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
No Data Available.

BIODEGRADATION
No Data Available.

13 DISPOSAL CONSIDERATIONS

Incinerate or bury in approved landfill. Please be advised that there may be additional local or provincial requirements relating to the disposal of waste. Consult provincial and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

Transportation of Dangerous Goods:
Proper Shipping Name: Not Regulated

15 REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
CEPA:
All components of this product comply with substance notification requirements under CEPA.
WHMIS CLASSIFICATION:
NOT REGULATED

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:	19-NOV-1996		** NEW **
	11-AUG-1999		19-NOV-1996
	03-APR-2002	4,16	11-AUG-1999
	07-MAR-2005	16	03-APR-2002

GE Betz Canada, Inc.
3451 Erindale Station Road
Mississauga, Ontario L5C 2S9
Business telephone: (905) 279-2222

Material Safety Data Sheet

Issue Date: 15-JUL-2005

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

1 PRODUCT IDENTIFICATION

REAGENT NAME:

FERROVER REAGENT P/P F/25 ML SAMPLE

REAGENT CODE:

L2032

REAGENT APPLICATION AREA:

FIELD TEST REAGENT

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range (w/w%)
7772-98-7	SODIUM THIOSULFATE, ANHYDROUS Irritant; (eyes,skin) ORAL LD50: NO DATA. DERMAL LD50: NO DATA. INHL. LC50: NO DATA.	40-70
7681-57-4	DISULFUROUS ACID,DISODIUM SALT Irritant (eyes, skin, and respiratory); may cause allergic reaction if swallowed ORAL LD50: NO DATA. DERMAL LD50: NO DATA. INHL. LC50: NO DATA.	15-40
7775-14-6	SODIUM HYDROSULFITE (SODIUM DITHIONITE) Flammable solid; irritant (eyes) ORAL LD50: NO DATA. DERMAL LD50: NO DATA. INHL. LC50: NO DATA.	15-40
92798-16-8	PHENANTHROLINETOLUENESULFONIC ACID Potential irritant	3-7

ORAL LD50: NO DATA.
DERMAL LD50: NO DATA.
INHL. LC50: NO DATA.

HAZARDOUS INGREDIENTS (continued):

No component is considered to be a carcinogen by the U.S. National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or under WHMIS.

3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

Moderately irritating. May be corrosive in contact with moist skin. Corrosive to the eyes. Dusts or mists are irritating to mucous membranes. Repeated exposure may result in respiratory sensitization.

Odor: Garlic; 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 or foam--Avoid water if possible.

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Moderately irritating. May be corrosive in contact with moist skin.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Primary route of exposure;Dusts or mists are irritating to mucous membranes. Repeated exposure may result in respiratory sensitization.

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, 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:
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)

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:
The waste characteristics of the absorbed material, or any contaminated soil, should be determined in accordance with provincial regulations. Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement or discharged under provincial regulations.
Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:
Corrosive to moist skin. Corrosive to eyes.
STORAGE:
Keep containers closed when not in use. Keep dry. Store away from oxidizers.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Consult local authorities for acceptable provincial values.

CHEMICAL NAME

SODIUM THIOSULFATE, ANHYDROUS
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

DISULFUROUS ACID,DISODIUM SALT
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): 5 MG/M3

SODIUM HYDROSULFITE (SODIUM DITHIONITE)
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

PHENANTHROLINETOLUENESULFONIC ACID
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.
RESPIRATORY PROTECTION:
If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.
SKIN PROTECTION:
gauntlet-type rubber gloves, chemical resistant apron-- 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
Freeze Point (C)	NA		
Viscosity(cps 70F,21C)	NA	% Solubility (water)	NA

Odor		Garlic
Appearance		White
Physical State		Powder
Flash Point	P-M(CC)	> 200F > 93C
pH 5% Sol. (approx.)		5.2
Evaporation Rate		NA

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:	1,690 mg/kg
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	
Skin Irritation Score RABBIT:	
NOTE - Non-corrosive by DOT test	

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY
No Data Available.

BIODEGRADATION
No Data Available.

13 DISPOSAL CONSIDERATIONS

Incinerate or bury in approved landfill. Please be advised that there may be additional local or provincial requirements relating to the disposal of waste. Consult provincial and local regulations regarding the proper disposal of this material.

14 TRANSPORT INFORMATION

Transportation of Dangerous Goods:
Proper Shipping Name: Not Regulated

15 REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
CEPA:
All components of this product comply with substance notification requirements under CEPA.
WHMIS CLASSIFICATION:
D2A D2B

16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	1	Slight Hazard
Special	CORR	DOT corrosive

(1) Protective Equipment C Goggles,Gloves,Apron

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

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	03-MAY-1996	REVISED FORMAT	** NEW **
	04-JUN-1998	14,15	03-MAY-1996
	18-JAN-2001	4,16	04-JUN-1998
	22-MAR-2001	15	18-JAN-2001
	14-AUG-2002	4,15	22-MAR-2001
	15-JUL-2005	16	14-AUG-2002

Material Safety Data Sheet

ECOLAB

FOAM FORCE

Section 1. Chemical product and company identification

Trade name : FOAM FORCE
Product use : Cleaning product
Supplier : Ecolab Food and Beverage
5105 Tomken Road
Mississauga ON L4W 2X5
1-800-352-5326
Code : 922387
Date of issue : **15-February-2006**

EMERGENCY HEALTH INFORMATION: 1-800-328-0026
Outside United States and Canada CALL 1-651-222-5352 (in USA)

Section 2. Composition, information on ingredients

Name	CAS number	% by weight
potassium hydroxide	1310-58-3	7 - 13
triphosphoric acid, pentasodium salt	7758-29-4	3 - 7
Sodiumhypochlorite	7681-52-9	1 - 5
xylenesulfonic acid, sodium salt	1300-72-7	1 - 5
amines, coco alkyldimethyl, n-oxides	61788-90-7	1 - 5
sulfonic acids, petroleum, sodium salts	68608-26-4	0.5 - 1.5

Section 3. Hazards identification

Physical state : Liquid. (Liquid.)
Emergency overview : DANGER!
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
Do not get in eyes, on skin or on clothing. Do not breathe vapour or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Routes of entry : Skin contact, Eye contact, Inhalation, Ingestion

Potential acute health effects

Eyes : Corrosive to eyes.
Skin : Corrosive to the skin.
Inhalation : Corrosive to the respiratory system.
Ingestion : Harmful if swallowed. Causes burns to mouth, throat and stomach.

See toxicological information (section 11)

Section 4. First-aid measures

Eye contact : In case of contact, immediately flush eyes with cool running water. Remove contact lenses and continue flushing with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin Contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion : Rinse mouth; then drink one or two large glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Section 5. Fire-fighting measures

Auto-ignition temperature : Not available.

Flash point : > 100°C
Product does not support combustion.

Flammable limits

Upper: Not available.

Lower: Not available.

Products of combustion : These products are halogenated compounds, hydrogen chloride.

Fire-fighting media and instructions : Use an extinguishing agent suitable for the surrounding fire.

Dyke liquid for later disposal.
No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Risk of explosion of the product in the presence of mechanical impact: Not available.

Risk of explosion of the product in the presence of static discharge: Not available.

Section 6. Accidental release measures

Personal Precautions : Ventilate area of leak or spill. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment (Section 8). Stop leak if without risk. Do not allow to enter drains or watercourses.

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

Section 7. Handling and storage

Handling : Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Storage : Keep out of the reach of children. Keep container tightly closed. Keep container in a cool, well-ventilated area.
Store between -30 and 50°C

Section 8. Exposure controls, personal protection

Engineering controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.

Personal protection

Eyes : Use chemical splash goggles. For continued or severe exposure wear a face shield over the goggles.

Hands : Use chemical-resistant, impervious gloves.

Skin : Use synthetic apron, other protective equipment as necessary to prevent skin contact.

Respiratory : Wear appropriate respirator when ventilation is inadequate and occupational exposure limits are exceeded.

Name	Exposure limits
potassium hydroxide	**ACGIH TLV (United States, 1/2004).** CEIL: 2 mg/m³ Form: All forms
chlorine	**ACGIH TLV (United States, 1/2004).** STEL: 2.9 mg/m³ 15 minute/minutes. Form: All forms STEL: 1 ppm 15 minute/minutes. Form: All forms TWA: 1.5 mg/m³ 8 hour(s). Form: All forms TWA: 0.5 ppm 8 hour(s). Form: All forms

Section 9. Physical and chemical properties

Physical state	: Liquid. (Liquid.)
Colour	: Yellow. (Light.)
Odour	: chlorine
pH	: 13 (100%)
Boiling/condensation point	: >100 °C
Melting/freezing point	: Not available.
Specific gravity	: 1.158 (Water = 1)
Vapour pressure	: Not applicable.
Vapour density	: Not available.
Odour threshold	: Not available.
Evaporation rate	: Not available.
$LogK_{ow}$	: Not available.
Dispersibility properties	: Easily dispersed in cold water, hot water.
Solubility	: Easily soluble in cold water, hot water.

Section 10. Stability and reactivity

Stability	: The product is stable.
Conditions of instability	: Not available.
Reactivity	: Highly reactive with acids. Reactive with metals. Slightly reactive to reactive with organic materials. Mixing this product with acid or ammonia releases chlorine gas.
Incompatibility with various substances	: Not available.
Hazardous Decomposition Products	: These products are halogenated compounds, hydrogen chloride, chlorine.

Section 11. Toxicological information

Potential acute health effects

Eyes	: Corrosive to eyes.
Skin	: Corrosive to the skin.
Inhalation	: Corrosive to the respiratory system.
Ingestion	: Harmful if swallowed. Causes burns to mouth, throat and stomach.
Irritancy of Product	: Hazardous by WHMIS criteria.

Potential chronic health effects

Carcinogenic effects	: No known significant effects or critical hazards.
Mutagenic effects	: No known significant effects or critical hazards.
Teratogenic effects	: No known significant effects or critical hazards.
Reproductive effects	: No known significant effects or critical hazards.
Sensitization to Product	: No known significant effects or critical hazards.
Synergistic products (toxicologically)	: Not available.

Toxicity data

Ingredient name	Test	Result	Route	Species
potassium hydroxide	LD50	273 mg/kg	Oral	Rat
triphosphoric acid, pentasodium salt	LD50	3120 mg/kg	Oral	Rat
	LD50	3100 mg/kg	Oral	Mouse
	LD50	>4640 mg/kg	Dermal	Rabbit
Sodiumhypochlorite	LD50	5800 mg/kg	Oral	Mouse

Target organs : Contains material which causes damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.

Section 12. Ecological information

Ecotoxicity data

Ingredient name	Species	Period	Result
Sodiumhypochlorite	Daphnia magna (EC50)	48 hour(s)	0.04 mg/l
	Daphnia magna (EC50)	48 hour(s)	0.17 mg/l
	Daphnia magna (EC50)	48 hour(s)	1.57 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.059 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.09 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.2 mg/l

Products of degradation : These products are carbon oxides (CO, CO_2) and water, sulphur oxides (SO_2, SO_3, etc.), halogenated compounds, phosphates. Some metallic oxides.

Section 13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Additional information
TDG Classification	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (potassium hydroxide, Sodiumhypochlorite)	8	III	**Explosive Limit and Limited Quantity Index** 5 **Passenger Carrying Road or Rail Index** 5 **Special provisions** 16

APPLIES ONLY DURING ROAD TRANSPORT

Any variation of the shipping description based on the packaging is not addressed.

Section 15. Regulatory information

WHMIS : Class E: Corrosive material

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations.*

Section 16. Other information

Date of issue : **15-February-2006.**

Responsible name : **Regulatory Affairs**

Date of previous issue : **06-February-2006.**

Notice to reader

The above information is believed to be correct with respect to the formula used to manufacture the product in the country of origin. As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.

Material Safety Data Sheet

ECOLAB

FLUFF 2000

Section 1. Chemical product and company identification

Trade name : FLUFF 2000
Product use : Laundry detergent
Supplier : Textile Care - Division of Ecolab Co.
5105 Tomken Road
Mississauga ON L4W 2X5
1-800-352-5326
Code : 903337
Date of issue : **27-March-2006**

EMERGENCY HEALTH INFORMATION: 1-800-328-0026
Outside United States and Canada CALL 1-651-222-5352 (in USA)

Section 2. Composition, information on ingredients

Name	CAS number	% by weight
alcohols, c12-16, ethoxylated	68551-12-2	15 - 40
disodium 4,4'-bis(2-sulfostyryl)biphenyl	27344-41-8	0.1 - 1

Section 3. Hazards identification

Physical state : Liquid. (Liquid.)
Emergency overview : CAUTION!
MAY CAUSE EYE IRRITATION.
Avoid contact with eyes. Wash thoroughly after handling.
Routes of entry : Skin contact, Eye contact, Inhalation, Ingestion

Potential acute health effects

Eyes : Moderately irritating to eyes.
Skin : Slightly irritating to the skin.
Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

See toxicological information (section 11)

Section 4. First-aid measures

Eye contact : In case of contact, immediately flush eyes with cool running water. Remove contact lenses and continue flushing with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
Skin Contact : Flush contaminated skin with plenty of water. Wash clothing before reuse. Get medical attention if irritation persists.
Inhalation : If inhaled, remove to fresh air.
Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if irritation persists.

Section 5. Fire-fighting measures

Auto-ignition temperature : Not available.
Flash point : > 100°C
Product does not support combustion.

Flammable limits
Upper: Not available.
Lower: Not available.

Products of combustion : Not available.
Fire-fighting media and instructions : Use an extinguishing agent suitable for the surrounding fire.

Dyke liquid for later disposal.

No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Risk of explosion of the product in the presence of mechanical impact: Not available.

Risk of explosion of the product in the presence of static discharge: Not available.

Section 6. Accidental release measures

Personal Precautions : Ventilate area of leak or spill. Do not touch damaged containers or spilled material unless wearing appropriate protective equipment (Section 8). Stop leak if without risk. Do not allow to enter drains or watercourses.

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

Section 7. Handling and storage

Handling : Avoid contact with eyes. Wash thoroughly after handling.

Storage : Keep out of the reach of children. Keep container tightly closed. Keep container in a cool, well-ventilated area.
Do not store above 50°C

Section 8. Exposure controls, personal protection

Engineering controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.

Personal protection

Eyes : Eye protection recommended.

Hands : No protective equipment is needed under normal use conditions.

Skin : No protective equipment is needed under normal use conditions.

Respiratory : A respirator is not needed under normal and intended conditions of product use.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Physical state : Liquid. (Liquid.)

Colour : Blue.

Odour : Faint odour.

pH : 7.5 (100%)

Boiling/condensation point : >100 °C

Melting/freezing point : Not available.

Specific gravity : 1.03 (Water = 1)

Vapour pressure : Not applicable.

Vapour density : Not available.

Odour threshold : Not available.

Evaporation rate : Not available.

Viscosity : Dynamic: 70 cP

$LogK_{ow}$: Not available.

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

Section 10. Stability and reactivity

Stability : The product is stable.
Conditions of instability : Not available.
Incompatibility with various substances : Not available.
Hazardous Decomposition Products : Not available.

Section 11. Toxicological information

Potential acute health effects

Eyes : Moderately irritating to eyes.
Skin : Slightly irritating to the skin.
Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.
Irritancy of Product : Hazardous by WHMIS criteria.

Potential chronic health effects

Carcinogenic effects : No known significant effects or critical hazards.
Mutagenic effects : No known significant effects or critical hazards.
Teratogenic effects : No known significant effects or critical hazards.
Reproductive effects : No known significant effects or critical hazards.
Sensitization to Product : No known significant effects or critical hazards.
Synergistic products (toxicologically) : Not available.

Toxicity data

Ingredient name	Test	Result	Route	Species
disodium 4,4'-bis(2-sulfostyryl) biphenyl	LD50	5580 mg/kg	Oral	Rat
	LD50	4920 mg/kg	Oral	Mouse
	LD50	6030 mg/kg	Oral	Hamster
	LD50	2500 mg/kg	Dermal	Rabbit

Target organs : Not available.

Section 12. Ecological information

Ecotoxicity data

Ingredient name	Species	Period	Result
disodium 4,4'-bis(2-sulfostyryl) biphenyl	Oncorhynchus mykiss (LC50)	96 hour(s)	130 mg/l

Section 13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Additional information
TDG Classification	Not regulated.	-	-	-	-

APPLIES ONLY DURING ROAD TRANSPORT
Any variation of the shipping description based on the packaging is not addressed.

Section 15. Regulatory information

WHMIS : Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

Section 16. Other information

Date of issue : **27-March-2006.**

Responsible name : **Regulatory Affairs**

Date of previous issue : **No previous validation.**

Notice to reader

The above information is believed to be correct with respect to the formula used to manufacture the product in the country of origin. As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.

Material Safety Data Sheet

LA2694
Guardsman 12

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA2694
Product Name: Guardsman 12
Synonyms: Sodium oxychloride; Soda bleach liquor; Javel water; Clorox; Javex.
Chemical Family: Hydrochlorous acid, sodium salt.
Application: Disinfectant.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Safety, Health and Environment Department of Univar Canada Ltd.
Preparation date of MSDS: 24 March 2005
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Water 7732-18-5	Balance	Not available.
Sodium Hypochlorite, Solution 7681-52-9	7-13	Oral LD50 (Rat) 8200 mg/kg Dermal LD50 (Rabbit) 10000 mg/kg

Note: No additional remark.

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Corrosive to eye tissue and may cause severe damage and blindness.
Skin Contact: Corrosive. May cause severe skin irritation. Prolonged contact may lead to burns and blisters and may aggravate dermatitis. May cause whitening or bleaching of the skin.
Inhalation: Corrosive to respiratory passages. Causes irritation of the mouth, nose and throat. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary edema (fluid build-up in lungs) and reduction of pulmonary function. If mixed with acids or warmed to temperatures greater than 40 degrees Celcius, Sodium hypochlorite solutions release chlorine gas. This gas can cause severe irritation of the nose and throat. Exposures to high levels of chlorine gas may result in severe lung damage.

Ingestion: Corrosive. Causes burns to the mouth, throat and stomach. Causes vomiting, nausea, and diarrhea. Coma, shock and death may occur.

4. FIRST AID MEASURES

Eye Contact: Wash eyes with water for a minimum of 30 minutes or until no evidence of the chemical remains. Hold eyelids open during flushing. Seek immediate medical attention.
Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 30 minutes. Get medical attention.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Rinse mouth with water. Do not induce vomiting. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Seek immediate medical attention.
Notes to Physician: Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications.

5. FIRE FIGHTING MEASURES

Flash Point: None.
Flash Point Method: Not applicable.
Autoignition Temperature: Not Available.
Flammable Limits in Air (%): Not Available.
Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
Special Exposure Hazards: Keep containers cool to prevent rupture and release of material. Closed containers may explode in fire. Spilled material may cause floors and contact surfaces to become slippery.
Hazardous Decomposition/Combustion Materials (under fire conditions): Chlorine. Oxygen. Oxides of sodium.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: Not Available.
HMIS RATINGS FOR THIS PRODUCT ARE: Not Available.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed. Consult local authorities.
Procedure for Clean Up: Ventilate area. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water. Spilled material may cause floors and contact surfaces to become slippery.

7. HANDLING AND STORAGE

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. When diluting, add this product to water in small amounts to avoid spattering. Never add water to this material.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Store below 29 °C Do not freeze. Store away from organic chemicals, strong bases, metal powders, carbides, sulfides, and any readily oxidizable material. Keep away from direct sunlight. Storage area should be equipped with corrosion-resistant floors, sumps and should have controlled drainage to a recovery tank. Store in a sealed polyethylene container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Make up air should always be supplied to balance air exhausted (either generally or locally). Ventilation should be corrosive proof.

Respiratory Protection: Wear a Niosh approved full facepiece respirator for acid gases or a self-contained breathing apparatus for air concentration levels up to 5 ppm. NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits.

Gloves: Impervious gloves. Neoprene gloves. Nitrile gloves. Rubber gloves.

Skin Protection: Neoprene coated apron or chemical resistant clothing. Impervious boots.

Eyes: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Water	Not available.	Not available.	Not Available.
Sodium Hypochlorite, Solution	0.5 ppm As For Chlorine.	Not available.	Not Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Colour: Clear Green to yellow.
Odour: Chlorine.
pH 11.5 - 13
Specific Gravity: 1.165
Boiling Point: Decomposition at 40 °C
Freezing/Melting Point: -25 °C / -12 °F
Vapour Pressure: 17.5 mmHg
Vapour Density: Not Available.
% Volatile by Volume: Not Available.
Evaporation Rate: Not Available.
Solubility: Miscible in water.
VOCs: Not Available.
Viscosity: Not Available.
Molecular Weight: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Unstable above 40°C / 104 °F.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources. Exposure to light.
Materials to Avoid: Acids. Ammonia. Strong oxidizers. Reducing agents. Metals.
Hazardous Decomposition Products: When heated to decomposition, it emits acrid smoke and irritating fumes. Chlorine. Oxides of sodium. Oxygen.
Additional Information:

Hypochlorites may react with primary amines to form nitrogen trichloride which explodes spontaneously in air. Hypochlorite bleach reacts with urea to form nitrogen trichloride whic explodes spontaneously in air. Some metals accelarate the decomposition of Sodium Hypochlorite. Nickel. Copper. Tin. Iron and its alloys. Manganese.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Corrosive. Causes burns to the mouth, throat and stomach. Causes vomiting, nausea, and diarrhea. Coma, shock and death may occur.

Skin Contact: Corrosive. May cause severe skin irritation. Prolonged contact may lead to burns and blisters and may aggravate dermatitis. May cause whitening or bleaching of the skin.

Inhalation: Corrosive to respiratory passages. Causes irritation of the mouth, nose and throat. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary edema (fluid build-up in lungs) and reduction of pulmonary function. If mixed with acids or warmed to temperatures greater than 40 degrees Celcius, Sodium hypochlorite solutions release chlorine gas. This gas can cause severe irritation of the nose and throat. Exposures to high levels of chlorine gas may result in severe lung damage.
Eye Contact: Corrosive to eye tissue and may cause severe damage and blindness.

Additional Information: Aspiration may cause lung damage. Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain.
Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Water	Not listed.	Not listed.
Sodium Hypochlorite, Solution	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Water	Not Available.	Not Available.	Not Available.
Sodium Hypochlorite, Solution	Not Available.	Not Available.	Not Available.

Other Information:
Harmful to aquatic life at low concentrations. Toxicity is primarily associated with pH.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers retain product residue (liquid and/or vapour) and can be dangerous. Do not expose such containers to heat, flame, sparks, static electricity or other sources of ignition; they may explode. Do not dispose of package until throughly washed out. Dispose of container according to national or local regulations.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: Hypochlorite solution.
DOT Hazardous Class 8
DOT UN Number: UN1791
DOT Packing Group: III
DOT Reportable Quantity (lbs): 100
Note: No additional remark.
Marine Pollutant: No.

ICAO/IATA:
IATA Proper Shipping Name: Hypochlorite solution.
IATA Hazard Class: 8
UN Number: UN1791
Packing Group: III
IATA Label: Corrosive.

IATA Remarks: No additional remark.

IMDG:
IMDG Proper Shipping Name: Hypochlorite solution.
Hazard Class: 8
UN Number: UN1791
Packing Group: III
Marine Pollutant: No.
IMDG Label: Corrosive.
Remarks: No additional remark.

TDG (Canada):
TDG Proper Shipping Name: Hypochlorite Solution
Hazard Class: 8
UN Number: UN1791
Packing Group: III
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on theToxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Registration No. 17363 Pest Control Products Act.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Water	Not Listed.	Not Listed.	Not Listed.
Sodium Hypochlorite, Solution	Not Listed.	LISTED	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:

WHMIS EXEMPT

16. OTHER INFORMATION

Additional Information:

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

Disclaimer:

NOTICE TO READER:
Univar, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

*****END OF MSDS*****

MATERIAL SAFETY DATA SHEET

Product identifier: HIT-HY 20

Product description / use: Adhesive anchoring system for fastening into hollow base material as well as bricks and mortar

Supplier: Hilti (Canada) Corporation, 6790 Century Avenue, Suite #300, Mississauga, Ontario L5N 2V8

Originator Hilti, Inc., P. O. Box 21148, Tulsa, Oklahoma, USA 74121

Emergency number: Chem-Trec: 1 800 424 9300

INGREDIENTS INFORMATION

Ingredient	CAS Number	% (wt.)	LC_{50}, (rat)	LD_{50} (rat)	TLV	STEL
Part A: Resin						
Urethane methacrylate resin ***	***	25 - 30	N/Av	N/Av	N/E	N/E
Methacrylate ester ***	***	25 - 30	N/Av	10,120 mg/kg	N/E	N/E
Oxometallic acid salt ***	***	20 - 25	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Fly ash	68131-74-8	10 - 15	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Butyric acid ester ***	***	05 - 10	N/Av	N/Av	N/E	N/E
Silica filled polydimethylsiloxane	67762-90-7	01 - 05	315 mg/m^3 / 4H	N/Av	2 mg/m^3	N/E
Part B: Hardener						
Water	07732-18-5	50 - 55	N/Ap	N/Ap	N/E	N/E
Fly ash	68131-74-8	25 - 30	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Dibenzoyl peroxide	00094-36-0	10 - 15	N/Av	7,710 mg/kg	5 mg/m^3	N/E
Amorphous silica (silica gel)	07631-86-9	01 - 05	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Dipropylene glycol	25265-71-8	01 - 05	N/Av	14,850 mg/kg	N/E	N/E
Polyethylene	09002-88-4	01 - 05	N/Av	N/Av	N/E	N/E

*** HMIRC registration number 4186 granted; 9 November, 2000

PHYSICAL PROPERTIES

Appearance / Physical state:	Grey paste	**Odour:**	Ester-like odour.
Specific gravity (at 20°C):	Pt. A: 1.2; Pt. B: 0.9	**Odour threshold:**	Not determined.
Vapour pressure (at 20°C):	Not applicable.	**Vapour density:**	Not applicable.
Evaporation rate:	Not determined.	**Boiling point:**	Approx. 100° C.
Freezing point:	Not determined.	**pH:**	6 - 7
Coefficient of H_20 / oil distrib:	Not determined.	**Solubility in water:**	Part B is soluble.

FIRE AND EXPLOSION DATA

Flash point / Method:	> 93° C / DIN 53213	**Flammable limits:**	Not applicable.
Conditions of flammability:	Not applicable.	**Auto-ignition temperature:**	Not applicable.

Means of extinction: Water, CO_2, Dry Chemical, Foam.

Special fire fighting procedures: None known. A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.

Hazardous combustion products: Thermal decomposition products such as oxides of carbon and nitrogen can be produced under fire conditions.

Sensitivity to mechanical impact / static discharge: Not susceptible to mechanical impact or to a static discharge.

REACTIVITY DATA

Stability: Dibenzoyl peroxide begins to decompose (non-violently) at temperatures > 150° C.

Conditions of reactivity: Extreme heat and direct sunlight. Due to the > 5% water content, ignition does not occur.

Incompatible materials: Strong acids and oxidizing agents.

Hazardous decomposition products: None known. Thermal decomposition can yield oxides of carbon and nitrogen.

TOXICOLOGICAL PROPERTIES

Routes of exposure:	☐ N/Ap ☒ Skin contact ☒ Skin absorption ☒ Eye contact ☐ Inhalation ☐ Ingestion
Exposure limits:	See "Ingredients" section above.
Acute effects of exposure:	**Eyes** - Can cause irritation or watering but injury is unlikely. **Skin** - No effects expected. Irritation is possible with some individuals. **Inhalation** - No effects expected. **Ingestion** - Not a likely route of exposure. Considered to have a low acute oral toxicity. If large amounts are ingested, CNS depression, gastric irritation, nausea, etc. may occur.
Chronic effects of exposure:	Methacrylate esters can cause skin sensitization (e.g. rash, itching, reddening) with some individuals. *In vitro* studies of fly ash have shown mutagenic effects in bacteria and mammalian cells. *In vivo* studies of occupational workers exposed to fly ash indicated somatic cell mutagenicity. The nature and intended use of this product does not pose an increased risk to users.
Synergistic materials:	None known.

FIRST AID MEASURES

Eyes:	Flush with plenty of water. Call a physician if symptoms occur.
Skin:	Wash with soap and water. Seek medical attention if any effects persist.
Inhalation:	No ill effects expected. Should discomfort occur, move to fresh air.
Ingestion:	Do not induce vomiting unless large amounts are ingested. If conscious, give 1 to 2 glasses of water to drink. Never give anything by mouth to an unconscious person. Contact a physician immediately.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Engineering controls:	General (natural or mechanically induced fresh air movements).
Eye protection:	As appropriate for the work area or work being done.
Skin protection:	Cloth gloves are suitable; impermeable (neoprene or rubber) gloves recommended.
Respiratory protection:	None normally required.
Other:	No additional measures are normally required.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling procedures and equipment:	For industrial use only. Keep out of reach of children. Use with adequate ventilation. Do not get into the eyes. Avoid prolonged or repeated contact with the skin. Practice good hygiene; i.e., wash after using and before eating or smoking.
Storage requirements:	Store in a cool dry area. Keep from freezing. Store between 5° and 25° C.
Spill, leak or release:	Immediately wipe away material before it hardens. Place in a container for proper disposal.
Waste disposal:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, provincial, and federal safety, health and environmental regulations.
Special shipping instructions:	Avoid temperature extremes. Keep from freezing.

REGULATORY INFORMATION

WHMIS classification:	C, D2A, D2B
HMIS codes:	Health 1, Flammability 1, Reactivity 1, PPE B
TDG shipping name:	Not regulated.

PREPARATION INFORMATION / CONTACTS

Prepared by:	Hilti, Inc., Tulsa, OK USA Emergency phone number: 1 800 424 9300
Customer Service:	Hilti (Canada) Corporation, Mississauga, Ontario; 1 800 363 4458
Health / Safety contacts:	Hilti, Inc., Tulsa, OK USA; 1 800 879 6000, Jerry Metcalf (x6704)
Abbreviations used:	**N** = as Nuisance dust. **H** = Hours. **N/E** = None Established. **N/Ap** = Not Applicable. **N/Av** = Not Available. **CNS** = Central Nervous System. **IARC:** International Agency for Research on Cancer. **HMIS:** Hazardous Materials Identification System

MATERIAL SAFETY DATA SHEET

Product identifier:	**HIT HY-150**
Product description / use:	2 part adhesive for anchoring into solid base material; e.g. concrete, grout, stone and solid masonry
Supplier:	Hilti (Canada) Corporation, 6790 Century Avenue, Suite #300, Mississauga, Ontario L5N 2V8
Originator	Hilti, Inc., P. O. Box 21148, Tulsa, Oklahoma, USA 74121
Emergency number:	Chem-Trec: 1 800 424 9300

INGREDIENTS INFORMATION

Ingredient	CAS Number	% (wt.)	LC_{50}, (rat)	LD_{50} (rat)	TLV	STEL
Part A: Resin						
Quartz sand	14808-60-7	35 - 40	N/Av	N/Av	0.05 mg/m^3 (R)	N/E
Oxometallic acid salt ***	***	20 - 25	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Urethane methacrylate resin ***	***	10 - 15	N/Av	N/Av	N/E	N/E
Methacrylate ester ***	***	10 - 15	N/Av	10,120 mg/kg	N/E	N/E
Hydroxypropyl methacrylate	27813-02-1	10 - 15	N/Av	11,200 mg/kg	N/E	N/E
Silica filled polydimethylsiloxane	67762-90-7	01 - 05	315 mg/m^3 / 4H	N/Av	2 mg/m^3	N/E
Part B: Hardener						
Quartz sand	14808-60-7	55 - 60	N/Av	N/Av	0.1 mg/m^3	N/E
Water	07732-18-5	25 - 30	N/Ap	N/Ap	N/E	N/E
Dibenzoyl peroxide	00094-36-0	05 - 10	N/Av	7,710 mg/kg	5 mg/m^3	N/E
Amorphous silica (silica gel)	07631-86-9	01 - 05	N/Av	N/Av	10 mg/ m^3 (N)	N/E
Dipropylene glycol	25265-71-8	01 - 05	N/Av	14,850 mg/kg	N/E	N/E
Polyethylene	09002-88-4	01 - 05	N/Av	N/Av	N/E	N/E

*** HMIRC registration number 4187 granted; 9 November, 2000

PHYSICAL PROPERTIES

Appearance / Physical state:	Grey paste	**Odour:**	Ester-like odour.
Specific gravity (at 20°C):	1.7	**Odour threshold:**	Not determined.
Vapour pressure (at 20°C):	Not applicable.	**Vapour density:**	Not applicable.
Evaporation rate:	Not determined.	**Boiling point:**	Approx. 100° C.
Freezing point:	Not determined.	**pH:**	6 - 7
Coefficient of H_20 / oil distrib:	Not determined.	**Solubility in water:**	Part B is soluble.

FIRE AND EXPLOSION DATA

Flash point / Method:	> 93° C / DIN 53213	**Flammable limits:**	Not applicable.
Conditions of flammability:	Not applicable.	**Auto-ignition temperature:**	Not applicable.
Means of extinction:	Water, CO_2, Dry Chemical, Foam.		
Special fire fighting procedures:	None known. A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.		
Hazardous combustion products:	Thermal decomposition products such as oxides of carbon and nitrogen can be produced under fire conditions.		
Sensitivity to mechanical impact / static discharge:	Not susceptible to mechanical impact or to a static discharge.		

REACTIVITY DATA

Stability:	Dibenzoyl peroxide begins to decompose (non-violently) at temperatures > 150° C.
Conditions of reactivity:	Extreme heat and direct sunlight. Due to the > 5% water content, ignition does not occur.
Incompatible materials:	Strong acids and oxidizing agents.
Hazardous decomposition products:	None known. Thermal decomposition can yield oxides of carbon and nitrogen.

TOXICOLOGICAL PROPERTIES

Routes of exposure:	☐ N/Ap ☒ Skin contact ☒ Skin absorption ☒ Eye contact ☐ Inhalation ☐ Ingestion
Exposure limits:	See "Ingredients" section above.
Acute effects of exposure:	**Eyes** - Can cause irritation or watering but injury is unlikely. **Skin** - No effects expected. Irritation is possible with some individuals. **Inhalation** - No effects expected. **Ingestion** - Not a likely route of exposure. Considered to have a low acute oral toxicity. If large amounts are ingested, CNS depression, gastric irritation, nausea, etc. may occur.
Chronic effects of exposure:	Methacrylate esters can cause skin sensitization (e.g. rash, itching, reddening) with some individuals. IARC has classified silica as a Group 1 carcinogen based upon chronic exposure to silica dust. This product is an encapsulated paste and, therefore, does not pose a dust hazard. *In vitro* studies of quartz sand have shown mutagenic effects in mammalian and human cells. The nature and intended use of this product does not pose an increased risk to cancer or biological mutations.
Synergistic materials:	None known.

FIRST AID MEASURES

Eyes:	Flush with plenty of water. Call a physician if symptoms occur.
Skin:	Wash with soap and water. Seek medical attention if any effects persist.
Inhalation:	No ill effects expected. Should discomfort occur, move to fresh air.
Ingestion:	Do not induce vomiting unless large amounts are ingested. If conscious, give 1 to 2 glasses of water to drink. Never give anything by mouth to an unconscious person. Contact a physician immediately.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Engineering controls:	General (natural or mechanically induced fresh air movements).
Eye protection:	As appropriate for the work area or work being done.
Skin protection:	Cloth gloves are suitable; impermeable (neoprene or rubber) gloves recommended.
Respiratory protection:	None normally required.
Other:	No additional measures are normally required.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling procedures and equipment:	Use with adequate ventilation. Do not get into the eyes. Avoid prolonged or repeated contact with the skin. Practice good hygiene; i.e., wash after using and before eating or smoking.
Storage requirements:	For industrial use only. Keep out of reach of children. Store in a cool dry area. Keep from freezing. Store between 5° and 25° C.
Spill, leak or release:	Immediately wipe away material before it hardens. Place in a container for proper disposal.
Waste disposal:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, provincial, and federal safety, health and environmental regulations.
Special shipping instructions:	Avoid temperature extremes. Keep from freezing.

REGULATORY INFORMATION

WHMIS classification:	C, D2A, D2B
HMIS codes:	Health 1, Flammability 1, Reactivity 1, PPE B
TDG shipping name:	Not regulated.

PREPARATION INFORMATION / CONTACTS

Prepared by:	Hilti, Inc., Tulsa, OK USA Emergency phone number: 1 800 424 9300
Customer Service:	Hilti (Canada) Corporation, Mississauga, Ontario; 1 800 363 4458
Health / Safety contacts:	Hilti, Inc., Tulsa, OK USA; 1 800 879 6000, Jerry Metcalf (x6704)
Abbreviations used:	**R** = Respirable fraction. **N** = Nuisance dust. **H** = Hours. **N/E** = None Established. **N/Ap** = Not Applicable. **N/Av** = Not Available. **CNS** = Central Nervous System. **IARC:** International Agency for Research on Cancer. **HMIS:** Hazardous Materials Identification System

GE Betz

GE Betz Canada, Inc.
3451 Erindale Station Road
Mississauga, Ontario L5C 2S9
Business telephone: (905) 279-2222

Material Safety Data Sheet

Issue Date: 25-APR-2006

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

1 PRODUCT IDENTIFICATION

REAGENT NAME:

HYDROCHLORIC ACID 50% SOLUTION

REAGENT CODE:

L247

REAGENT APPLICATION AREA:

FIELD TEST REAGENT

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
7647-01-0	HYDROCHLORIC ACID Corrosive ORAL LD50: NO DATA. DERMAL LD50: NO DATA. INHL. LC50-RAT: 3,124 PPM/HR.	15-40

No component is considered to be a carcinogen by the U.S. National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or under WHMIS.

3 HAZARDS IDENTIFICATION

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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/steel
Emergency Response Guide #60
Odor: Pungent; 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

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POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Corrosive to skin.

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.

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:
Inhalation may cause irritation of mucous membranes and respiratory tract. Skin contact causes severe irritation or burns.

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/steel
UN1789;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 - Incinerate or land dispose in an approved landfill.

7 HANDLING & STORAGE

HANDLING:
Acidic. Corrosive(Skin/eyes). 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

HYDROCHLORIC ACID
PEL (OSHA): 5 PPM
TLV (ACGIH): 2 PPM(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 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)	1.092	Vapor Pressure (mmHG)	ND
Freeze Point (F)	ND	Vapor Density (air=1)	ND
Freeze Point (C)	ND		
Viscosity(cps 70F,21C)	ND	% Solubility (water)	ND

Odor		Pungent
Appearance		Colorless
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH 4% Solution (approx.)		0.7
Evaporation Rate		ND

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:	>2,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>2,000 mg/kg
NOTE - Estimated value	
Inhalation LC50 RAT:	2,810 ppm/hr
NOTE - 31.5%	
Skin Irritation Score RABBIT:	>4.0
NOTE - EPA Category I: corrosive; DOT HM181 Packing Group II: corrosive in 60 minutes	
Eye Irritation Score RABBIT:	CORROSIVE
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, 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: UN1789
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):
2,618 gallons due to HYDROCHLORIC ACID;
SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)
SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds
SARA SECTION 313 CHEMICALS:

CAS#	CHEMICAL NAME	RANGE
7647-01-0	HYDROCHLORIC ACID	21.0-30.0%

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:
No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

REAGENT CODE# : L247 **EFFECTIVE DATE: 25-APR-2006**
3) HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

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

Odor: Pungent; 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

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POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS: