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)

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 AND 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

Consult local authorities for acceptable provincial values.

CHEMICAL NAME

HYDROCHLORIC ACID
PEL (OSHA): 5 PPM
TLV (ACGIH): 2 PPM(CEILING)

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

RESPIRATORY PROTECTION:
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 AND 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 AND 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

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: Hydrochloric Acid Solutions
PIN: UN1789; Classification: 8(9.2); Packing Group: II

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:

E

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:	25-APR-2006	4	

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:

HARDNESS TITRATING SOLUTION 0.001M

REAGENT CODE:

L6443

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:

Product contains no hazardous ingredients reportable under WHMIS regulation

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

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

Odor: None; 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; 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:
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:
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
Consult local authorities for acceptable provincial values.

Product contains no hazardous ingredients reportable under WHMIS regulation

ENGINEERING CONTROLS:
adequate ventilation

RESPIRATORY PROTECTION:
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)	1.000	Vapor Pressure (mmHG)	ND
Freeze Point (F)	0	Vapor Density (air=1)	ND
Freeze Point (C)	-18		
Viscosity(cps 70F,21C)	ND	% Solubility (water)	100.0

Odor		None
Appearance		Colorless
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH As Is (approx.)		10.0
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:
"A"

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	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:	30-DEC-1996		** NEW **
	25-AUG-1997	3,10,16	30-DEC-1996
	02-DEC-1997	15	25-AUG-1997
	03-NOV-2000	15	02-DEC-1997
	22-MAY-2003	4	03-NOV-2000
	25-APR-2006	16	22-MAY-2003

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

Material Safety Data Sheet

Issue Date: 07-MAR-2005

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

1 PRODUCT IDENTIFICATION

REAGENT NAME:

HARDNESS TITRANT 1ML=1MG CAC03

REAGENT CODE:

L292

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:

Product contains no hazardous ingredients reportable under WHMIS regulation

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

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

Odor: None; 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; 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:
Inhalation may cause irritation of the respiratory tract. Skin contact may cause itching and/or redness.

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 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:

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:

Alkaline. 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

Consult local authorities for acceptable provincial values.

Product contains no hazardous ingredients reportable under WHMIS regulation

ENGINEERING CONTROLS:

adequate ventilation

RESPIRATORY PROTECTION:

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)	1.000	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		None
Appearance		Colorless
Physical State		Liquid
Flash Point	SETA(CC)	> 200F > 93C
pH As Is (approx.)		10.3
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 oxides.
DECOMPOSITION PRODUCTS:
Thermal decomposition (destructive fires) yields elemental oxides.
INTERNAL PUMPOUT/CLEANOUT CATEGORIES:
"A"

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:	03-MAY-1996	REVISED FORMAT	** NEW **
	28-APR-1999		03-MAY-1996
	03-APR-2002	4,16	28-APR-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: 20-JUN-2005

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

1 PRODUCT IDENTIFICATION

REAGENT NAME:

HARDNESS INDICATOR SC BLACK

REAGENT CODE:

L6116

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%)
1787-61-7	1-NAPHTHALENESULFONIC ACID,3-HYDROXY-4-[(1-HYDROXY-2NAPHTHALENE)AZO]-7-NITRO,NA Irritant ORAL LD50: NO DATA. DERMAL LD50: NO DATA. INHL. LC50: NO DATA.	0.5-1.5

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

Non-hazardous to skin. Non-hazardous to eyes. Not expected to cause respiratory effects.

Odor: None; Appearance: Blue, Solid

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:
Non-hazardous to skin.

ACUTE EYE EFFECTS:
Non-hazardous to eyes.

ACUTE RESPIRATORY EFFECTS:
Not expected to cause respiratory effects.

INGESTION EFFECTS:
No evidence of adverse effects from available information.

TARGET ORGANS:
No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Not applicable.

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. No treatment required- no hazard.

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:
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:
This product is non-hazardous.
STORAGE:
Keep containers closed when not in use. Keep dry.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS
Consult local authorities for acceptable provincial values.

CHEMICAL NAME

1-NAPHTHALENESULFONIC
ACID,3-HYDROXY-4-[(1-HYDROXY-2NAPHTHALENE)AZO]-7-NITRO,NA
PEL (OSHA): Not determined
TLV (ACGIH): Not determined

ENGINEERING CONTROLS:
adequate ventilation
RESPIRATORY PROTECTION:
Respirators should not be needed for this product.
SKIN PROTECTION:
Use of gloves made of rubber or synthetic material is optional. Wash off after each use. Replace as necessary.
EYE PROTECTION:
safety glasses

9 PHYSICAL & CHEMICAL PROPERTIES

Density	64.000 lb/cu.	Vapor Pressure (mmHG)	NA
Freeze Point (F)	NA	Vapor Density (air=1)	NA
Freeze Point (C)	NA		
Viscosity(cps 70F,21C)	NA	% Solubility (water)	< 10.0

Odor		None
Appearance		Blue
Physical State		Solid
Flash Point	P-M(CC)	> 200F > 93C
pH 5% Sol. (approx.)		10.0
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
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:

D2B

16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	0	Minimal Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	A	Safety Glasses

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

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	30-DEC-1996		** NEW **
	12-AUG-1999		30-DEC-1996
	18-JUL-2002	4	12-AUG-1999
	20-JUN-2005	16	18-JUL-2002

Date:	7/20/04	MSDS No.:	CAN-CW40
Trade Name:	Innershield NR-211MP		
Sizes:	All		
Supersedes:	7/20/01		

MATERIAL SAFETY DATA SHEET

For Welding Consumables and Related Products

Conforms to Workplace Hazardous Materials Information System (WHMIS) Rev. November, 1988

Section I & II - Preparation and Product Information

The Lincoln Electric Company of Canada LP
179 Wicksteed Avenue
Toronto, Ontario M4G 2B9 CANADA
Phone: (416) 421-2600

Product Type:	Flux Cored Electrode
Representative Classifications:	AWS E71T-11 CSA E491T-11-H16

Prepared by The Lincoln Electric Company, Cleveland, Ohio, USA
(216) 481-8100, on the date shown above.

Section III - Hazardous Ingredients (1)

IMPORTANT!

This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered by Section VII: see it for industrial hygiene information.
CAS Number shown is representative for the ingredients listed. All ingredients listed may not be present in all sizes.
(1) The term "hazardous" in "Hazardous Ingredients" should be interpreted as a term required and defined in the Hazardous Products Act and does not necessarily imply the existence of any hazard.

Ingredients:	CAS No.	Wt. %	TLV mg/m^3	LD_{50} (Route/Species)	LC_{50} mg/m^3 (Route/Species)
Iron	7439-89-6	10-30	10*	Not Available	Not Available
Barium compounds (as Ba)	513-77-9	1-5	****	11 mg/kg LDLo (oral/human)	Not Available
Aluminum and/or aluminum alloys (as Al)	7429-90-5	1-5	10	Not Available	Not Available
Strontium compounds (as Sr)	1633-05-2	1-5	10*	Not Available	Not Available
Fluorides (as F)	7789-75-5	1-5	2.5	4250 mg/kg (oral/rat)	Not Available
Mineral silicates	1332-58-7	0.1-1	5**	590 g/kg LDLo (oral/rat) reproductive	Not Available
Magnesium and/or magnesium alloys and compounds (as Mg)	7439-95-4	0.1-1	10*	230 mg/kg LDLo (oral/dog)	Not Available
Manganese and/or manganese alloys and compounds (as Mn)	7439-96-5	0.1-1	0.2	9 g/kg (oral/rat)	2.3 LCLo (inhalation/human)
Silicon and/or silicon alloys and compounds (as Si)	7440-21-3	0.1-1	10*	Not Available	Not Available
Lithium compounds (as Li)	554-13-2	0.1-1	10*	4111 mg/kg LDLo (oral/human)	Not Available
Rare Earths	68476-89-1	0.1-1	10*	Not Available	Not Available
Carbon steel tube	7439-89-6	60-100	10*	Not Available	Not Available

Notes: (*) Not listed. Nuisance value maximum is 10 milligrams per cubic meter. TLV value for iron oxide is 5 milligrams per cubic meter. (LDLo, LCLo) Lowest published toxic concentration.

(**) As respirable dust.

(****) There is no listed value for insoluble barium compounds. The TLV for soluble barium compounds is 0.5 mg/m^3.

Section IV - Physical Data

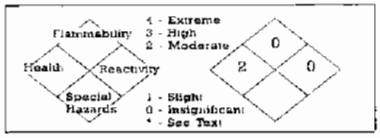
Physical data such as odor, vapor pressure, density, evaporation rate and freezing or boiling points are not listed as they are not applicable to this product and its use.

Section V - Hazard Data

Non Flammable; Welding arc and sparks can ignite combustibles and flammable products. See CSA W117.2 Section 9.7 as referenced in Section VIII. Product is inert, no special handling or spill procedures required.

(CONTINUED ON SIDE TWO)

Product:	Innershield NR-211MP
Date:	7/20/04



Section VI - Health Hazard Data and Toxicological Properties

Acute Lethality Values: LC_{50} means the concentration of a substance in air that when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.

LD_{50} means the single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of a defined animal population.

Threshold Limit Value: The ACGIH recommended general limit for Welding Fume NOS - (Not Otherwise Specified) is 5 mg/m^3.
The TLV-TWA is the time-weighted average concentration for a normal 8-hour workday and a 40 hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect. See Section VII for specific fume constituents which may modify this TLV. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists.

Effects of Overexposure: Electric arc welding may create one or more of the following health hazards:
Fumes and Gases can be dangerous to your health. Common entry is by inhalation. Other possible routes are skin contact and ingestion.

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Soluble barium compounds present in the fumes from this product may also cause severe stomach pain, slow pulse rate, irregular heart beat, ringing of the ears, convulsions, and muscle spasms. In extreme cases can cause death.

Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported.

Arc Rays can injure eyes and burn skin. *Skin cancer has been reported..*
Electric Shock can kill. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.

Section VII - Reactivity Data

Hazardous Decomposition Products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used.

Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section III. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section III, plus those from the base metal and coating, etc., as noted above.

Reasonably expected fume constituents of this product would include: Primarily iron and magnesium oxides; secondarily fluorides and complex oxides of aluminum, barium, lithium, manganese, potassium and strontium.

Maximum fume exposure guideline for this product is 5.0 milligrams per cubic meter for all sizes except the .045" and .035" diameters. Maximum fume exposure guideline and PEL for these diameters (based on soluble barium content) is 4.0 milligrams per cubic meter.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Section VIII - Preventive Measures and Precautions for Safe Handling and Use

Read and understand the manufacturer's instruction and the precautionary label on the product. Request Lincoln Safety Publication E205. See Canadian Standards Association Standard CSA-W117.2 'Safety in Welding, Cutting, and Allied Processes' published by the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W1R3 for more details on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. *Keep exposure as low as possible.*

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear helmet or use face shield with filter lens shade number 12 or darker. Shield others by providing screens and flash goggles.

Protective Clothing: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See W117.2. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to permit electrically live parts or electrodes to contact skin . . . or clothing or gloves if they are wet. Insulate from work and ground.

Disposal Information: Discard any product, residue, disposable container, or liner as ordinary waste in an environmentally acceptable manner according to Federal, State and Local regulations unless otherwise noted. No applicable ecological information available. **Deposit in a sealed container in an approved hazardous waste landfill.**

Section IX - Emergency and First Aid Procedures

Call for medical aid. Employ first aid techniques recommended by the Canadian Red Cross. IF BREATHING IS DIFFICULT give oxygen. IF NOT BREATHING employ CPR (Cardiopulmonary Resuscitation) techniques. IN CASE OF ELECTRICAL SHOCK, turn off power and follow recommended treatment. In all cases call a physician.

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: 09-JUN-2004

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

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

KLEEN AC9513

PRODUCT APPLICATION AREA:

ACID DESCALER

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

>

****

EMERGENCY OVERVIEW

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

Odor: Acid; Appearance: Red, 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:
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 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:
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
Consult local authorities for acceptable provincial values.

CHEMICAL NAME

HYDROCHLORIC ACID
PEL (OSHA): 5 PPM
TLV (ACGIH): 2 PPM(CEILING)

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.
RESPIRATORY PROTECTION:

If air-purifying respirator use is appropriate, use a respirator with acid gas cartridges.

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)	1.136	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	~ -35	Vapor Density (air=1)	< 1.00
Freeze Point (C)	~ -37		
Viscosity(cps 70F,21C)	11	% Solubility (water)	100.0

Odor		Acid
Appearance		Red
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:	>2,000 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% HCL	

12 ECOLOGICAL INFORMATION

>

AQUATIC TOXICOLOGY

No Data Available.

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

>

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: Hydrochloric Acid Solutions
PIN: UN1789; Classification: 8(9.2); Packing Group: II

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:

D2B E

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:	25-AUG-1997		** NEW **
	16-OCT-1997	;EDIT:9	25-AUG-1997
	11-JAN-1999	10	16-OCT-1997
	18-SEP-2000	4,11,16	11-JAN-1999
	15-JUN-2001	4,15	18-SEP-2000
	09-JUN-2004		15-JUN-2001

TECHNICAL DATA

K-100 PORCELAIN CLEANER

Acid-Based Porcelain Cleaner

DESCRIPTION

An acid based cleaner with adhesive properties enabling the product to stick to surfaces and provide contact time with dirt and stains. K-100 contains non-ionic surfactants and pleasant perfumes. The acids are inhibited and will not harm plumbing.

DIRECTIONS

Squeeze bottle and squirt a light film of K –100 over surface to be cleaned. Spread the K-100 evenly over surface with a bowl mop or brush. Allow 5 minutes contact time to loosen scale and stains. Then rinse clean.

PRECAUTIONS

Contact phosphoric and hydrochloric acids. Avoid prolonged contact with skin. Avoid contact with eyes; if contact occurs rinse thoroughly with water and seek medical attention. If swallowed, drink large volumes of milk or water. Do not induce vomiting, seek medical attention. Do not use with bleach or alkaline cleaners. Keep out of reach of children.

CONTAINS

Phosphoric Acid, Hydrochloric Acid

FOR FOOD PLANT AND INDUSTRIAL USE ONLY

E-Chem
Epsilon Chemicals Ltd.
1926-94 Street, Edmonton, Alberta. T6N 1J3. 1-800-361-6348
www.epsilonchemicals.com

Epsilon Chemicals Ltd.
1926-94 STREET NW
Edmonton, AB. T6N 1J3

Material Safety Data Sheet

Phone: 780-438-3040
In Case of Emergency Only:
Phone CANUTEC: 613-996-6666

Product Name	Code	Date Completed
K-100 PORCELAIN CLEANER	J-442	23-Feb-06

WHMIS Classification
E

TDG Classification
Corrosive liquids, N.O.S. (Hydrochloric Acid, Phosphoric Acid); Class 8; UN 1760; PG II

HAZARDOUS INGREDIENTS	%WT/WT	CAS NO.	TOXICITY DATA (LD50 & LC50)
Phosphoric Acid (as 100% active)	10-30	7664-38-2	ACGIH TLV - 1 mg/m3 LD50 (rat) 1530 mg/kg
Hydrochloric Acid (as 100% active)	1-5	7647-01-0	ACGIH TLV - 5 ppm LC50 (inhalation rat)-3124 ppm for one hour LD50 oral (rabbit) 900 mg/kg

PHYSICAL DATA FOR PRODUCT

Physical State	Vapour Pressure	Vapour Density
Liquid	N/A	N/A

pH	Evaporation Rate
0.4, 1% sol.- 1.8	N/A

Boiling Point (C)	Sp. Gravity	Freezing Point (C)	Solubility in Water
N/A	1.1047	N/A	100%

Appearance and Odour
Viscous, blue coloured liquid.

FIRE AND EXPLOSION DATA FOR PRODUCT

Fire Extinguishing Substances (√)

Water fog CO2 ✔ Other

Foam Dry Chem

Detail: Use appropriate media to extinguish surrounding fire.

Reactivity Data For Product

INCOMPATIBILITY (√)

Acid	Base	Water	Oxidizing Material	Other
☐	☑	☐	☑	☑

Detail:
Contact with alkaline materials, reactive metals, high temperatures.

Hazardous Decomposition Products
At flame temperatures, will emit toxic fumes of phosphorous oxide and hydrogen chloride.

Chemical Stability
Stable

Hazardous Combustion Products
Hazardous combustion emits toxic fumes of hydrogen chloride and phosphorus oxides.

Special Fire Fighting Procedures
Use full protective clothing and self contained breathing apparatus.

Flammable Limits in air, % by vol. Non-Flammable:

Upper	Lower	Flash Point (Test Method)
N/A	N/A	N/A

HEALTH HAZARD INFORMATION FOR PRODUCT

Emergency and First Aid Procedures

Inhalation: Remove from exposure. If breathing is difficult or discomfort persists, get medical attention.

Ingestion: Do not induce vomiting. Give large quantities of water, milk, egg whites or milk of magnesia. Get medical attention.

Eyes: Flush with plenty of water for at least 15 minutes. If irritation persists, get medical attention.

Skin: Wash off with water. If irritation persists, get medical attention.

EFFECTS OF OVEREXPOSURE (ACUTE AND CHRONIC)

Inhalation : May cause severe irritation to eyes, throat and upper respiratory tract.

Ingestion : May cause severe burns to mouth, throat, esophagus, and stomach, nausea, vomiting. Risk of stomach perforation, convulsions and coma.

Eyes : Severe irritation, chemical burn likely. May cause permanent damage and possible blindness.

Skin : Severe irritation, corrosive to tissue.

PREVENTIVE MEASURES

Spillage Dyke and salvage or neutralize. Soda ash and lime are neutralizing agents.

Waste Dip.Method If material cannot be salvaged, it should be neutralized and discharged into a treatment system in accordance with all local, provincial and federal regulations.

Hand. & Stor. Requir. Store in cool, dry, well ventilated area in closed container away from heat sources, metals and oxidizers.

Ventilation Use in well ventilated area.

Resp. Protection In severe exposure, use self contained breathing apparatus.

Eye Protection Safety glasses with side-shield.

Other Protection Gloves and coveralls should be worn.

JET-LUBE, INC.
MATERIAL SAFETY DATA SHEET

I

Product Name: **KOPR-KOTE®** Bulk & Aerosol
Chemical Family: Petroleum based lubricating grease
Use: Tool joint and drill collar compound/anti-seize (MIL-PRF-907E)/ jacking lubricant

Manufacturer/Supplier: JET-LUBE, INC.
Address: 4849 Homestead Rd., Ste. #200
Houston, TX, 77028 USA **Phone:** 713-674-7617
Emergency Phone: 713-674-7617 **Fax:** 713-678-4604
Chemtrec 24 hours (USA): 800-424-9300

II

Hazardous Components	CAS No.	Wt%	OSHA PEL	ACGIH TLV	Other Limits of Exposure
Petroleum oil	64742014/64742525	40-60	Oil mist TWA-5mg/M³	N/A	STEL: 10mg/M³
Nonhazardous Blend	82980549/471341 7782435/1317335 12001262/14807966	30-60	UN	UN	STEL: UN
Metallic Copper	7440508	10-20	N/A	1mg/M³	STEL: 2mg/M³
Petroleum Solvent (aerosol)	64742898	0-10	TWA-300ppm	300ppm	UN
Hydrocarbon Propellant (aerosol)	68476857	15-25	1000ppm	1000ppm	N/A

III

Main Hazards–Health Effects
Eyes: May cause irritation. **Inhalation:** Viscous nature may block breathing passages if inhaled. **Ingestion:** May cause diarrhea.
Skin: For hypersensitive persons, may irritate the skin after prolonged periods of contact.

IV

Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help. **Inhalation:** Clear air passage. If respiratory difficulty continues, seek medical help. **Ingestion:** Wash out mouth immediately. Consult physician. **Skin:** Wash thoroughly with hand cleanser, followed by soap & water. Contaminated clothing should be dry cleaned before reuse.

V

Extinguishing Media: Foam, dry powder, Halon®, carbon dioxide, sand, earth & water mist. **Unsuitable Extinguishing Media:** Water jet.
Protective Equipment for Fire fighting: Self-contained breathing apparatus.

VI

Personal Precautions: Wear gloves & protective overalls. **Environmental Precautions:** Do not allow it to enter drains. **Spillage:** Scrape up bulk, then wipe up remainder with cloth. To prevent walking hazard, pick up remaining residue with diatomaceous earth.

VII

Handling: No special handling precautions necessary. **Storage:** Do not store at elevated temperatures.

VIII

Respiratory Protection: None needed. **Hand Protection:** Protective gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion. **Body Protection:** Overalls.

IX

Physical State: Semisolid paste **Color:** Copper/Bronze **Odor:** Petroleum **pH:** Neutral **Boiling Range/Point °F (°C):** <600 (316)
Melting Point °F (°C): 500 (260) **Flash Point (COC) °F (°C):** 430 (221) **Autoignition Temperature °F (°C):** >500 (260)
Propellant Flash Point (COC) °F (°C): -76 (-60) **Explosive Properties:** **LEL:** 0.9% **UEL:** 7% **Evaporation Rate (Butyl Acetate):** <0.01
Partition Coefficient (Log Pow): N/A **Vapor Pressure (kPa):** <0.01 **Density (g/cm³):** 1.10 **OAR Value:** N/A
Flammability: Not flammable at ambient temp. **Oxidizing Properties:** None **Water Solubility:** Nil **Vapor Density:** >5 **% Volatiles:** Nil

X

Stability: Chemically stable under normal conditions. No photoreactive agents. **Conditions to Avoid:** Powerful sources of ignition & extreme temps. **Materials to Avoid:** Strong inorganic & organic acids, oxidizing & copper reactive agents. **Hazardous Decomposition Products:** Burning generates smoke, airborne soot, hydrocarbons & oxides of carbon, sulfur & nitrogen. Residue mainly comprised of soot & mineral oxides.

XI

Acute Toxicity: Not known. **Irritancy–Skin:** Very mild. **Skin Sensitization:** Not known. **Subacute/Sub-chronic Toxicity:** Not known.
Genotoxicity: None known. **Chronic Toxicity:** None known. **California Prop 65:** N/A **Carcinogen:** **NTP:** No **IARC:** No **OSHA:** No
EC Classification (67/548/EEC): No **Allergens:** None known. **LC-50:** >1.98mg/l (actual test data-mysidopsi bahia). **LD-50:** N/A

XII

Possible Effects: Highly unlikely to may gernerate oil fractions that could act as a marine pollutant. **Behavior:** Bioaccumulation potential nil. **Environmental Fate:** Highly unlikely to cause widespread contamination. Nontoxic to marine or land organisms.

XIII

Product Disposal: Do not incinerate. Contact waste disposal company or local authority for advice.
Container Disposal: Pails without liner–see Product Disposal section above. Pails with plastic liner–pail may only be disposed of via standard waste disposal services, recycled or reused. Liner–see Product Disposal section above.

XIV

D.O.T.: Bulk Nonhazardous D.O.T. exception CA2004080025 Aero Consumer Commodity ORM-D **UN No.:** Bulk Nonhazardous Aero 1950, Class 2.1 **Air Transport (ICAO & IATA):** Bulk Nonhazardous Aero Hazardous-pressurized container **Sea Transport (IMO & IMDG):** Bulk Nonhazardous Aero 1950, Class 2 **Road & Rail Transport (ADR/RID):** Bulk Nonhazardous Aero Class 2, Aerosols

XV

Labeling Information: None needed **EC Annex 1 Classification:** Not Applicable. **R Phrases:** R22—harmful if swallowed.
S Phrases: N/A, as known. **Ozone Depleting Chemicals:** N/A **TSCA:** All components are listed. **SARA 311/312:** None
WHMIS (Canada): Bulk Not controlled Aero Class A, B-5 **Canadian DSL:** All components listed. **TSCA 12B Components:** None
40 CFR Part 372 (SARA Section 313): This product contains copper. **CERCLA:** Nonhazardous **RCRA Hazard Class:** Nonhazardous

XVI

SDS first issued. SDS data revised. **New Jersey Right To Know:** See Section II

Signature: [signature]
Prepared by: Donald A. Oldiges
Date Issued: February 1, 2005

As of issue date, the information contained herein is accurate and reliable to the best of **JET-LUBE'S** knowledge. **JET-LUBE®** does not warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising out of the use thereof. It is the user's responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.

LEGEND

I. Identification of the substance/preparation and company
II. Composition information on ingredients
III. Hazards identification
IV. First aid measures
V. Fire fighting measures
VI. Accidental release measures
VII. Handling and storage
VIII. Exposure control/personal protection
IX. Physical and chemical properties
X. Stability and reactivity
XI. Toxicological information
XII. Ecological information
XIII. Waste Disposal
XIV. Transport information
XV. Regulatory Information
XVI. Other information

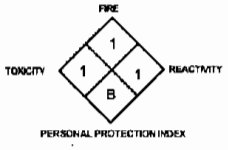
HMIS SYMBOL - BULK

HEALTH	1
FLAMMABILITY	1
REACTIVITY	1
PPI	B

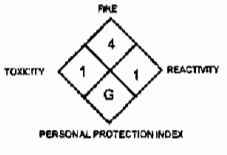
HMIS SYMBOL - AEROSOL

HEALTH	1
FLAMMABILITY	4
REACTIVITY	1
PPI	G

NFPA SYMBOL



NFPA SYMBOL



KOPR-KOTE®

HIGH TEMPERATURE ANTI-SEIZE AND GASKET COMPOUND

DESCRIPTION

KOPR-KOTE® is a low friction, anti-seize lubricant manufactured from a combination of micro-size copper flakes and graphite, dispersed in a water resistant grease and fortified with antioxidants, plus rust and corrosion inhibitors. **KOPR-KOTE** contains **CZ-EX® JET-LUBE's** EP additive, providing protection unequalled by competitive brands.

KOPR-KOTE provides a shield against metal-to-metal contact, preventing seizure and corrosion. It fills irregularities and imperfections and resists welding, hardening or setting. **KOPR-KOTE** provides low friction and cushions impact and shock loads. Low shear between particles reduces stick-slip, allowing quick disassembly with minimum wrench torque. It will not squeeze out of the threads, gum up or wash off.

- **Not classified as marine pollutant - DOT Approval CA2004080025**
- NSF Registered No. 120923
- Conforms to MIL-PRF-907E
- Service rating: -65°F (-54°C) to 1800°F (982°C).
- Contains no lead or zinc.
- Lowers friction; reduces wrench torque.
- Permits reuse of fittings; saves stud, bolt and nut replacement.
- Aluminum complex base for brushability and stability over a wide temperature range.
- Not affected by contraction, expansion or vibration.
- Will not run, drip or settle out.
- Available in convenient aerosol form.

APPLICATIONS

KOPR-KOTE is the ideal product to coat the grooves under the top seal and packed on oilfield B.O.P. rams. Also ideal for use on threaded connections, pump housings, flanges, studs, exhaust manifold bolts, compressor heads, autoclaves, lathe centers, etc.

PRODUCT CHARACTERISTICS

Thickener	Aluminum Complex
Fluid Type	Petroleum
Dropping Point (ASTM D-566)	450°F (232°C)
Specific Gravity	1.15
Density (lb/gal)	9.6
Oil Separation (ASTM D-6184)	<3.0
Wt. % Loss @ 212°F (100°C)	
Flash Point (ASTM D-92)	>430°F (221°C)
K-Factor	.15
High Chrome Alloys @ 60,000 PSI Contact Stress	
Penetration @ 77°F (ASTM D-217)	310 - 330
Copper Strip Corrosion (ASTM D-4048)	1A
4-Ball (ASTM D-2596)	
Weld Point, kgf	800
Load Wear Index	125
Propellant (aerosol)	Hydrocarbon
Spray Pattern (aero)	2-4" Cone @ 1'
VOC Content (EPA 624) (aero)	<330 g/liter

Shelf Life: Minimum two years from manufacture date.

PACKAGING

Code No.	Container Size	Container
10055	¼ lb.	Brush Top can
10002	½ lb.	Brush Top can
10004	1 lb.	Brush Top can
10007	2 lb.	Plug Top can
10041	12 oz.	Aerosol
10050	14 oz.	Cartridge
10091	1 gal.	Pail
10092	2½ gal.	Pail
10093	5 gal.	Pail

LIMITED WARRANTY

Jet-Lube, Inc. makes the Limited Express Warranty that at the date of delivery, this product shall be free from defects in Jet-Lube, Inc. materials and workmanship.

This Limited Express Warranty is expressly in lieu of any other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose, and of any other obligation on the part of Jet-Lube, Inc.

The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and Jet-Lube, Inc. shall not be liable for incidental or consequential damages.

CORPORATE LOCATIONS

Houston, Texas–World Headquarters

Maidenhead, England

Edmonton, Canada

JET-LUBE, INC.
4849 HOMESTEAD RD.,
P.O. BOX 21258 (77226-1258)
HOUSTON, TX 77028

WATS: 800-538-5823
PHONE: 713-674-7617
FAX: 713-678-4604
E-MAIL: sales@jetlube.com
www.jetlube.com

INDUSTRIAL INDUSTRIAL INDUSTRIAL INDUSTRIAL

ZEP Manufacturing Company of Canada
Acuity Specialty Products Group, Inc.
11627 - 178th Street
Edmonton, Alberta T5S 1N6
1-877-I-BUY-ZEP (428-9937)

Material Safety Data Sheet

and Safe Handling and Disposal Information

SECTION I - PRODUCT INFORMATION

Issue Date 04/11/05
Supersedes 04/05/02
Product Name **LEMONEX**
Product No. **0675**
Cleaner - Disinfectant - Deodorant

For MSDS Information:
Zep Manufacturing Company of Canada
Technical Services: (780) 453-8100

For Medical Emergency (24 Hour Service):
CANUTEC: **(613) 996-6666 Call Collect**

For a Transportation Emergency (24 Hour Service):
CANUTEC: **(613) 996-6666 Call Collect**

Printing date: 18/04/05

SECTION II - HAZARDOUS INGREDIENTS

** SODIUM METASILICATE ** silicic acid (H2-Si-O3) di_ sodium salt; water glass; CAS# 6834-92-0; RTECS# VV9275000; OSHA Dust Limit-2mg/m3 (for powders only). TLV: Not Available; % IN PROD: 1-5
LD50: 1153 mg/kg SPECIES: RAT ROUTE: ORL
LC50: Not Available SPECIES: Not Available ROUTE: Not Available

** ETHOXYLATED ALCOHOLS ** linear primary alcohol ethoxylate; CAS# 68439-46-3; RTECS# - NONE; OSHA PEL- N/D TLV: Not Available; % IN PROD: 5-10
LD50: Not Available SPECIES: Not Available ROUTE: Not Available
LC50: Not Available SPECIES: Not Available ROUTE: Not Available

** QUATERNARY AMMONIUM CHLORIDES ** blend of alkyl dimethylbenzyl ammonium chlorides and alkyl dimethyl ethylbenzyl ammonium chlorides; CAS# 55963-06-9; RTECS# EI1101000; OSHA PEL-N/D TLV: Not Available; % IN PROD: 1-5
LD50: 250 mg/kg SPECIES: RAT ROUTE: ORL
LC50: Not Available SPECIES: RAT ROUTE: IHL

** TETRASODIUM ETHYLENEDIAMINE TETRAACETATE ** ethylenedinitrilo tetraacetic acid, tetrasodium salt; EDTA; CAS# 64-02-8; RTECS# AH5075000; OSHA PEL N/D TLV: Not Available; % IN PROD: 1-5
LD50: 4830 mg/kg SPECIES: MUS ROUTE: ORL
LC50: Not Available SPECIES: Not Available ROUTE: Not Available

** TETRAPOTASSIUM PYROPHOSPHATE ** TKPP; diphosphoric acid, tetrapotassium salt; CAS# 7320-34-5; RTECS# NONE; OSHA PEL-N/D. TLV: Not Available; % IN PROD: 1-5
LD50: 2980 mg/kg SPECIES: RAT ROUTE: ORL
LC50: Not Available SPECIES: Not Available ROUTE: Not Available

THE WHMIS CLASSIFICATION FOR THIS PRODUCT IS: Not Available

SECTION III - TOXICOLOGICAL PROPERTIES

SPECIAL NOTE: MSDS data pertains to the product as dispensed from the container. Adverse health effects would not be expected under recommended conditions of use so long as prescribed safety precautions are practiced.

EFFECTS OF ACUTE EXPOSURE:
Product in concentrated form is a severe eye irritant. Overexposure may lead to eye tissue damage which can be permanent. Skin contact may produce irritation.

EFFECTS OF CHRONIC EXPOSURE:
Repeated or prolonged skin contact may produce chronic inflammation or dermatitis, characterized by redness, scaling, or itching. Repeated eye exposure may produce chronic inflammation of the eye or corneal damage. None of the hazardous ingredients are listed as carcinogens by IARC, NTP, or OSHA

PRIMARY ROUTES OF ENTRY: Eyes, Skin

SECTION IV - FIRST AID MEASURES

SKIN: Immediately flush contaminated skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops.

EYES: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids. Get medical attention at once.

INHALE: If symptoms occur, move affected person to fresh air. If symptoms persist, get medical attention promptly.

INGEST: If this product is swallowed, do not induce vomiting. If individual is alert, give plenty of water to drink. Get medical attention at once.

SECTION V - PHYSICAL DATA

BOILING POINT (C) : ~101
FREEZING POINT (C) : Not Available
VAPOR PRESSURE(mmHg) : Not Available
VAPOR DENSITY(AIR-1) : Not Available
SOLUBILITY IN WATER : COMPLETE
SPECIFIC GRAVITY : 1.07
VOC CONTENT (CONCENTRATE) : 0.7% 0.008 Kg/L
EVAPORATION RATE (WATER =1) : 1.0
pH(CONCENTRATE) : 13.0
pH(USE DILUTION OF 1:100) : 11.0
APPEARANCE AND ODOR : BLUE-GREEN, CLEAR LIQUID WITH LEMON-CITRUS FRAGRANCE.

SECTION VI - PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION:

PROTECTIVE CLOTHING: Wear neoprene, nitrile, or natural rubber gloves or gloves with proven resistance to the ingredients listed.

EYE PROTECTION. Wear splash-proof safety goggles especially if contact lenses are worn.

RESPIRATORY PROTECTION: Respiratory protection may be unnecessary since product does not give off significant quantities of vapor.

VENTILATION: If vapors are detected, ventilate work area by opening windows and using exaust fans.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Observe safety precautions in Section 6 during clean-up. Absorb spill on inert absorbent material (e.g. Zep-O-Zorb). Pick up and place residue in a suitable waste container. Wash area thoroughly with a detergent solution.

WASTE DISPOSAL METHOD:
Unusable material should be properly drummed. Consult local, provincial, and federal agencies for proper methods of disposal. Do not contaminate water supply when disposing of wastes or containers.

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING:
Store tightly-closed container in a dry area at temps. between 4-49 degrees C. Store away from strong acids and oxidizing compounds. Keep product away from skin and eyes. PRODUCT MAY DAMAGE OR DISCOLOR VINYL-SUCH AS TILE WALLPAPER, OR SHOWER CURTAINS- UNLESS PROPERLY DILUTED AND RINSED PROMPTLY & THOROUGHLY FROM THESE SURFACES. Keep out of the reach of children

TRANSPORTATION DATA
TDG I.D. NUMBER: UN1903
TDG PROPER SHIPPING NAME: DISINFECTANT, LIQUID, CORROSIVE, N.O.S.(MIXED QUATERNARY AMMONIUM COMPOUNDS)
TDG HAZARD CLASS: 8
TDG PACKAGING GROUP: II
TDG LABEL/PLACARD:CORROSIVE

SECTION VII - FIRE AND EXPLOSION HAZARDS

FLASH POINT(C) (METHOD USED): None TCC
FLAMMABLE LIMITS : LOWER: Not Available UPPER: Not Available
CONDITIONS OF FLAMMABILITY: Strong oxidizing agents.
AUTOIGNITION TEMPERATURE (C) : Not Available
MEANS OF EXTINCTION: Non-combustible
FIRE FIGHTING: None
FIRE HAZARD: None
HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.
EXPLOSION DATA: Not Available

SECTION VIII - REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY(AVOID): Strong oxidizing agents.
REACTIVITY: Will not occur.
HAZARDOUS DECOMPOSITION: Carbon dioxide, carbon monoxide, and other unidentified organic compounds.

SECTION IX - PREPARATION INFORMATION

Prepared By: Zep Technical Services, Zep Manufacturing Company of Canada, Edmonton, Alberta
For MSDS Information, telephone: (780) 453-8100

Date of Preparation : 04/11/05

LPS LABORATORIES, INC.
WHMIS
WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM

Section 1 • Product Identification and Use

Manufacturer's Name:
LPS Laboratories, Inc.
Street Address:
4647 Hugh Howell Road
City, Province:
Tucker, GA 30085-5052
Telephone Number: 770-934-7800
Emergency Telephone Number:
1-613-996-6666 CANUTEC

Product Identifier:
LPS® White Lithium Grease
Product Use:
Lubricating Grease
Part Numbers:
C03816
Packaging:
Aerosol (284 grams)
WHMIS Classification:
Class A, Class B Div. 5, Class D Div. 2B

Section 2 • Hazardous Ingredients

Ingredients	CAS Numbers	%w/w	LC-50	LD-50	TLV
Isohexane	107-83-5	30-40	Not available	Not available	Not available
Petroleum Oil	64742-52-5	15-20	Not available	Not available	5 mg/m^3**
Acetone	67-64-1	10-20	Not available	10.7 ml/kg	750 ppm
Isobutane / Propane Propellant	68476-85-7	20-30	Not available	Not available	1000 ppm

**Oil mist

Section 3 • Physical / Chemical Characteristics

Boiling point (C°): 70.2°
Vapor pressure @ 20°C (PSIA): 40-50
Vapor density (Air = 1): Approx. 3.0
Coefficient of water/oil distribution: <1
Physical state: Vicious liquid
Odor/Color: Off-white with mild solvent odor
Odor threshold (ppm): n.av.

Specific gravity (H20 = 1): 0.78-0.80
Evaporation rate (n-Butyl Acetate = 1): <1
Freezing Point (C°): n.ap.
pH: n.ap.
Solubility in water (% by weight): Nil
Percent volatile by volume (%): 77

Section 4 • Fire and Explosion Hazard

Flammability: Yes__X___ No _____ Hydrocarbon propellant exhibits a flashpoint of less than -100°C
Flash point: n.av. (Aerosol package) **Flammable limits** (propellant only): **LEL:** 1.8% **UEL:** 9.5%
Autoignition temperature: n.av.
Extinguishing media: Foam, dry chemical, or carbon dioxide. Water can be used to cool aerosols.
Hazardous combustion products: Carbon dioxide and carbon monoxide.
Sensitivity to impact: None **Sensitivity to static discharge:** Yes. See Section 7.
Special hazards (including explosion data): Excessive heat created by fire will cause aerosols to burst. Flammable vapors which are heavier than air may accumulate in low areas and/or spread along the ground away from handling site.

n.av. = not available
n.ap. = not applicable

Section 5 • Reactivity Data

Stability: Stable
Conditions to avoid: Open flames, electric areas and other hot surfaces which may cause thermal decomposition.
Incompatibility (Materials to avoid): Oxygen and strong oxidizing agents.
Hazardous decomposition products: Thermal decomposition may yield carbon monoxide and carbon dioxide.
Hazardous polymerization: Will not occur.
Reactivity and under what conditions: None known at this time

Section 6 • Toxicological Properties

Primary route(s) of entry: Eyes, skin.
Exposure limits: Not established (see Section 2).
Acute/effects of over exposure:

Inhalation: Headache, dizziness, giddiness, and central nervous system depression. May irritate mucosal tissue at high concentration.
Eyes: Vapor and liquid may cause irritation.
Skin: Repeated or prolonged contact may cause drying of skin. Can be absorbed through skin.
Ingestion: Not a likely route of exposure; however minute amounts aspirated into lungs during ingestion may cause severe pulmonary injury.

Chronic effects of exposure: None known at this time.
Carcinogenicity: None
Medical conditions generally aggravated by exposure: Pre-existing respiratory disorders.
Other toxicological properties (including reproductive toxicity, synergistic effects, sensitization, teratogenicity, mutagenicity): None known at this time.

Section 7 • Preventive Measures

Hands: Use solvent resistant gloves (nitrile, neoprene) when handling liquid.
Eyes: Use face shield or goggles when spraying or splashing liquid.
Respiratory: None required if good ventilation is maintained. If vapor concentrations rise above TLV, use a NIOSH approved organic vapor respirator or self-contained breathing apparatus.

Engineering controls: Local exhaust is usually adequate; however, mechanical ventilation should be used when spraying in enclosed areas. Vapor concentration should be minimized as much as possible.
Procedures to be followed in case of leak or spill: Ventilate area by opening windows and doors. Remove ignition sources. Remove leaking container and transfer remaining product to another vessel. For large spills, prevent product from going into sewers and water sources by diking or impounding. Use appropriate safety equipment, mop up or soak up with absorbent material, such as sand or clay, and transfer to disposal drums using non-sparking equipment. Caution: Surfaces may be slippery.
Waste disposal: Dispose of in accordance with municipal, provincial and federal regulations for petroleum distillates. Do not flush to the sewer.
Handling and storage procedures: Store aerosols below 50°C and above 0°C. Store away from ignition sources and avoid breathing vapors. Wash hands with soap and water after use, or before breaks and lunch and at the end of work periods. Remove contaminated clothing and launder before reuse. Vapors will collect in low areas, use and store with adequate ventilation.

H.M.I.S. Labeling:	**Health:** 1	**Fire:** 3	**Reactivity:** 0	
N.F.P.A. Labeling:	**Health:** 1	**Fire:** 3	**Reactivity:** 0	**Personal Protection:** 2

Section 8 • First Aid Measures

Emergency and fist aid measures:

Inhalation: Move to fresh air and contact physician. Administer oxygen if breathing is difficult.
Eyes: Flush with copious amounts of cold water and contact a physician.
Skin: Wash with soap and water; apply medicated skin cream.
Ingestion: Do not induce vomiting. Contact physician immediately.

Section 9 • Preparation Date of WHMIS

The foregoing technical information and recommendations are compiled from sources that are believed to be accurate and reliable. However, they are supplied without warranty or guarantee of any kind either expressed or implied. The purchaser is responsible for selecting and determining the suitability of products for purchaser's particular needs and we disclaim any responsibility for improper applications or misuse of our products in any manner whatsoever.

May 20, 2004
Ed Williams, Technical Manager
LPS Laboratories
A division of Illinois Tool Works

Form # 2923
LPS® White Lithium Grease

Epsilon Chemicals Ltd.
1926-94 STREET NW
Edmonton, AB. T6N 1J3

Material Safety Data Sheet

Rec'd May 8/06

Phone: 780-438-3040
In Case of Emergency Only:
Phone CANUTEC: 613-996-6666

Product Name	Code	Date Completed
LIQUID CIRCULATION CLEANER	ECT-629	23-Feb-06

WHMIS Classification
E

TDG Classification
Sodium Hydroxide Solution; Class 8; UN 1824; PG II

HAZARDOUS INGREDIENTS	%WT/WT	CAS NO.	TOXICITY DATA (LD50 & LC50)
Sodium Hydroxide (50% Sol.)	60-100	1310-73-2	LD50 Oral (rabbit) 500 mg/kg ACGIH TLV - 2 mg/m3

PHYSICAL DATA FOR PRODUCT

Physical State	Vapour Pressure	Vapour Density
Liquid	2 mm Hg at 20C	N/A

pH	Evaporation Rate
Highly alkaline	N/A

Boiling Point (C)	Sp. Gravity	Freezing Point (C)	Solubility in Water
N/A	1.465	N/A	100%

Appearance and Odour
Clear, slightly viscous liquid.

FIRE AND EXPLOSION DATA FOR PRODUCT

Fire Extinguishing Substances (√)

Water fog	CO2	Other	**Detail:** N/A
Foam	Dry Chem		

Reactivity Data For Product

INCOMPATIBILITY (√)

Acid	Base	Water	Oxidizing Material	Other
☑	☐	☐	☑	☑

Detail:
Chlorinated hydrocarbons, ammonia, aluminum, tin, lead and zinc.

Hazardous Decomposition Products
Hydrogen (from contact with aluminum and other metals mentioned above).

Chemical Stability
Stable under normal conditions.

Hazardous Combustion Products
Unknown

Special Fire Fighting Procedures
Use water spray to disperse vapours. Use self contained breathing apparatus and special protective clothing.

Flammable Limits in air, % by vol. Non-Flammable:

Upper	Lower	Flash Point (Test Method)
N/A	N/A	N/A

HEALTH HAZARD INFORMATION FOR PRODUCT

Emergency and First Aid Procedures

Inhalation: Remove to fresh air and get medical attention.

Ingestion: Get medical help immediately. Rinse mouth well with water and give patient large quantities of water or milk to drink to dilute the chemical. Do not induce vomiting.

Eyes: Flush with plenty of water for at least 20 minutes. Get medical attention.

Skin: Remove contaminated clothing immediately and flush with water for at least 15 minutes. Get medical help. No oil or ointment should be applied.

EFFECTS OF OVEREXPOSURE (ACUTE AND CHRONIC)

Inhalation : Mist may cause irritation of respiratory tract, inflammation of the lungs.

...gestion : Burning in mouth and esophagus; nausea, vomiting, abdominal pain and diarrhea. Perforation of gastrointestinal tract may occur. May be fatal.

Eyes : Causes severe irritation to the mucous membranes of the eyes. May cause ulceration of the eye. Glaucoma, cataracts, and permanent blindness may occur.

Skin : Severe irritation and burns to the skin. Damage may be delayed.

PREVENTIVE MEASURES

Spillage With large spills dyke for later disposal. Neutralize with diluted acid - like hydrochloric or sulphuric acid. Minor spills can be neutralized and flushed with plenty of water.

Waste Dip.Method Waste product should not be discharged into sewers or streams. It should be first neutralized with dilute acid and then discharged according to federal, local and provincial regulations.

nd. & Stor. Requir. Store in cool area above freezing point of product. When diluting always add product slowly to water to prevent boiling and splattering.

Ventilation Use under well ventilated area.

Resp. Protection A mask should be worn.

Eye Protection Chemical workers goggles.

Other Protection Rubber, vinyl or neoprene gloves and coveralls should be worn.

Material Safety Data Sheet

ECOLAB

LC 30

Section 1. Chemical product and company identification

Trade name : LC 30
Product use : Cleaning product
Supplier : Ecolab Food and Beverage
5105 Tomken Road
Mississauga ON L4W 2X5
1-800-352-5326
Code : 934562
Date of issue : 07-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
phosphoric acid	7664-38-2	15 - 40
alcohols, c12-16, ethoxylated	68551-12-2	1 - 5

Section 3. Hazards identification

Physical state : Liquid. (Liquid.)
Emergency overview : DANGER!
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
HARMFUL IF SWALLOWED.
Do not ingest. 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.
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. Obtain medical attention immediately.

Section 5. Fire-fighting measures

Auto-ignition temperature : Not available.
Flash point : > 100°C
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 : Do not ingest. Do not get in eyes, on skin or on clothing. Do not breathe vapour or mist. Keep container closed. Do not mix with bleach or other chlorinated products – will cause chlorine gas. 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.
Do not store above 40°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. Provide eyewash and safety shower in area if contact or splash hazard exists.

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
phosphoric acid	**ACGIH TLV (United States, 1/2005).** STEL: 3 mg/m³ 15 minute/minutes. Form: All forms TWA: 1 mg/m³ 8 hour(s). Form: All forms