing and wash before reuse.

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.
P301: IF SWALLOWED: P310: Immediately call a POISON CENTER or doctor/physician.
P330: Rinse mouth.
P501: Dispose of contents/container to: Dispose of contents in accordance with local, state or national legislation.
P271: Use only outdoors or in a well-ventilated area.
P234: Keep only in original container.
P390: Absorb spillage to prevent material damage.
P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.
P406: Store in corrosive resistant/(Stainless steel /Plastic) container with a resistant inner liner.

2.3 Other hazards — Not classified

2.4 Additional Information — None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Hazardous Ingredient(s)	CAS No.	%W/W
Carbamide dihydrogen sulfate	21351-39-3	15-40

3.3 Additional Information
None.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation — Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. If irritation develops and persists, get medical attention.

Skin Contact — Wash skin with water. Continue to wash the affected area for at least 15 minutes.If irritation develops and persists, get medical attention.

Eye Contact — Flush eyes with water for at least 15 minutes while holding eyelids open. Immediately call a POISON CENTER or doctor/physician.

Ingestion — Do NOT induce vomiting. Do not give anything by mouth to an unconscious person. Rinse mouth. Drink one glass of water. Get immediate medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed — *Inhalation:* Unlikely to be hazardous by inhalation because of the low vapour pressure of the material at ambient temperature. May cause irritation to the respiratory system. Coughing. Sneezing. Increased difficulty in breathing.

Skin: Repeated and/or prolonged skin contact may cause irritation.

Eyes: May cause irritation. Burns

Ingestion:. May be harmful if swallowed.

4.3	**Indication of any immediate medical attention and special treatment needed**	Not known

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable Extinguishing Media	Water spray, dry powder or carbon dioxide. Foam.
	Unsuitable extinguishing Media	None known
5.2	**Special hazards arising from the substance or mixture**	None known
5.3	**Advice for fire-fighters**	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Do not eat, drink or smoke during work. Wear appropriate personal protective equipment, avoid direct contact. Wear protective gloves/eye protection.
6.2	**Environmental precautions**	Prevent liquid entering sewers, basements and any watercourses.
6.3	**Methods and material for containment and cleaning up**	In event of a spill, evacuate danger area. Stop leak if safe to do so. Cover with absorbent or contain. Collect and dispose. -or- Neutralize with:lime Wash the spillage area with water.
6.4	**Reference to other sections**	See Also Section 8, 13.

7. SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Do not get in eyes, on skin, or on clothing. Avoid breathing mist/spray. Avoid ingestion. Wash thoroughly after handling.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep container tightly closed and dry. Store in a well-ventilated place. Keep/store away from: Incompatible materials. Protect from sunlight. Do not use or store near heat or open flame. Store at temperatures not exceeding (49°C/120 F):
7.2.3	**Incompatible materials**	See Section: SECTION 10:

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Carbamide dihydrogen sulfate	21351-39-3	Not established		Not established		

Source: ChemInfo. and OSHA.

8.2	**Appropriate engineering controls**	Provide adequate ventilation.

8.3	**Individual protection measures, such as personal protective equipment (PPE)**	
	Eye/face protection	Goggles.
		
	Skin protection	Protective gloves. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.
		
	Respiratory protection	Not normally required. Wear suitable respiratory protective equipment if processing involves working in areas where dusts or vapours are likely to be evolved.Use NIOSH approved respiratory protection.
		
	Thermal hazards	None known

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Information on basic physical and chemical properties**	
	Appearance	Liquid.
	Colour.	Clear. Colourless liquid
	Odour	No odour.
	Odour Threshold	Not available.
	pH	0-2
	Melting Point/Freezing Point	Not available.
	Initial boiling point and boiling range	212 F (100 C)
	Flash point	> 200F
	Evaporation Rate	~ 1
	Flammability (solid, gas)	Not applicable
	Upper/lower flammability or explosive limits	Not applicable
	Vapour pressure	Not available
	Vapour density	Not applicable
	Relative density	1.09-1.15
	Solubility(ies)	Water.
	Partition coefficient: n-octanol/water	Not available.
	Auto-ignition temperature	Not applicable
	Decomposition Temperature	Not available.
	Viscosity	Not available
	Explosive properties	None known
	Oxidising properties	None known
9.2	**Other information**	Not available

10. SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Will not occur
10.4	**Conditions to avoid**	Dust. Keep away from heat and sources of ignition.
10.5	**Incompatible materials**	May be corrosive to metals. Alkalis.
10.6	**Hazardous decomposition product(s)**	Oxides of carbon. Oxides of nitrogen. Sulphur oxides

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1	**Information on toxicological effects**	
	Acute toxicity	
	Ingestion	LD50 (rat): 350 mg/kg
	Inhalation	LC50 (rat): >10.8 mg/L
	Skin Contact	LD50 (rat): 2000 mg/kg

	Eye Contact	No data
	Skin corrosion/irritation	Severe irritant to rabbit skin.
	Serious eye damage/irritation	Corrosive
	Respiratory or skin sensitization	No data. Respiratory sensitization data: Not known
	Germ cell mutagenicity	No data
	Carcinogenicity	IARC, NTP, OSHA, ACGIH do not list this product or any components thereof as known or suspected carcinogen.
	Reproductive toxicity	No data
	STOT - single exposure	May cause irritation.
	STOT - repeated exposure	No data
	Aspiration hazard	No data
11.2	**Other information**	Not available

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	None known
12.2	**Persistence and degradability**	No data.
12.3	**Bioaccumulative potential**	No data.
12.4	**Mobility in soil**	No data
12.5	**Other adverse effects**	None known

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Observe Local Regulations. Dispose of contents in accordance with local, state or national legislation.References: SECTION 8:

14. SECTION 14: TRANSPORT INFORMATION

D.O.T. Classification
Not classified as dangerous for transport.

14.1	**UN number**	Not applicable
14.2	**Proper Shipping Name**	Not applicable
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	Not applicable

15. SECTION 15: REGULATORY INFORMATION

15.1	**US Federal Regulations:**	*TSCA Inventory Status : All chemicals in this product comply with TSCA rules and regulations including TSCA Section 5 (Inventory Rules).* *Title III Consolidated List of Lists:* S. 302 (EHS): No. S 304 (RQ): No. *S 311/312 HAZARDS IDENTIFICATION:* Acute: Yes. Chronic: No. Fire: No. Reactivity: Yes Release potential pressure: No. S 313 (TRI): No.
15.1.1	**Other regulations, restrictions and prohibition regulations: USA**	*Proposition 65 (California):* No. *NJ RTK*: No.

NY Environmentally hazardous substance (PART 597): No.
PA Environmentally hazardous substance (HSL): No.

15.2 Canada (DSL/NDSL): DSL: Yes. NDSL: No.

16. SECTION 16: OTHER INFORMATION

Date of preparation: 05/13/2014

Disclaimers

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Washing Systems gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Washing Systems accepts no liability for loss or damage,resulting from reliance on this information.

The composition of the product is confidential.

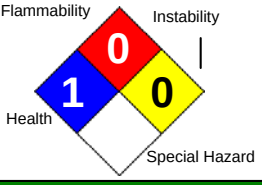
NFPA		HMIS	
Health	2	Health	2
Fire	0	Flammability	0
Instability	1	Physical hazards	1

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
OSHA	Occupational Safety and Health Administration
TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association
HMIS	Hazardous Material Information System

MATERIAL SAFETY DATA SHEET
Structure

HEALTH	1
FLAMMABILITY	0
PHYSICAL	0
PPE	B



Printed: 07/01/2013
Revision: / /

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Structure

Manufacturer Information

Company Name: Washing Systems LLC
167 Commerce Boulevard
Loveland, OH 45140

Phone Number: (513)870-4830

Emergency Contact: Chemtrec (800)424-9300

Preparer Name: Washing Systems LLC (513)870-4546

Intended Use: Builder/Water Conditioning Agent

Date: 07/01/2013

2. HAZARDS IDENTIFICATION

Emergency Overview: Warning! May cause eye, skin, respiratory, and digestive tract irritation.

Potential Health Effects (Acute and Chronic):

Eyes: May cause eye irritation.

Skin: May cause irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause swelling and tissue destruction to the mucous membranes of the mouth, throat, esophagus, and stomach.

Inhalation: May cause irritation. May cause difficulty breathing, coughing, choking, pain, and possible burns of the mucous membranes. Irritation may lead to chemical pneumonitis and pulmonary edema. Can produce delayed pulmonary edema.

LD 50 / LC 50: Refer to Section 11.

Signs and Symptoms Of Exposure: Tightness of chest. Dizziness. Nausea, vomiting, diarrhea. Irritation.

Medical Conditions Generally Aggravated By Exposure: No data available.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components (Chemical Name)	CAS #	Concentration
1. L-Glutamic acid, N,N-diacetic acid tetrasodium salt	51981-21-6	10.0 -20.0 %
2. Potassium hydroxide {Caustic potash}	1310-58-3	< 2.0 %
3. Sodium Silicate	1344-09-8	15.0 -40.0 %

4. FIRST AID MEASURES

Emergency and First Aid Procedures:

In Case of Inhalation: Remove to fresh air. Get medical aid if irritation develops and persists.

In Case of Skin Contact: Wash with soap and water. Get medical aid if irritation develops and persists.

In Case of Eye Contact: Flush eyes with plenty of water for at least {15} minutes, occasionally lifting the upper and lower eyelids. Get medical aid if irritation develops and persists.

In Case of Ingestion: Do NOT induce vomiting. Give large amounts of water. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward. Get medical aid immediately.

5. FIRE FIGHTING MEASURES

Flash Pt: >= 200 F (93.3 C) Method Used: Closed Cup

Explosive Limits: LEL: N.A. UEL: N.A.

Autoignition Pt: NP

Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Flammable Properties and Hazards: None known.

Hazardous Combustion Products: Nitrogen oxides. Oxides of carbon. Ammonia. Corrosive and toxic fumes. Sodium hydroxide.

Suitable Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media: None known.

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled: Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Keep unauthorized personnel away. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Provide ventilation. Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Following product recovery, flush area with water.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Wash thoroughly after handling.

Precautions To Be Taken in Storing: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TWA	Other Limits
1. L-Glutamic acid, N,N-diacetic acid tetrasodium salt	51981-21-6	No data.	No data.	No data.
2. Potassium hydroxide {Caustic potash}	1310-58-3	No data.	CEIL: 2 mg/m3	No data.
3. Sodium Silicate	1344-09-8	No data.	No data.	No data.

Respiratory Equipment (Specify Type): Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Eye Protection:	Safety glasses.
Protective Gloves:	Wear appropriate protective gloves to prevent skin exposure. Preferred glove barrier materials include: Butyl rubber, natural rubber, neoprene, nitrile or viton.
Other Protective Clothing:	Wear appropriate protective clothing to prevent skin exposure.
Engineering Controls (Ventilation etc.):	Use adequate ventilation to keep airborne concentrations low.
Work/Hygienic/Maintenance Practices:	Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Freezing Point:	< 0 C (32.0 F)
Boiling Point:	100 C (212 F) - 115 C (239 F)
Decomposition Temperature:	NP
Autoignition Pt:	NP
Flash Pt:	>= 200 F (93.3 C) Method Used: Closed Cup
Specific Gravity (Water = 1):	1.2
Density:	10.0 lb/gal
Vapor Pressure (vs. Air or mm Hg):	150 MM_HG at 60.0 C (140 F)
Vapor Density (vs. Air = 1):	NA
Evaporation Rate:	NA
Solubility in Water:	Miscible
Percent Volatile:	NA
Saturated Vapor Concentration:	NA
Viscosity:	< 50 cP
Octanol/Water Partition Coefficient:	NA
pH:	10 - 11 (1%)
Appearance and Odor:	Appearance: Clear. green. Odor: Odorless. Odor Threshold: {NA}

10. STABILITY AND REACTIVITY

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Moisture.
Incompatibility - Materials To Avoid:	Acids. Metals. Fluorine. Aluminum. Lead. Tin. Zinc. Brass. Other alkali sensitive metals or alloys. Copper alloys. Copper. Bronze. Nickel. Halogenating Agents. Flammable liquids.
Hazardous Decomposition Or Byproducts:	Carbon dioxide. Carbon monoxide. Nitrogen oxides. Ammonia.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION

Toxicological Information:

Ingredient: CAS# 51981-21-6 L-Glutamic acid, N,N-diacetic acid tetrasodium salt:
Oral, rat: LD50 >2000 mg/kg. (based on tests with a similar product). Dermal toxicity: Not irritating to rabbit skin after 4-hr exposure to 164 mg. (Primary irritation index was 0.0) based on tests with a similar product. Eye: Minimally irritating to rabbit eyes following instaillation of 31 mg. (Maximum irritation score was 3.3) based on tests with a similar product.

Ingredient: CAS# 1310-58-3 Potassium Hydroxide:
Oral, rat: LD50 205-365 mg/kg; Dermal, rabbit: LD50 >1260 mg/kg.

Ingredient: CAS# 1344-09-8 Sodium Silicate:
Oral, rat: LD50 1153 mg/kg. Dermal, rabbit: LD50 4640 mg/kg.

Chronic Toxicological Effects:

CAS# 51981-21-6 L-Glutamic acid, N,N-diacetic acid tetrasodium salt: 90-day oral gavage study on a similar product induced reversible changes in some blood and urine parameters without concomitant microscopic changes in the kidneys or other organs. The NOAEL is 300 mg/kg/day.

Mutagenicity: A similar product was negative in the Ames, CHO HGPRT forward mutation and micronucleus tests. It was weakly clastogenic to CHL cells in vitro.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. L-Glutamic acid, N,N-diacetic acid tetrasodium salt	51981-21-6	No	No	No	No
2. Potassium hydroxide {Caustic potash}	1310-58-3	No	No	No	No
3. Sodium Silicate	1344-09-8	No	No	No	No

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

12. ECOLOGICAL INFORMATION

General Ecological Information:

Ingredient: CAS 51981-21-8 L-glutamic acid, N,N-diacetic acid tetrasodium salt: EC50, dapnia magna >100 mg/L (48-h); EC50, algae >100 mg/L (72-h); LC50, rainbow trout >100 mg/L (96-h) Bioaccumulation: Low potential.

CAS# 1310-58-3 Potassium Hydroxide:
LC50 daphnia magna: 60 mg/L 48-Hr. LC50 Green Algae 61 mg/L 96-Hr LC50 fathead minnue: 179 mg/L 96-Hr

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in {40} CFR Parts {261.3}. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name Not regulated as a hazardous material.

Additional Transport Information: No data available.

15. REGULATORY INFORMATION

EPA Hazard Categories:

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard

[ ] Yes [X] No Chronic (delayed) Health Hazard

[ ] Yes [X] No Fire Hazard

[ ] Yes [X] No Sudden Release of Pressure Hazard

[ ] Yes [X] No Reactive Hazard

16. OTHER INFORMATION

Company Policy or Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required

SYNTHEXOrganics

SAFETY DATA SHEET

12.5% Urea

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

Product name: **12.5% Urea**

Company: SYNTHEX ORGANICS, LLC
4601 Cortland Avenue
Altoona, PA 16601
United States

Telephone: 814-941-8375

Telefax: 814-941-1031

Emergency telephone number: 814-941-8375

Common name: Urea Solution

Chemical family: Aliphatic amide

Formula: $CO(NH_2)_2$

2. HAZARDS IDENTIFICATION

Form: Liquid

Color: Colorless

Odor: Odorless to slightly ammoniacal

Potential Health Effects:

Eye: May irritate eyes upon contact.

Skin: May irritate skin upon contact.

Inhalation: May cause irritation of the mucous membranes and upper respiratory tract.

Ingestion: May cause irritation of the mucous membranes and upper respiratory tract.

Not considered toxic for humans. However, in keeping with good industrial hygiene practices, exposure to any chemical should be kept at a minimum.

Carcinogenic Effects: None found by ACGIH, EPA, IARC, OSHA.

Mutagenic Effects: None found by ACGIH, EPA, IARC, OSHA.

Teratogenic Effects: None found by ACGIH, EPA, IARC, OSHA.

SAFETY DATA SHEET
12.5% Urea

3. COMPOSITION / INFORMATION OF INGREDIENTS

Chemical Name	CAS Number	Weight %	PEL/TLV
Urea	57-13-6	12.5	N/A

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, excessive tearing, or light sensitivity persists, the patient should be seen in a health care facility.

Skin: Immediately flush exposed area with copious amounts of tepid water for at least 15 minutes followed by washing area thoroughly with soap and water. The patient should be seen in a health care facility if irritation or pain persists.

Ingestion: If conscious, give the patient large quantities of milk or water to drink immediately. Do not induce vomiting. Seek medical attention.

Inhalation: Generally not considered an inhalation hazard. If irritation develops, move patient to fresh air and monitor. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation. If needed, administer supplemental oxygen if trained to do so. If irritation, coughing, or difficulty breathing persists, the patient should be seen in a health care facility.

5. FIRE FIGHTING MEASURES

Flash point: Not applicable.

Flammable limits: Not applicable.

Products of combustions: Material will not burn, but thermal decomposition may result in flammable/toxic gases being formed after material evaporates to dryness. These products are ammonia, carbon dioxide, and oxides of nitrogen.

Explosion hazard in the presence of various substances: Reacts violently with chlorine bleach. Resultant product may explode.

Fire-fighting media: Non Flammable. Material will not burn. Undergoes thermal decomposition at elevated temperatures to release toxic and combustible gases (ammonia, carbon dioxide, and oxides from nitrogen). Fire fighters should wear a self-contained breathing apparatus. Use extinguishing media suitable for surrounding materials.

Special remarks on fire hazards: Flammable/Toxic gases will form at elevated temperatures by thermal decomposition. When exposed to heat, ammonia is released.

Special remarks on explosion hazards: May be explosive

6. ACCIDENTAL RELEASE MEASURES

Containment: Keep unnecessary people away, isolate hazard area and deny entry.

Clean Up:
Small Spill: (Generally, a small spill is one that involves a single, small package (i.e. up to a 55 gallon drum), small cylinder, or a small (non-continuing) leak from a large container.) A.) Stop leak if you can do so without risk. B.) Spilled area may become slippery. C.) Wash contaminated areas with large volumes of water if approved by local, state, and federal environmental agencies. D.) Runoff may cause pollution.
Large Spill: A.) Dike ahead of liquid spill for later recovery of usable product and proper disposal of any residue. B.) Stop leak if you can do so without risk. C.) Spilled area may become slippery. D.) Wash contaminated areas with large volumes of water if approved by local, state, and federal environmental agencies. E.) Runoff may cause pollution.

Evacuation: Necessary.

SYNTHEXOrganics

SAFETY DATA SHEET

WST-HA10825

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

Product name: **WST-HA10825**

Company: SYNTHEX ORGANICS, LLC
4601 Cortland Avenue
Altoona, PA 16601
United States

Telephone: 814-941-8375

Telefax: 814-941-1031

Emergency telephone number: 814-941-8375

Chemical family: Polymeric aluminum salt

Formula: Water treatment and manufacturing applications.

2. HAZARDS IDENTIFICATION

Hazard Statements
Harmful if ingested.
Irritating to skin and eyes.
Untreated contact with eyes may result in damage. Mist is irritating to respiratory system.

Precautionary Statements
Avoid direct contact.
Use protective equipment if direct contact is possible.
Wash hands thoroughly after contact.

WARNING- IRRITANT
AVOID CONTACT

3. COMPOSITION / INFORMATION OF INGREDIENTS

Substance
Chemical name: Proprietary aluminum salt (75%-95%)
Chemical name: Proprietary organic polymer (5%-25%)

Name: PACL 108-5, 10, 25
CAS#: 14215-15-7, and 42751-79-1
Impurities: NA. No impurities or additives which are themselves classified and which contribute to the classification of the substance.

4. FIRST AID MEASURES

Inhalation of mist or liquid: Remove from continued exposure. Get medical attention if difficulty with breathing or uncontrolled coughing occurs.

Skin contact: Remove contaminated clothing - footwear and wash skin with water. If irritation develops get medical attention.

Eye contact: A stinging - irritating sensation will occur. Immediately rinse eyes with water for an extended period. Get medical attention. Untreated exposure may result in damage to the eyes.

Ingestion: Spontaneous vomiting may occur. Do not actively induce vomiting. Rinse mouth and drink water. Get medical attention.

5. FIRE FIGHTING MEASURES

Flammability: Product is not flammable and will not burn.

Controls: To maintain the integrity use water to keep containers cool. If possible remove portable containers from areas under fire threat.

Hazards: In a fire dried product can decompose at elevated temperatures resulting in the formation of hydrogen chloride fumes. Exposure to products of decomposition during a fire may be hazardous to health. Stay up wind and avoid low areas.

Special equipment: In case of possible exposure to products of decomposition use appropriate self-contained or other approved respiratory protection. Consult engineers if necessary.

Mechanical impact: Not sensitive.

Static discharge: Not sensitive.

6. ACCIDENTAL RELEASE MEASURES

General: Site specific procedures to address accidental spills are necessary as dictated by facility design, location, staffing, containment structures, and regulatory requirements. Consult engineers if necessary.

Personal protection: In the event of a spill clear unnecessary staff from spill area. If direct contact with spilled material is likely use protective equipment.

Small spills: Manage spill using containment structures or inert materials and collect for reuse. Product not reused can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash, sodium bicarbonate or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

Large spills: Manage spill using containment structures or inert materials and collect for reuse.
Product not reused can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash, sodium bicarbonate, or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations. Caution: When neutralizing large spills CO2 will be created and can be a breathing hazard. Take steps to provide adequate ventilation. Consult engineers if necessary.

7. HANDLING AND STORAGE

Incompatible Chemicals: Avoid contact with sodium hypochlorite (bleach), chlorites, sulfites, strong bases, aqua ammonia and other similar materials. Consult engineers if necessary.

Containment: To minimize the possibility of a release into the environment and contact with other incompatible chemicals, storage tanks and containers should have a dedicated liquid tight secondary containment system. Consult engineers if necessary.

General hygiene: Do not eat, drink, take medication or smoke when direct contact is possible. Always thoroughly wash hands after leaving a work area where contact is possible or has occurred.

Storage: Clean storage tanks on a regular schedule based on inspection and experience. Have storage tanks, containers, and transfer systems properly labeled for contents. Have procedures for determining product quantity in storage tanks and for accepting deliveries. Use tanks, transfer lines, pumps valves and process instrumentation designed for this material using approved materials of construction. Some materials commonly used are FRP, plastic, PVC, CPVC, Teflon®, and Hastelloy® metal alloys. Common metals such as steel, iron, copper, and aluminum will be damaged by corrosion. Consult engineers if necessary.

Temperature for storage: Preferred storage temperature range is 7C-35C (45F-95F). Outside of these temperature ranges optimal product performance and shelf life may be affected.

Ventilation: No special requirements.

Personal protection: If direct contact with material is likely use protective equipment.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits
Ingredient: Aluminum soluble salts

OSHA PEL		ACGIH TLV		ACGIH TLV		NIOSH
TWA	ST	TWA	STEL	TWA	STEL	IDLH
2 mg/m3 as Al	none est	2 mg/m3 as Al	none est	2 mg/m3 as Al	none est	None est

Respiratory - Ventilation: Local passive ventilation is typically used. Under normal conditions respiratory protective equipment is not needed. If work requires direct exposure to product mist use appropriate, approved respiratory protection. Consult engineers if necessary.

Eye wash: Have an appropriate eye wash bottle, fountain, or safety shower available in the work area.

Eyes: Use protective eye glasses-goggles and face shield protection to prevent direct contact.

Skin: Use impervious gloves and foot covering. Wear long sleeve shirts and full length trousers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid clear to slight haze.

Flammability: Not flammable.

Upper/lower flammability limits: NA

Auto ignition: NA

Flash point: NA

Odor: Not significant. Free from organic or solvent odors.

Vapor density: NA

pH: 2.4-3.0 @ 25C (77F) as is basis

Density: 1.20 - 1.26 S.G. @ 21C (70F)

Melting/Freeze point: -10C (14F) + -

Boiling point-range: Unknown

Water Solubility: Complete.

Evaporation rate: NA

Partial coefficient: n-octanol/water; NA, inorganic compound column 2 of REACH Annex VII.

Decomposition temperature: >200C (392F)

Viscosity: 12-25 centipoise/mPa.s @ 23C (73F)

VOC: 0.0

10. STABILITY AND REACTIVITY

Chemical stability: Product is chemically stable under normal ambient temperature and conditions while stored or used.

Conditions to avoid: Do not exceed 200C (392F)

Materials to avoid: Chlorite, hypochlorite (bleach), sulfites, strong bases, common metals.

Decomposition products: Thermal decomposition of dried product can release irritating fumes.

11. TOXICOLOGICAL INFORMATION

Toxicity: Low order of acute toxicity

Oral (ingestion) estimate: LD50/Oral Rat >2,000mg/kg (as aluminum); 5,000mg/kg polyamine

Inhalation estimate: LC50/Inhalation rat >5.6mg/l (as aluminum)

Dermal estimate: LD50/dermal: >550mg/kg (as aluminum); >2,000mg/kg polyamine (rabbit)

Effects of exposure:
Skin: Repeated contact may dry and irritate skin.

Eyes: Will cause irritation, untreated exposure may result in damage to the eye.

Respiratory: Inhalation of liquid or mist may cause bronchial irritation and coughing.

Mucous membranes: May cause irritation.

Ingestion: Can cause vomiting, pain and discomfort to mouth, throat, and stomach.

Sensitization: Not sensitizing

Carcinogenicity: NTP Not listed. IARC Not listed. OSHA Not listed.

Reproductive Toxicity, Mutagenic or teratogenic effects: No known reproductive toxicity, mutagenic or teratogenic effects in animal experiments are known.

12. ECOLOGICAL INFORMATION

Aquatic toxicity: With preapproval; Federal, State, Provincial, and EU regulators allow the direct application of aluminum salts into surface waters such as lakes, ponds, and streams for beneficial uses such as:
Phosphorus inactivation.
Cyanobacteria (Blue-Green Algae) control.
Turbidity reduction for improved water clarity.
Reported that at environmentally relevant pH range of 5.5-8.5 the solubility of aluminum is low. Aluminum salts dissociate with water resulting in rapid formation and precipitation of aluminum hydroxides. Aluminum salts must not be introduced into surface waters in an uncontrolled way. In aquatic environments at a pH <5.5 and >8.5 the direct addition of aluminum salts may result in soluble aluminum, and until a pH range of 5.5-8.8 is reached could demonstrate toxicity and be harmful to aquatic organisms.

Cross ref. for Polyaluminum chloride:
LC50/96h/Danio rerio/OCED test guideline 203: LC50: >243 mg/l as Al (aluminum)

NOEC/Danio rerio/OECD test guideline 203: LC50: >0.156 mg/l as soluble aluminum concentration

EC50/Daphnia magna (water flea) semi-static/OECD test guideline 202: EC50: 24 mg/l as Al (aluminum)

Polyamine: >10mg/l (96hrs) fish / >10mg/l (48hr) daphnia maga

Toxicity to other organisms: No data available.

Bioaccumulation potential: This product is not expected to bioaccumulate.

Octanol-water coefficient: NA, inorganic compound. Polyamine: No information

Biodegradability: Not applicable to inorganic substances. Polyamine: Not readily biodegradable. Chemical degradability: In water at pH range of 5.5-8.8 precipitates of aluminum hydroxide are formed.

Mobility in Soil: No data available.

13. DISPOSAL CONSIDERATIONS

RCRA Hazardous waste: Not listed. Consult engineers if necessary.

Neutralization: Product can be neutralized and converted to aluminum hydroxide using a mild alkali such as soda ash, sodium bicarbonate, or calcium carbonate (agricultural lime). Neutralized residue can be swept up or rinsed down with water and captured using absorbent materials for reuse or disposal in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

Special precautions: None known

Container reuse: Packaging and storage containers that cannot be thoroughly cleaned must be disposed of in accordance with local, state, province, and federal regulations. Consult engineers if necessary.

14. TRANSPORTATION REGULATIONS

Land (DOT), Sea (IMDG), Air (ICAO/IATA)
UN number: UN3082
Shipping name: Environmentally hazardous substance inorganic N.O.S. (Polyaluminum Chloride) Hazard class: 9
Packing group: III
Environmental hazards: Not a marine pollutant
Special precautions: None known

15. REGULATORY INFORMATION

RCRA Hazardous waste: Not Listed. Consult engineers if necessary.

CERCLA Hazardous substance: Not listed CWA, Sec.311 (b) (4)

CERCLA Reportable Quantity (RQ): NA

SARA 311/312 Categories:
Acute (immediate) health effects: Yes
Chronic (delayed) health effects: No
Sudden release of pressure hazard: No
Reactivity hazard: No

SARA 313 Toxic Chemical listing: Not listed

SARA Extremely hazardous substance (EHS): Not listed

OSHA Air (29CFR 1910.10000, table Z-1, Z-1A): Not listed

OSHA Special Regulated Substance (29CFR 1910): Not listed

California prop 65 chemical: Aluminum salt - No. Polyamine: No information

WHMIS: E corrosive

United States TSCA Section Inventory Status: Product exempt or listed on the TSCA Inventory.

Canada CEPA / Canadian Domestic Substances List (DSL):
All components of this product are included on the Domestic Substance List (DSL) or are not required to be listed (Canada aluminum salt ref. CAS# 1327-41-9).

Inventories: Chinese, Korean (ECL), Philippines (PICCS), Japanese (ENCS), European (EINECS), NZ.

16. OTHER INFORMATION

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the health of employees and customers.

Revised August 25, 2015, S. Bowser

7. HANDLING AND STORAGE

Precautions: If user operations generate mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Keep out of reach or children. UAN (see section 8).

Storage: Ensure compatibility with storage vessel material of construction. Keep in an appropriate storage temperature to prevent freezing.

Transfer Equipment:
Work/Hygienic Practices: Use proper personal protective equipment when working with or around.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eyes: If there is a potential for 12.5% Urea Solution to contact eyes, it is recommended that safety glasses or goggles be used.

Skin: It is recommended that if a person may be exposed to 12.5% Urea Solution for an extended length of time or if a person demonstrates sensitivity to 12.5% Urea Solution, skin protection should be used. Most liquid tight gloves and liquid resistant clothing is acceptable.

Respiratory: Wear appropriate respiratory protection for dust/mist when ventilation is inadequate.

Other: Safety shower and eyewash fountain or at least 5 gallons of accessible clean water should be provided in a 12.5% Urea Solution handling area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid

Color: Colorless liquid

Odor: Odorless to slightly ammoniacal

pH: 7

Specific gravity @20C: Not available.

Boiling point: Not available.

Melting point: 17.8 ^{o}C 64 ^{o}F (Salt out temp, 50% soln)

Solubility in water: Easily soluble in hot or cold water.

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

Flammable limits: Not applicable.

Density: 9.63 lbs/gallon

Saturated vapor concentration: 17 PPM recognition threshold as ammonia.

Taste: Saline.

10. STABILITY AND REACTIVITY

Stability: Stable.

Incompatibility with various substances: Reactive with halogens. Slightly reactive with oxidizing agents, reducing agents, acids, alkalis, and moisture. Non-reactive with combustible material organic materials, most metals.

Corrosivity: Slightly corrosive to mild steel, aluminum, zinc, copper.

11. TOXICOLOGICAL INFORMATION

Significant routes of exposure: Ingestion. Inhalation.

Toxicity to animals: Acute Oral Toxicity (LD50): 14300 mg/kg (Rat).
Under controlled feeding conditions, urea is used as a nutritional supplement in cattle and other animals. The toxic dose in cattle given urea for the first time is considered to be 0.45 g/kg or a total of 100-200 g. Mature bullocks can digest as much as 400g a day without ill effects. As little as 50g may cause adverse effects in cattle not accustomed to it.

Special remarks on other effects on humans: May cause irritation of the mucous membranes and upper respiratory tract.

12. ECOLOGICAL INFORMATION

Notify local health and wildlife officials and operators of any nearby water intakes of contamination or discharge into or leading to waterways. Fertilizers containing urea can cause poisoning in livestock and poultry. Nitrogen solutions can be toxic to aquatic life and spills may cause algae blooms in static waters. The conversion of ammonia to nitrites/nitrates by bacteria in aquatic systems can reduce the concentration of dissolved oxygen (referred to as nitrogenous oxygen demand).

13. DISPOSAL CONSIDERATIONS

Recover and place material in a suitable container for intended use or disposal. Ensure disposal complies with government requirements and local regulations.

14. TRANSPORTATION REGULATIONS

12.5% Urea Solution is not listed by any U.S. or Canadian transportation authority as a hazardous material and as such, no specific information is available.

15. REGULATORY INFORMATION

CERCLA: Not Listed**.**

PROPOSITION 65: None.

TSCA Inventory: Listed.

16. OTHER INFORMATION

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the health of employees and customers.

Revised July 15, 2015, S. Bowser