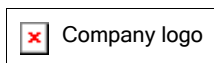


APPENDIX - H
TYPICAL COOLING TOWER WATER CHEMICALS - MSDS



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 10-JUL-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

CAUSTIC SODA - 50% CMD

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
1310-73-2	SODIUM HYDROXIDE (CAUSTIC SODA) Corrosive; toxic (by ingestion)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard: Corrosive to skin
Emergency Response Guide #154

Odor: Mild; Appearance: Colorless, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

Toxic;

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis and/or tissue necrosis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Causes severe irritation, burns or tissue ulceration with subsequent scarring.

4 FIRST AID MEASURES

SKIN CONTACT:

URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C SETA(CC)

MISCELLANEOUS:

Corrosive to skin

UN1824;Emergency Response Guide #154

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Alkaline. Corrosive(Skin/eyes). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

SODIUM HYDROXIDE (CAUSTIC SODA)

PEL (OSHA): 2 MG/M3

TLV (ACGIH): 2 MG/M3(CEILING)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a

respirator with dust/mist filters.

SKIN PROTECTION:

gauntlet-type neoprene gloves, chemical resistant apron--
Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.529	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	~ 50	Vapor Density (air=1)	< 1.00
Freeze Point (C)	~ 10		
Viscosity(cps 70F,21C)	124	% Solubility (water)	100.0

Odor	Mild
Appearance	Colorless
Physical State	Liquid
Flash Point	SETA(CC) > 200F > 93C
pH 5% Sol. (approx.)	13.4
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with acids.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"C"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	300 mg/kg
NOTE - Supplier estimated	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Supplier estimated	
Inhalation LC50 RAT:	>40 mg/m3/hr
Skin Irritation Score RABBIT:	CORROSIVE
NOTE - DOT HM181 Packing Group II: corrosive to skin in 60 minutes but not 3 minutes	
Eye Irritation Score RABBIT:	CORROSIVE
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Screen
100% Mortality= 500; 5% Mortality= 100 mg/L

Daphnia magna 48 Hour Static Screen (pH adjusted)
 100% Mortality= 10000; 5% Mortality= 5000 mg/L
 Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal
 100% Mortality= 200; 0% Mortality= 50 mg/L
 Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal (pH adjusted)
 45% Mortality= 10000; 0% Mortality= 5000 mg/L

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
 D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to skin
 UN / NA NUMBER: UN1824
 DOT EMERGENCY RESPONSE GUIDE #: 154

15 REGULATORY INFORMATION**TSCA:**

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

157 gallons due to SODIUM HYDROXIDE (CAUSTIC SODA);

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION**CALIFORNIA SAFE DRINKING WATER AND TOXIC****ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:**

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

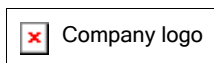
NFPA/HMIS		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard

Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	04-AUG-1999		** NEW **
	10-JUL-2002	4	04-AUG-1999



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 01-NOV-1999

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

CORTROL OS5607

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
497-18-7	CARBONIC DIHYDRAZIDE Exothermic hydrolysis to hydrazine can occur with high temperature; also occurs by contact with alkalis, oxidizers, or low grade metals; irritant (eyes and skin)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

Avoid contact with low grade metals (LCS, Al, Cu), alkalis and oxidizers to avoid accelerated actives degradation.

Do not mix with other chemicals. Feed independently to system.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause slight irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable

Emergency Response Guide is not applicable

Odor: Slight; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS**ACUTE SKIN EFFECTS:**

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause slight irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES**SKIN CONTACT:**

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists after flushing.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Contact with oxidizers, peroxide and metal oxide may result in a violent reaction. Contamination with high pH products and low grade metal accelerate decomposition to hydrazine.

STORAGE:

Keep containers closed when not in use. Store in a manner that minimizes potential contamination. Store only in vented containers. Protect from freezing.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

CARBONIC DIHYDRAZIDE

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with ammonia/methylamine cartridges.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.021	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	32	Vapor Density (air=1)	< 1.00
Freeze Point (C)	0		
Viscosity(cps 70F,21C)	9	% Solubility (water)	100.0

Odor	Slight
Appearance	Colorless To Light Yellow
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	8.0
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	>2,000 mg/kg
NOTE - Value is for testing of similar material.	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Value is for testing of similar material.	
Skin Irritation Score RABBIT:	0.23
NOTE - Value is for testing of similar material.	
Eye Irritation Score RABBIT:	0.33
NOTE - Value is for testing of similar material.	

12 ECOLOGICAL INFORMATION**AQUATIC TOXICOLOGY**

Ceriodaphnia 48 Hour Static Renewal Bioassay
 LC50= 160; 10% Mortality= 96 mg/L
 Daphnia magna 48 Hour Static Renewal Bioassay
 LC50= 850; No Effect Level= 190 mg/L
 Fathead Minnow 96 Hour Static Renewal Bioassay

LC50= 260; 5% Mortality= 96 mg/L

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
UN / NA NUMBER: Not applicable
DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

SARA SECTION 312 HAZARD CLASS:

Immediate(acute)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

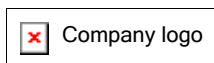
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	05-MAY-1999		** NEW **
	13-MAY-1999	;EDIT:9	05-MAY-1999
	20-JUL-1999	12	13-MAY-1999
	01-NOV-1999	4,8	20-JUL-1999



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 10-JUL-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

CAUSTIC SODA - 50% CMD

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
1310-73-2	SODIUM HYDROXIDE (CAUSTIC SODA) Corrosive; toxic (by ingestion)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard: Corrosive to skin
Emergency Response Guide #154

Odor: Mild; Appearance: Colorless, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

Toxic;

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis and/or tissue necrosis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Causes severe irritation, burns or tissue ulceration with subsequent scarring.

4 FIRST AID MEASURES

SKIN CONTACT:

URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C SETA(CC)

MISCELLANEOUS:

Corrosive to skin

UN1824;Emergency Response Guide #154

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Alkaline. Corrosive(Skin/eyes). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

SODIUM HYDROXIDE (CAUSTIC SODA)

PEL (OSHA): 2 MG/M3

TLV (ACGIH): 2 MG/M3(CEILING)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a

respirator with dust/mist filters.

SKIN PROTECTION:

gauntlet-type neoprene gloves, chemical resistant apron--
Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.529	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	~ 50	Vapor Density (air=1)	< 1.00
Freeze Point (C)	~ 10		
Viscosity(cps 70F,21C)	124	% Solubility (water)	100.0

Odor	Mild
Appearance	Colorless
Physical State	Liquid
Flash Point	SETA(CC) > 200F > 93C
pH 5% Sol. (approx.)	13.4
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with acids.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"C"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	300 mg/kg
NOTE - Supplier estimated	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Supplier estimated	
Inhalation LC50 RAT:	>40 mg/m3/hr
Skin Irritation Score RABBIT:	CORROSIVE
NOTE - DOT HM181 Packing Group II: corrosive to skin in 60 minutes but not 3 minutes	
Eye Irritation Score RABBIT:	CORROSIVE
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Screen
100% Mortality= 500; 5% Mortality= 100 mg/L

Daphnia magna 48 Hour Static Screen (pH adjusted)
 100% Mortality= 10000; 5% Mortality= 5000 mg/L
 Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal
 100% Mortality= 200; 0% Mortality= 50 mg/L
 Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal (pH
 adjusted)
 45% Mortality= 10000; 0% Mortality= 5000 mg/L

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
 D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to skin
 UN / NA NUMBER: UN1824
 DOT EMERGENCY RESPONSE GUIDE #: 154

15 REGULATORY INFORMATION**TSCA:**

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

157 gallons due to SODIUM HYDROXIDE (CAUSTIC SODA);

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION**CALIFORNIA SAFE DRINKING WATER AND TOXIC****ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:**

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

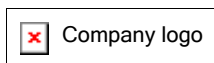
NFPA/HMIS		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard

Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	04-AUG-1999		** NEW **
	10-JUL-2002	4	04-AUG-1999



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 01-JUN-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

DEPOSITROL PY5201

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

Non-hazardous to skin. May cause slight irritation to the eyes.
Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: Mild; Appearance: Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing

apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Non-hazardous to skin.

ACUTE EYE EFFECTS:

May cause slight irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause slight gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin, irritation, and/or tearing of eyes (direct contact).

4 FIRST AID MEASURES

SKIN CONTACT:

Remove contaminated clothing. Wash exposed area with a large quantity of soap solution or water for 15 minutes.

EYE CONTACT:

Immediately flush eyes with water for 15 minutes. Immediately contact a physician for additional treatment.

INHALATION:

Remove victim from contaminated area to fresh air. Apply appropriate first aid treatment as necessary.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

This product is not hazardous as defined by OSHA regulations.

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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. USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS. If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

Use of gloves made of rubber or synthetic material is optional. Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.112	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	28	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-2		
Viscosity (cps 70F, 21C)	25	% Solubility (water)	100.0
Odor		Mild	
Appearance		Yellow	
Physical State		Liquid	
Flash Point	P-M(CC)	> 200F > 93C	
pH As Is (approx.)		5.5	

Evaporation Rate (Ether=1) < 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"A"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT: >5,000 mg/kg
NOTE - Value is for testing of material at higher concentration
Dermal LD50 RABBIT: >2,000 mg/kg
NOTE - Value is for testing of material at higher concentration
Skin Irritation Score RABBIT: 0.0
NOTE - Value is for testing of material at higher concentration
Eye Irritation Score RABBIT: 2.0
NOTE - Value is for testing of material at higher concentration;
completely reversible.

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Acute Toxicity (Estimated)
LC50= 960; No Effect Level= 180 mg/L
Fathead Minnow 96 Hour Acute Toxicity (Estimated)
LC50= 1580; No Effect Level= 340 mg/L

BIODEGRADATION

BOD-28 (mg/g): 22
BOD-5 (mg/g): 7
COD (mg/g): 246
TOC (mg/g): 96

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
 UN / NA NUMBER: Not applicable
 DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:

FDA APPROVED FOR MILL SUPPLY WATER

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:

This product is composed of ingredients previously approved by USDA to meet G5 and G7 classification and may be used in water for cooking/cooling or in boiler or cooling systems with no food contact.

SARA SECTION 312 HAZARD CLASS:

Product is non-hazardous under Section 311/312

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION**CALIFORNIA SAFE DRINKING WATER AND TOXIC****ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:**

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

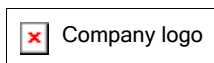
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE		SUPERCEDES
	DATE	REVISIONS TO SECTION:	
	-----	-----	-----
MSDS status:	29-JAN-1997		** NEW **
	10-SEP-1997	3,8,11,16;EDIT:4	29-JAN-1997
	11-AUG-1998	15	10-SEP-1997
	01-JUN-2001	15	11-AUG-1998



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 16-NOV-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

HYPERSPERSE MDC150

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable

Emergency Response Guide is not applicable

Odor: Slight; Appearance: Amber To Dark Brown, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause moderate irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause slight gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

This product is not hazardous as defined by OSHA regulations.

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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. USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS. If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.159	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	5	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-15		
Viscosity(cps 70F,21C)	ND	% Solubility (water)	100.0

Odor	Slight
Appearance	Amber To Dark Brown
Physical State	Liquid

DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

POTABLE WATER APPROVAL:

NSF certified. Maximum use 10 mg/L

SARA SECTION 312 HAZARD CLASS:

Product is non-hazardous under Section 311/312

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

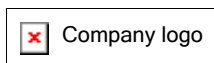
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	21-SEP-1999		** NEW **
	07-JAN-2000	15	21-SEP-1999
	08-MAR-2000	15	07-JAN-2000
	16-NOV-2001	4,12	08-MAR-2000



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 16-OCT-2000

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

KLARAID PC1192

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: Mild; Appearance: Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical/CO2/foam or water--slippery condition; use sand/grit.

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause moderate irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause slight gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical/CO2/foam or water--slippery condition; use sand/grit.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C SETA(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Protect from freezing.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

This product is not hazardous as defined by OSHA regulations.

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

rubber gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.032	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	30	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-1		
Viscosity (cps 70F, 21C)	168	% Solubility (water)	100.0

Odor	Mild
Appearance	Yellow
Physical State	Liquid
Flash Point	SETA(CC) > 200F > 93C

pH As Is (approx.) 6.3
Evaporation Rate (Ether=1) < 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"A"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT: >5 G/KG
Dermal LD50 RABBIT: >2,000 mg/kg
Inhalation LC50 RAT:
NOTE - No deaths at one hour of 10 L/min
Skin Irritation Score RABBIT: NEGATIVE
Eye Irritation Score RABBIT: SLIGHT

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Ceriodaphnia 48 Hour Static Renewal Bioassay
LC50= .34; No Effect Level= .25 mg/L
Daphnia magna 48 Hour Static Renewal Bioassay
LC50= 17.5; 20% Mortality= 1.6 mg/L
Fathead Minnow 96 Hour Static Renewal Bioassay
LC50= 1.65; No Effect Level= .15 mg/L
Mysid Shrimp 48 Hour Static Renewal Bioassay
LC50= 628.5; No Effect Level= 125 mg/L
Rainbow Trout 96 Hour Static Acute Bioassay
LC50= .49; No Effect Level= .37 mg/L
Sheepshead Minnow 96 Hour Static Renewal Bioassay
No Effect Level= 2000 mg/L

BIODEGRADATION

BOD-28 (mg/g): 7
BOD-5 (mg/g): 0
COD (mg/g): 270
TOC (mg/g): 90

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
 UN / NA NUMBER: Not applicable
 DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:

21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

SARA SECTION 312 HAZARD CLASS:

Product is non-hazardous under Section 311/312

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	1	Slight Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles, Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
-----	-----	-----
MSDS status: 28-JAN-1997		** NEW **
13-NOV-1998 15		28-JAN-1997

16-NOV-1998 15
21-JUL-1999 4
03-MAY-2000 12
16-OCT-2000 4,11,16

13-NOV-1998
16-NOV-1998
21-JUL-1999
03-MAY-2000

 Corporate_Logo

ISSUE DATE: 03-JUL-1996

MATERIAL SAFETY DATA SHEET

BetzDearborn, Division of Hercules Incorporated
4636 Somerton Road
Trevoise, PA 19053
Business telephone: (215) 355-3300

EMERGENCY TELEPHONE (HEALTH/ACCIDENT)
(800) 877-1940 (USA)

HMIS RATINGS

(See Section 16 for
additional information)

HEALTH: 2

FLAMMABILITY: 0

REACTIVITY: 0

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

LIME

PRODUCT APPLICATION AREA:

NON-BETZ RAW MATERIAL

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
1305-62-0	CALCIUM HYDROXIDE Corrosive (eyes and respiratory); severe irritant, possibly corrosive (skin)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Severe irritant to the skin. Potential skin sensitizer. Corrosive to the eyes. Dusts cause irritation to the upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: None; Appearance: White, Powder

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Severe irritant to the skin. Potential skin sensitizer.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Dusts cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause severe gastrointestinal irritation with possible nausea, vomiting and abdominal pain.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Causes severe irritation, burns or tissue ulceration with subsequent scarring.

4 FIRST AID MEASURES

SKIN CONTACT:

Remove contaminated clothing. Wash exposed area with a large quantity of soap solution or water for 15 minutes.

EYE CONTACT:

Immediately flush eyes with water for 15 minutes. Immediately contact a physician for additional treatment.

INHALATION:

Remove victim from contaminated area to fresh air. Apply appropriate first aid treatment as necessary.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Alkaline. Corrosive(Skin/eyes). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Keep dry.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

CALCIUM HYDROXIDE

PEL (OSHA): 5 MG/M3

TLV (ACGIH): 5 MG/M3

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

rubber gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

airtight chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Density	NO DATA	Vapor Pressure (mmHG)	NA
Freeze Point (F)	NA	Vapor Density (air=1)	NA
Viscosity (cps 70F)	NA	% Solubility (water)	2.0
Odor		None	
Appearance		White	
Physical State		Powder	
Flash Point (F)		> 200	P-M(CC)
pH 1% Sol. (approx.)		12.5	
Evaporation Rate (Ether=1)		< 1.00	

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

BETZ INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	7,340 mg/kg
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

No Data Available.

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
 UN / NA NUMBER: Not applicable
 DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

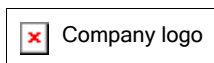
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	ALK	pH above 12.0
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	09-MAY-1996		** NEW **
	03-JUL-1996	2,3,7	09-MAY-1996



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 13-MAY-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

OPTISPERSE HP2100

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
1310-73-2	SODIUM HYDROXIDE (CAUSTIC SODA) Corrosive; toxic (by ingestion)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

May cause slight irritation to the skin. Severe irritant to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable

Emergency Response Guide is not applicable
Odor: None; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause slight gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing.
Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes
with plenty of low-pressure water for at least 15 minutes. Get
immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air
and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive
victim. Do not induce vomiting. Immediately contact physician.
Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing
apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES**PROTECTION AND SPILL CONTAINMENT:**

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE**HANDLING:**

Alkaline. Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Protect from freezing. If frozen, thaw and mix completely prior to use. Store below 100F (38C).

8 EXPOSURE CONTROLS / PERSONAL PROTECTION**EXPOSURE LIMITS****CHEMICAL NAME**

SODIUM HYDROXIDE (CAUSTIC SODA)
 PEL (OSHA): 2 MG/M3
 TLV (ACGIH): 2 MG/M3 (CEILING)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
 USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
 If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C) 1.083 Vapor Pressure (mmHG) ~ 18.0

Freeze Point (F)	26	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-3		
Viscosity(cps 70F,21C)	10	% Solubility (water)	100.0

Odor		None
Appearance		Colorless To Light Yellow
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH As Is (approx.)		> 13.0
Evaporation Rate (Ether=1)		< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	>2,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay (pH adjusted)
 LC50= 4030; No Effect Level= 3250 mg/L
 Fathead Minnow 96 Hour Static Renewal Bioassay (pH adjusted)
 LC50= 5240; No Effect Level= 4220 mg/L

BIODEGRADATION

Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
 D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from

federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
 UN / NA NUMBER: Not applicable
 DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

4,434 gallons due to SODIUM HYDROXIDE (CAUSTIC SODA);

FOOD AND DRUG ADMINISTRATION:

ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:

This product is composed of ingredients previously approved by USDA to meet the G6 classification and may be used in boilers or steamlines where the steam produced may contact edible products.

SARA SECTION 312 HAZARD CLASS:

Immediate(acute)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

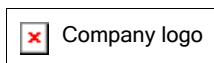
NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	ALK	pH above 12.0
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

EFFECTIVE

	DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	08-APR-1997		** NEW **
	02-JUN-2000	12	08-APR-1997
	05-JUN-2001	15	02-JUN-2000
	13-MAY-2002	4,7	05-JUN-2001



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 13-MAY-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

OPTISPERSE HP3100

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
1310-73-2	SODIUM HYDROXIDE (CAUSTIC SODA) Corrosive; toxic (by ingestion)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

May cause moderate irritation to the skin. Corrosive to the eyes.
Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard: Corrosive to aluminum, RQ
Emergency Response Guide #154

Odor: None; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause moderate irritation to the skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin, irritation, and/or tearing of eyes (direct contact).

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Corrosive to aluminum, RQ

UN3266;Emergency Response Guide #154

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Alkaline. Corrosive(Eyes). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Protect from freezing. If frozen, thaw and mix completely prior to use. Store below 100F (38C).

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

SODIUM HYDROXIDE (CAUSTIC SODA)
PEL (OSHA): 2 MG/M3
TLV (ACGIH): 2 MG/M3(CEILING)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.113	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	21	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-6		
Viscosity(cps 70F,21C)	12	% Solubility (water)	100.0
Odor	None		
Appearance	Colorless To Light Yellow		
Physical State	Liquid		
Flash Point	P-M(CC)	> 200F	> 93C
pH As Is (approx.)	> 13.0		
Evaporation Rate (Ether=1)	< 1.00		

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	>2,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION**AQUATIC TOXICOLOGY**

Daphnia magna 48 Hour Static Renewal Bioassay (pH adjusted)
 LC50= 3300; No Effect Level= 1250 mg/L
 Fathead Minnow 96 Hour Static Renewal Bioassay (pH adjusted)
 LC50= 5020; No Effect Level= 2750 mg/L

BIODEGRADATION

Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to aluminum, RQ
UN / NA NUMBER: UN3266
DOT EMERGENCY RESPONSE GUIDE #: 154

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

2,158 gallons due to SODIUM HYDROXIDE (CAUSTIC SODA);

FOOD AND DRUG ADMINISTRATION:

ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:

This product is composed of ingredients previously approved by USDA to meet the G6 classification and may be used in boilers or steamlines where the steam produced may contact edible products.

SARA SECTION 312 HAZARD CLASS:

Immediate(acute)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

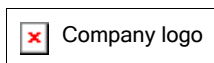
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	08-APR-1997		** NEW **
	02-JUN-2000	12	08-APR-1997
	05-JUN-2001	15	02-JUN-2000
	13-MAY-2002	4,7	05-JUN-2001



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 11-DEC-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

POLYFLOC AE1115

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
64742-47-8	ISOPARAFFINIC PETROLEUM DISTILLATE Combustible liquid; irritant

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

May cause moderate irritation to the skin. Severe irritant to the eyes. Vapors, gases, mists or aerosols may cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: Mild; Appearance: White, Emulsion

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical/CO2/foam or water--slippery condition; use sand/grit.

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause moderate irritation to the skin.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

Primary route of exposure;Vapors, gases, mists or aerosols may cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

INGESTION EFFECTS:

May cause severe gastrointestinal irritation with possible nausea, vomiting, diarrhea, salivation, blurred vision, weakness, paralysis and injury to kidneys, heart and respiratory system. Aspiration may cause lung injury or death.

TARGET ORGANS:

Prolonged or repeated exposures may cause CNS depression.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Excessive skin contact may cause defatting or drying of skin.
Excessive inhalation of vapors may cause dizziness, headache and nausea.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

This product contains a hydrocarbon solvent. Aspiration into the lungs will result in chemical pneumonia and may be fatal.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical/CO2/foam or water--slippery condition; use sand/grit.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Reasonable and safe chemical storage. Protect from freezing.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

ISOPARAFFINIC PETROLEUM DISTILLATE

PEL (OSHA): 400 PPM

TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with organic vapor cartridges.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.030	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	~ 23	Vapor Density (air=1)	> 1.00
Freeze Point (C)	~ -5		
Viscosity (cps 70F, 21C)	1000	% Solubility (water)	ND
Odor		Mild	
Appearance		White	
Physical State		Emulsion	
Flash Point	P-M(CC)	> 200F > 93C	
pH 1% Sol. (approx.)		7.0	
Evaporation Rate (Ether=1)		< 1.00	

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

No Data Available.

12 ECOLOGICAL INFORMATION**AQUATIC TOXICOLOGY**

Bluegill Sunfish 96 Hour Static Acute Bioassay

LC50= 89; No Effect Level= 18 mg/L

Daphnia magna 48 Hour Static Renewal Bioassay

LC50= 3.9; 5% Mortality= 1.6 mg/L

Fathead Minnow 96 Hour Static Renewal Bioassay

LC50= 25; 25% Mortality= 15 mg/L

Rainbow Trout 96 Hour Static Acute Bioassay

LC50= 75; No Effect Level= 10 mg/L

BIODEGRADATION

COD (mg/g): 1270

TOC (mg/g): 510

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
UN / NA NUMBER: Not applicable
DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

Treat as oil spill

FOOD AND DRUG ADMINISTRATION:

21 CFR 176.110 (acrylamide - acrylic acid resins)

All ingredients comprising this product are authorized by FDA for the manufacture of paper and paperboard that may contact aqueous and fatty foods as per 21 CFR 176.170(a) (4).

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:

This product contains ingredients that have been determined as safe for use in sewage and/or drain lines. (L1)

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

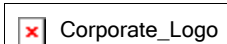
NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	1	Slight Hazard

Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	23-JUN-2000	12	** NEW **
	01-JUN-2001	15	23-JUN-2000
	11-DEC-2001	2,3,4,5,7,8,15,16	01-JUN-2001



ISSUE DATE: 03-FEB-2000

MATERIAL SAFETY DATA SHEET

BetzDearborn, Division of Hercules Incorporated
4636 Somerton Road
Trevoise, PA 19053
Business telephone: (215) 355-3300

EMERGENCY TELEPHONE (HEALTH/ACCIDENT)
(800) 877-1940 (USA)

HMIS RATINGS

(See Section 16 for
additional information)

HEALTH: 2

FLAMMABILITY: 0

REACTIVITY: 0

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

SODA ASH

PRODUCT APPLICATION AREA:

NON-BETZ RAW MATERIAL

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
497-19-8	SODIUM CARBONATE Irritant (eyes)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

May cause slight irritation to the skin. Severe irritant to the

eyes. Dusts may cause irritation to the upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: None; Appearance: White, Powder

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

Dusts may cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause severe gastrointestinal irritation with possible nausea, vomiting and abdominal pain.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing.
Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No specific instruction

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Keep dry.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

SODIUM CARBONATE

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:

Adequate ventilation to maintain dust concentrations below the exposure limit of 10 mg/m³(PEL/TLV) for nuisance dusts.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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. USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS. If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.

SKIN PROTECTION:

neoprene gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

airtight chemical goggles

9 PHYSICAL & CHEMICAL PROPERTIES

Density	63.000 lb/cu.	Vapor Pressure (mmHG)	< 0.1
Freeze Point (F)	NA	Vapor Density (air=1)	< 1.00
Freeze Point (C)	NA		
Viscosity(cps 70F,21C)	NA	% Solubility (water)	20.0

Odor	None		
Appearance	White		
Physical State	Powder		
Flash Point	P-M(CC)	> 200F	> 93C
pH 5% Sol. (approx.)	11.3		
Evaporation Rate (Ether=1)	< 1.00		

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

BETZDEARBORN INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	2,800 mg/kg
NOTE - Rat Oral LD50:	4090 mg/kg per alternate source
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	
Inhalation LC50 RAT:	2,300 mg/m3/2hr
NOTE - Mouse Inhalation LC50:	1200 mg/m3/2hr per alternate source

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 96 Hour Static Acute Bioassay

LC50: 296 mg/L

Bluegill Sunfish 96 Hour Static Acute Bioassay

LC50: 180 mg/L

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Not Applicable
UN / NA NUMBER: Not applicable
DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

SARA SECTION 312 HAZARD CLASS:

Immediate(acute)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

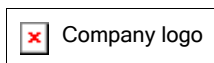
(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

EFFECTIVE	REVISIONS TO SECTION:	SUPERCEDES
DATE		
-----	-----	-----

MSDS status: 25-APR-1997
 01-APR-1999 ;EDIT:9
 03-FEB-2000 15

** NEW **
25-APR-1997
01-APR-1999



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 02-MAR-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

SODIUM HYPOCHLORITE

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7681-52-9	SODIUM HYPOCHLORITE Corrosive
1310-73-2	SODIUM HYDROXIDE (CAUSTIC SODA) Corrosive; toxic (by ingestion)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract.

DOT hazard: Corrosive to skin
Emergency Response Guide #60
Odor: Chlorine; Appearance: Light Yellow To Green, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause tissue necrosis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Causes severe irritation, burns or tissue ulceration with subsequent scarring.

4 FIRST AID MEASURES

SKIN CONTACT:

URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting.

Possible mucosal damage may contraindicate the use of gastric lavage.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Corrosive to skin

UN1791;Emergency Response Guide #60

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer.

7 HANDLING & STORAGE

HANDLING:

Contains an oxidizer. Avoid all contact with reducing agents, oils, greases, organics and acids. Do not allow to dry.

STORAGE:

Keep containers closed when not in use. Store in dry area. Keep away from direct sunlight and heat. Store away from combustibles and oxidizables.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

SODIUM HYPOCHLORITE

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

SODIUM HYDROXIDE (CAUSTIC SODA)

PEL (OSHA): 2 MG/M3

TLV (ACGIH): 2 MG/M3 (CEILING)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure

limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with acid gas cartridges and dust/mist prefilters.

SKIN PROTECTION:

gauntlet-type neoprene gloves, chemical resistant apron-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.205	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	-14	Vapor Density (air=1)	1.00
Freeze Point (C)	-26		
Viscosity (cps 70F, 21C)	13	% Solubility (water)	100.0

Odor	Chlorine
Appearance	Light Yellow To Green
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	12.5
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

Decomposes dry(350-475F); Wet(75F) with release of chlorine. Reacts with oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	6,200 mg/kg
NOTE - RAT ORAL LD50:	5,000 MG/KG @ 12.5% ACTIVE - ALTERNATE SOURCE
Dermal LD50 RABBIT:	3,000 mg/kg
Inhalation LC50 RAT:	>10.5 mg/L/hr
NOTE - Value is for 12.5% active.	
Skin Irritation Score RABBIT:	8

Eye Irritation Score RABBIT: 53

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Bluegill Sunfish 96 Hour Static Acute Bioassay
LC50= 5.3; No Effect Level= 2.8 mg/L
Daphnia magna 48 Hour Static Acute Bioassay
LC50= 1.6; No Effect Level= .51 mg/L
Rainbow Trout 96 Hour Static Acute Bioassay
LC50= 1.9; No Effect Level= 1.38 mg/L

BIODEGRADATION

Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to skin
UN / NA NUMBER: UN1791
DOT EMERGENCY RESPONSE GUIDE #: 60

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

80 gallons due to SODIUM HYPOCHLORITE;4,982 gallons due to
SODIUM HYDROXIDE (CAUSTIC SODA);

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

CAS#	CHEMICAL NAME
7681-52-9	SODIUM HYPOCHLORITE

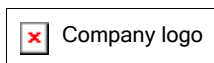
16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE	REVISIONS TO SECTION:	SUPERCEDES
	DATE		
	-----	-----	-----
MSDS status:	22-AUG-1995	REVISED FORMAT	** NEW **
	17-DEC-1996		22-AUG-1995
	18-DEC-1996		17-DEC-1996
	19-DEC-1996		18-DEC-1996
	15-JUL-1998	12	19-DEC-1996
	08-NOV-2000	4,11	15-JUL-1998
	02-MAR-2001	4	08-NOV-2000



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 09-JUL-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

SPECTRUS DT1404

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7631-90-5	SODIUM BISULFITE May be corrosive in aqueous solutions; irritant; sensitizer (skin and respiratory); may generate SO ₂

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

May cause moderate irritation to the skin. Skin sensitizer. Severe irritant to the eyes. Dusts or mists are irritating to mucous membranes. Repeated exposure may result in respiratory sensitization.

DOT hazard: Corrosive to steel
Emergency Response Guide #154
Odor: Mild; Appearance: Colorless To Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause moderate irritation to the skin. Skin sensitizer.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

Dusts or mists are irritating to mucous membranes. Repeated exposure may result in respiratory sensitization.

INGESTION EFFECTS:

May cause gastrointestinal irritation. Very large doses may cause diarrhea, depression, colic and death. May also cause severe allergic reactions in sensitive individuals.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis, skin sensitization, and/or allergic respiratory reactions.

MEDICAL CONDITIONS AGGRAVATED:

Asthma.

SYMPTOMS OF EXPOSURE:

Inhalation may cause eye, nose, throat and lung irritation and possible respiratory sensitization or asthma. Skin contact may cause moderate irritation to severe burns and sensitization.

4 FIRST AID MEASURES

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Corrosive to steel

UN2693;Emergency Response Guide #154

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Vent carefully before opening. Sulfur dioxide can be formed during the normal use and handling of this product.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME****SODIUM BISULFITE**

PEL (OSHA): 5 MG/M3

TLV (ACGIH): 5 MG/M3

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
 USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED
 WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
 If air-purifying respirator use is appropriate, use a
 respirator with acid gas cartridges and dust/mist prefilters.

SKIN PROTECTION:

gauntlet-type neoprene gloves, chemical resistant apron--
 Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav. (70F, 21C)	1.360	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	27	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-3		
Viscosity(cps 70F, 21C)	20	% Solubility (water)	100.0

Odor	Mild
Appearance	Colorless To Yellow
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	3.8
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	2,000 mg/kg
Dermal LD50 RABBIT:	>2,000 mg/kg

NOTE - Estimated value

12 ECOLOGICAL INFORMATION**AQUATIC TOXICOLOGY**

Daphnia magna 48 Hour Static Renewal Bioassay
 LC50= 175; No Effect Level= 125 mg/L
 Fathead Minnow 96 Hour Static Renewal Bioassay
 LC50= 175; No Effect Level= 125 mg/L

Rainbow Trout 96 Hour Static Renewal Bioassay (pH adjusted)
LC50= 330; No Effect Level= 125 mg/L

BIODEGRADATION

Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(steel).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to steel
UN / NA NUMBER: UN2693
DOT EMERGENCY RESPONSE GUIDE #: 154

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

1,104 gallons due to SODIUM BISULFITE;

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

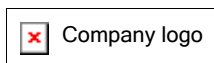
NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard

(1) Protective Equipment D Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	24-JUL-1997		** NEW **
	11-AUG-1997	12	24-JUL-1997
	19-NOV-1997	3,5,14,16	11-AUG-1997
	18-OCT-1999	3,14	19-NOV-1997
	26-APR-2001	4	18-OCT-1999
	10-JUN-2002	12	26-APR-2001
	09-JUL-2002	12	10-JUN-2002



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 23-MAR-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

SULFURIC ACID 66 BE CMD

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7664-93-9	SULFURIC ACID Corrosive

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard: Corrosive to skin/steel
Emergency Response Guide #39

Odor: Slight Acid; Appearance: Colorless, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide or foam--Avoid water if possible.

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause tissue necrosis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Causes severe irritation, burns or tissue ulceration with subsequent scarring.

4 FIRST AID MEASURES

SKIN CONTACT:

URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide or foam--Avoid water if possible.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Corrosive to skin/steel
UN1830;Emergency Response Guide #39

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush with water. Spread sand/grit. Neutralize with bicarbonate.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Acidic. Corrosive to skin and eyes. Do not breathe mist or vapor. Do not mix with alkaline material.

STORAGE:

Keep containers closed when not in use. Use approved containers only. Store in cool, well-vented area. Contact with metals may release flammable hydrogen gas.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

SULFURIC ACID

PEL (OSHA): 1 MG/M3

TLV (ACGIH): 1 MG/M3

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED

WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with acid gas cartridges and dust/mist prefilters.

SKIN PROTECTION:

gauntlet-type neoprene gloves, chemical resistant apron--
Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	1.829	Vapor Pressure (mmHG)	< ND
Freeze Point (F)	-17	Vapor Density (air=1)	> 1.00
Freeze Point (C)	-27		
Viscosity(cps 70F,21C)	22	% Solubility (water)	100.0

Odor	Slight Acid
Appearance	Colorless
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	< 1.0
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with bases or strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"C"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	2,140 mg/kg
Inhalation LC50 RAT:	510 mg/m3/2hr
Skin Irritation Score RABBIT:	CORROSIVE
NOTE - DOT HM181 Packing Group II: corrosive to skin at 60 minutes but not 3 minutes	
Eye Irritation Score RABBIT:	CORROSIVE
NOTE - Estimated value	

12 ECOLOGICAL INFORMATION**AQUATIC TOXICOLOGY**

Daphnia magna 48 Hour Static Screen (pH adjusted)
30% Mortality= 5000; 0% Mortality= 2000 mg/L
Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal (pH adjusted)

0% Mortality= 5000 mg/L

BIODEGRADATION

No Data Available.

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH, steel).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to skin/steel
UN / NA NUMBER: UN1830
DOT EMERGENCY RESPONSE GUIDE #: 39

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

71 gallons due to SULFURIC ACID;

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic);Reactive

SARA SECTION 302 CHEMICALS:

CAS#	CHEMICAL NAME
7664-93-9	SULFURIC ACID

SARA SECTION 313 CHEMICALS:

CAS#	CHEMICAL NAME	RANGE
7664-93-9	SULFURIC ACID	91.0-100.0

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

NFPA/HMIS

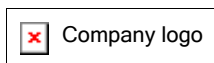
CODE TRANSLATION

Health	3	Serious Hazard
Fire	0	Minimal Hazard
Reactivity	2	Moderate Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE -----	REVISIONS TO SECTION: -----	SUPERCEDES -----
MSDS status:	18-MAY-1999		** NEW **
	31-JAN-2001	4	18-MAY-1999
	23-MAR-2001	15	31-JAN-2001



GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 27-APR-2000

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

STEAMATE NA0540

PRODUCT APPLICATION AREA:

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
110-91-8	MORPHOLINE Flammable liquid; corrosive; toxic (by skin absorption); potential liver and kidney toxin; IARC=3 (carcinogen status not classifiable)
108-91-8	CYCLOHEXYLAMINE Flammable; corrosive; toxic (by ingestion and skin absorption)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Absorbed by skin. Potential skin sensitizer.
Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

DOT hazard: Corrosive to skin, Flammable
Emergency Response Guide #132
Odor: Amine; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Toxic; Corrosive to skin. Absorbed by skin. Potential skin sensitizer.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Primary route of exposure; Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

INGESTION EFFECTS:

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause CNS depression, tissue necrosis, and/or toxicity to the liver and kidney.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

Inhalation may cause lightheadedness, slurred speech, nausea, and/or vomiting (pulmonary edema may result). Skin contact can cause severe irritation or burns.

4 FIRST AID MEASURES

SKIN CONTACT:

Remove clothing. Wash area with large amounts of soap solution or water for 15 min. Immediately contact physician.

EYE CONTACT:

Immediately flush eyes with water for 15 minutes. Immediately contact a physician for additional treatment.

INHALATION:

Remove victim from contaminated area. Apply necessary first aid treatment. Immediately contact a physician.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:

138F 59C SETA(CC)

MISCELLANEOUS:

Corrosive to skin, Flammable
UN2734;Emergency Response Guide #132

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Remove sources of ignition.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:

Combustible. Do not use around sparks or flames. Bond containers during filling or discharge when performed at temperatures at or above the product flash point.

STORAGE:

Keep containers closed when not in use. Store in cool ventilated location. Store away from oxidizers.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS**CHEMICAL NAME**

MORPHOLINE

PEL (OSHA): 20 PPM-SKIN(30PPM-STEL)
TLV (ACGIH): 20 PPM-SKIN(30PPM-STEL)

CYCLOHEXYLAMINE

PEL (OSHA): 10 PPM
TLV (ACGIH): 10 PPM

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

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.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use a respirator with organic vapor cartridges.

SKIN PROTECTION:

gauntlet-type rubber gloves, chemical resistant apron-- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	0.991	Vapor Pressure (mmHG)	18.0
Freeze Point (F)	8	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-13		
Viscosity(cps 70F,21C)	16	% Solubility (water)	100.0

Odor	Amine		
Appearance	Colorless To Light Yellow		
Physical State	Liquid		
Flash Point	SETA(CC)	138F	58C
pH As Is (approx.)	12.4		
Evaporation Rate (Ether=1)	< 1.00		

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY**STABILITY:**

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:

"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	675 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	890 mg/kg
NOTE - Estimated value	

Skin Irritation Score RABBIT: 6.3
NOTE - EPA Category I: corrosive; DOT HM181 corrosive in 60 minutes
but not 3 minutes
Eye Irritation Score RABBIT: CORROSIVE
NOTE - 15% Cyclohexylamine score:101, +/-rinsing, constant
irritation, nonreversible

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Screen
0% Mortality= 50 mg/L
Fathead Minnow 96 Hour Acute Toxicity (Estimated)
LC50= 170; No Effect Level= 100 mg/L
Rainbow Trout 48 Hour Static Screen
100% Mortality= 500; 0% Mortality= 100 mg/L

BIODEGRADATION

BOD-28 (mg/g): 198
BOD-5 (mg/g): 1
COD (mg/g): 962
TOC (mg/g): 236

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D001=Ignitable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

DOT HAZARD: Corrosive to skin, Flammable
UN / NA NUMBER: UN2734
DOT EMERGENCY RESPONSE GUIDE #: 132

15 REGULATORY INFORMATION

TSCA:

All components of this product are listed in the TSCA inventory.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

6,067 gallons due to CYCLOHEXYLAMINE;

FOOD AND DRUG ADMINISTRATION:

ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:

SEC.G6

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic);Fire

SARA SECTION 302 CHEMICALS:

