Material Safety Data Sheet

signaletique

WESTCOAST DRILLING SUPPLIES LTD.
8069 River Way, Delta, British Columbia,
Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	BIG BEAR DIAMOND DRILL ROD GREASE
CHEMICAL FAMILY:	Hydrocarbon
WHMIS CLASSIFICATION:	Not regulated
WORK PLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not regulated
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Severely hydrotreated naphthenic oils	< 75.00%	64742-52-5	>3 g/kg (Dermal Rabbit) >5 g/kg (Oral Rat)	N/D
Barium soap	< 35.00%	68201-19-4	Not determined	

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [ ] Eye Contact, [ ] Inhalation, [ ] Ingestion

SKIN CONTACT:	Acute exposure is believed to be minimally irritating
EYE CONTACT:	Acute exposure is believed to be minimally irritating.
INHALATION:	Believed to by minimally irritating if not in excess of permissible concentrations; see Section VIII.
INGESTION:	Not available
CHRONIC OVEREXPOSURE:	Not determined
IRRITATION INDEX:	SKIN: Believed to be 1.0 - 2.0/8.0 (Rabbit); slightly irritating EYES: Believed to be <15/110 (Rabbit); no appreciable effect
SYMPTOMS OF EXPOSURE:	None expected other than possible minor irritation. Considered practically non-toxic.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: None considered necessary.
EYE CONTACT: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.
INHALATION: None considered necessary.
INGESTION: None considered necessary. Do not induce vomiting.
OTHER INSTRUCTIONS: In some cases of ingestion and/or inhalation, medical attention should be obtained.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Brownish yellow, fibrous grease
DENSITY (SPECIFIC GRAVITY):	>1.0
BOILING POINT:	700° F
MELTING POINT:	400° F
WATER SOLUBILITY:	Negligible
% VOLATILE BY VOLUME:	Not determined

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BIG BEAR DIAMOND DRILL ROD GREASE

EVAPORATION RATE:	Not determined
VAPOR PRESSURE (mm Hg):	Not determined (low)
VAPOR DENSITY (Air =1):	>1.0
pH:	Not applicable
VISCOSITY:	NLGI No. 3-4 grease

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	>350° F (COC Method)
FLAMMABLE LIMIT:	Not determined
EXTINGUISHING MEDIA:	According to the National Fire Protection Association Guide, use water spray. Dry chemical, Foam, Carbon Dioxide CO_2. Water or foam may cause frothing.
SPECIAL FIRE FIGHTING PROCEDURES:	Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protec tion for persons attempting to stop the leak. See Hazardous Decom position Products, Section VII.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ] Info not available

INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS:	This material decomposes at a high temperature to form carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulphur.
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	None required if exposures are within the permissible concentrations. See below
VENTILATION:	Natural dilution
PROTECTIVE GLOVES:	Neoprene
EYE PROTECTION:	Chemical type goggle or face shield optional
OTHER PROTECTIVE EQUIPMENT:	Standard work clothing and work shoes.
PERMISSIBLE CONCENTRATIONS: AIR:	5mg/cubic metre of air for mineral oil mist averaged over an 8 hour daily exposure (ACGIH 1986 - 87)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Exposed persons should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water and laundering or dry cleaning soiled work clothing at least weekly. Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

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BIG BEAR DIAMOND DRILL ROD GREASE

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

WASTE DISPOSAL METHOD:

Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may influence waste classification. Disposal should be in accordance with applicable federal, provincial and local regulations.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: September 17, 1993
BY: Product Safety Committee

DATE REVISED: April 1, 2000

Material Safety Data Sheet / Fiche signalétique

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	CAL-SEAL (EA-2)
CHEMICAL FAMILY:	Calcium Sulphate
PRODUCT USE:	Cementing
WHMIS CLASSIFICATION:	Not a controlled product under WHMIS
WORK PLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not Dangerous Goods
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Calcium Sulphate Hemihydrate	>60%	10124-36-4	Not determined	Not determined

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [XXX] Inhalation, [XXX] Ingestion

SKIN CONTACT:	May cause mild allergic skin reaction in susceptible individuals.
EYE CONTACT:	Dust may irritate eyes
INHALATION:	Dust may irritate upper respiratory passages.
INGESTION:	Not available
EFFECTS OF CHRONIC EXPOSURE:	Prolonged or repeated skin contact may cause severe irritation or burns especially if skin is moist or if material is confined.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Immediately flush skin with water for at least fifteen (15) minutes. Remove contaminated clothing and footwear; wash before re-use. Seek medical attention. Wash dust if irritating to the eyes, skin and respiratory system.
EYE CONTACT: Immediately flush eyes with plenty of water for at least fifteen (15) minutes occasionally lifting the eyelids. Seek immediate medical attention.
INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. If breathing is difficult, give oxygen. Get immediate medical attention.
INGESTION: If swallowed, *do not induce vomiting*. Give up to one (1) quart of water or milk to dilute. Seek immediate medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	White solid; powder; odorless
DENSITY (SPECIFIC GRAVITY):	2.700
BOILING POINT:	Not applicable
MELTING POINT:	Not applicable
WATER SOLUBILITY:	0.2% at 20° C
% VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE (mm/Hg):	Not applicable
VAPOR DENSITY (Air=1):	Not applicable
pH:	10.4

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CAL-SEAL (EA-2)

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not determined
EXTINGUISHING MEDIA:	Use media appropriate for surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self contained respirators required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Not applicable

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID):	None
HAZARDOUS DECOMPOSITION PRODUCTS:	None
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest NIOSH/MESA approved dust mask.
VENTILATION:	Ten (10) changes per hour suggested
PROTECTIVE GLOVES:	Suggest plastic or rubber
EYE PROTECTION:	Suggest goggles.
OTHER PROTECTIVE EQUIPMENT:	Suggest rubber apron.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in a dry location to protect product quality. Avoid creating or inhaling dust. Avoid contact with skin, eyes and clothing.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Use protective equipment. Sweep up to remove. Avoid creating or inhaling dust.

WASTE DISPOSAL METHOD:

If not contaminated, reuse product. Get approval from landfill operator to transport to sanitary landfill.

SECTION IX: PREPARATION

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DATE ISSUED: March, 22, 1989

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BY: Product Safety Committee

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**550X POLYMER**
CHEMICAL FAMILY:	Copolymer of Acrylamide and Sodium Acrylate
PRODUCT USE:	Drilling Mud Additive
WHMIS CLASSIFICATION:	Not a Controlled Product under WHMIS
WORK PLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not applicable
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
No Hazardous Ingredients				

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[ ] Skin, [ ] Eye Contact, [XXX] Inhalation, [ ] Ingestion

SKIN CONTACT:	Prolonged contact may cause skin irritation or dermatitis in some individuals.
EYE CONTACT:	May cause irritation.
INHALATION:	May cause sneezing, slight irritation of nose and throat.
INGESTION:	Not available
EFFECTS OF ACUTE EXPOSURE:	Not available
EFFECTS OF CHRONIC EXPOSURE:	Not available

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE CONTACT: Immediately flush eyes with water for fifteen (15) minutes and call a physician.
INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
INGESTION: Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	White granular solid; faint odor
DENSITY (SPECIFIC GRAVITY):	0.80
BOILING POINT:	Decomposes
MELTING POINT:	Not applicable
WATER SOLUBILITY:	Soluble
% VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE (mm Hg):	Very low
VAPOR DENSITY (Air = 1):	Not applicable

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550X POLYMER

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not applicable
EXTINGUISHING MEDIA:	Dry chemical, foam, CO_2
SPECIAL FIRE FIGHTING PROCEDURES:	Use self-contained respirators for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Oxides of carbon and nitrogen and products of incomplete combustion.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents and caustic solutions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Not applicable
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur [ ]

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest NIOSH/MESA approved dust mask.
VENTILATION:	Ten (10) changes per hour suggested.
PROTECTIVE GLOVES:	Suggest plastic or rubber.
EYE PROTECTION:	Suggest goggles.
OTHER PROTECTIVE EQUIPMENT:	Suggest rubber apron.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid prolonged or frequent contact when handling material. Do not inhale dust or breathe vapor. Keep container closed when not in use. Store in a cool and dry location away from oxidizing and reducing agents.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Ventilate area. Wear rubber boots, gloves and a self contained breathing apparatus if ventilation is not adequate. Collect into a waste container. Avoid raising dust. Wash spill site after material pick-up. Water solutions are very slippery. May constitute a hazard following a spill.

WASTE DISPOSAL METHOD:

Dispose of waste according to federal, provincial and local regulations.

SECTION IX: PREPARATION

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DATE ISSUED: January 1, 1991

DATE REVISED: April 1, 2000

BY: Product Safety Committees

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550X POLYMER

AMENDMENT
HAZARDOUS INGREDIENTS (550X)

Material or component	WT%	Hazard data
COPOLYACRYLAMIDE/SODIUM ACRYLATE		Not considered hazardous

ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY:	Not determined
OCTANOL/WATER PARTITION COEFFICIENT:	Not determined
WASTE DISPOSAL METHODS:	Incineration and/or disposal in Chemical Landfill. Disposer must comply with federal, provincial and local disposal or discharge laws.
RCRA STATUS OF UNUSED MATERIAL IF DISCARDED:	Not a "Hazardous Waste".
HAZARDOUS WASTE NUMBER:	Not available

REPORTABLE QUANTITY:	EPA 40 CFR (CERCLA 102):	Not applicable
THRESHOLD PLANNING QUANTITY:	EPA 40 CRF 355 (SERA 301-304):	Not applicable
TOXIC CHEMICAL RELEASE REPORTING:	EPA 40 CFR 372 (SERA 311-313):	Not applicable

EPA HAZARD CLASSIFICATION CODE:	ACUTE - YES	CHRONIC - NO
	FIRE - NO	PRESSURE - NO
		REACTIVE - NO

HMIS AND NFPA RATINGS:	HMIS	NFPA
HEALTH	1	1
FLAMMABILITY	0	0
REACTIVITY	1	1
SPECIAL	Not applicable	Not applicable

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	LINSEED SOAP
CHEMICAL FAMILY:	Lubricating grease
WHMIS CLASSIFICATION:	Not regulated
WORK PLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not available
PACKAGE GROUP:	Not available
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable (Petroleum Lubricating Grease)

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Linseed Soap	100%	Mixture		

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY: (Information not available)
[ ] Skin, [ ] Eye Contact, [XXX] Inhalation, [ ] Ingestion

SKIN CONTACT:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.
EYE CONTACT:	Not available.
INHALATION:	Inhalation of oil mist or vapors from hot grease may cause irritation of the upper respiratory tract. Long term intensive exposure may cause benign lung fibrosis.
INGESTION:	Not available.
CHRONIC OVEREXPOSURE:	Not determined.
IRRITATION INDEX: SKIN:	Not available.
SYMPTOMS OF EXPOSURE:	Not available.
EXPOSURE INFORMATION:	Oil mist (particulate): 5 mg/M^3 (TLV/TWA) ACGIH 88/89 10 mg/M^3 (TLV/STEL) ACGIH 88/89

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove contaminated clothing. Wash contaminated skin with mild soap and water. Wipe excess from skin.
EYE CONTACT:	Flush eyes with water for at least fifteen (15) minutes.
INHALATION:	Remove victim from further exposure. Additional first aid treatment is not ordinarily required.
INGESTION:	Do not induce vomiting. Obtain medical attention immediately.
OTHER INSTRUCTIONS:	None

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Semi-solid brown colored grease; slight hydrocarbon odor.
DENSITY (SPECIFIC GRAVITY):	1.0
BOILING POINT:	100° C
MELTING POINT:	Not available
WATER SOLUBILITY:	Miscible

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LINSEED SOAP

% VOLATILE BY VOLUME:	Not available
EVAPORATION RATE:	Not available
VAPOR PRESSURE: (mm Hg)	Not available
VAPOR DENSITY: (Air = 1)	Not available
pH:	9.5
VISCOSITY:	Not available

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	222° C
FLAMMABLE LIMIT:	Not available
AUTO IGNITION TEMP:	343° C
EXTINGUISHING MEDIA:	Dry chemical, carbon dioxide CO_2, foam water fog.
SPECIAL FIRE FIGHTING PROCEDURES:	No special procedures - Avoid inhalation of smoke. Caution, spilled material is slippery. Use water to cool fire-exposed containers.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None currently known.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Not available.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide; carbon dioxide and dense smoke are produced on combustion. Avoid excessive heat, formation of vapors or mists.
HAZARDOUS POLYMERIZATION:	Will not occur [ ] May occur [ ] Not Available

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Under conditions of high heat use an air purifying respirator (mechanical filter with accompanying organic vapor cartridge).
VENTILATION:	Highly recommended for all indoor situations to control fugitive emissions. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved.
LOCAL:	If oil mist is present or if exposure is exceeded.
MAKE-UP AIR:	Should always be supplied to balance air exhausted (either generally or locally).
PROTECTIVE GLOVES:	Impervious gloves (viton, nitrile, PVC neoprene) should be worn at all times when handling this product.
EYE PROTECTION:	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 PROTECTIVE EQUIPMENT:	Impervious clothing (apron, coveralls) should be worn in confined workspaces or where the risk of skin exposure is much higher.
PERMISSIBLE CONCENTRATIONS:	Not available.

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LINSEED SOAP

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in a cool, dry, well ventilated area, away from heat and ignition sources. Avoid excessive heat, formation of oil mist, breathing of vapors and mist of hot oil and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Properly dispose of contaminated leather articles, including shoes, that cannot be decontaminated.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Spilled material is slippery. Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Contain a land spill by diking. For large spills remove by mechanical means and place in containers. Clean area with appropriate cleaner. Do not allow product to run off from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities.

WASTE DISPOSAL METHOD:

Reclaim or dispose of at a licensed waste disposal company.

SECTION IX: PREPARATION

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DATE ISSUED: May 28, 1991

DATE REVISED: April 1, 2000

BY: Product Safety Committee

Material Safety Data / Fiche signalétique

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	LUBTUB
CHEMICAL FAMILY:	Sodium polyacrylate
PRODUCT USE:	Drilling fluid additive
WHMIS CLASSIFICATION:	D2B
WORK PLACE HAZARD:	Skin and eye irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not dangerous goods
PACKAGE GROUP:	Not applicable
PRODUCT IDENTIFICATION NUMBER (Pin):	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT(%)	CAS#	LD_{50} (oral rat)	LD_{50} (dermal rabbit)	LC_{50} (inhalation rat)
Sodium salt of polyacrylic	15-40	9003-04-7	not determined	not determined	not determined

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY [XXX] Skin [XXX] Eye Contact [XXX] Inhalation [XXX] Ingestion

THRESHOLD LIMIT VALVE	Not determined
SKIN CONTACT	Prolonged contact may cause skin irritation or dermatitis in some individuals.
EYE CONTACT	May cause watering of eyes and inflammation of conjunctiva
INGESTION	May cause nausea and vomiting.
INHALATION	If misted, may cause sneezing, slight irritation of nose and throat.

SECTION IV: TOXICOLIGICAL INFORMATION

CARCINOGENICITY	not determined
REPRODUCTIVE TOXICITY	not determined
TERATOGENICITY	not determined
MUTAGENICITY	not determined
DEVELOPMENTAL TOXICITY	not determined

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LUBTUB

SECTION V: FIRST AID MEASURES

SKIN CONTACT:	Wash exposed area with soap and water. If irritation or abnormalities persist, seek medical attention.
EYE CONTACT:	Immediately flush eyes with water for 15 minutes and seek medical attention,. Contact lenses should not be worn when working with this material.
INGESTION:	If victim is conscious and alert induce vomiting by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Seek medical attention.
INHALATION:	Remove to fresh air, if not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

SECTION VI: PHYSICAL DATA

APPEARANCE	Clear to hazy light amber liquid
ODOR	Sweet odour
SPECIFIC GRAVITY	1.1
BOILING POINT (^{0}C)	not determined
MELTING POINT (^{0}C)	not determined
SOLUBILITY IN WATER	Miscible
PERCENT VOLATILE BY VOLUME	not determined
EVAPORATION RATE	not determined
VAPOR PRESURE (mm Hg)	not determined
VAPOR DENSITY (Air = 1)	not determined
pH	6 – 8

SECTION VII: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	>100 ^{0}C (TCC)
FLAMMABLE LIMITS	not determined
EXTINGUISHING MEDIA	CO2, Foam, dry chemical, water spray
SPECIAL FIRE FIGHTING PROCEDURES	Use full protective equipment and self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Though the product is not flammable, evaporation of sufficient quantities of material could render the product combustible.

SECTION VIII: REACTIVITY DATA

STABILITY	[XXX] Stable	[ ] Unstable
INCOMPATIBILITY (Conditions to avoid)	Strong oxidizers	
CONDITIONS OF REACTIVITY	None known	
HAZARDOUS DECOMPOSITION PRODUCTS	CO_X and smoke on combustion	
HAZARDOUS POLYMERIZTION	[XXX] Will not occur	[ ] May occur

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LUBTUB

SECTION IX: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	Use NIOSH approved cartridge respirator when exposure is likely to be excessive.
VENTILATION	General mechanical
PROTECTIVE GLOVES	Chemically resistant
EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT (Specify)	None known

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

(Use appropriate safety equipment.) Small spills, soak up with absorbent material.
Large spills, dike to contain spill to prevent water pollution.
Recover diked material, return recovered material to plant.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid ingestion.
Practice reasonable caution and personal cleanliness.
Avoid skin and eye contact.
Store in a cool well ventilated area.

WASTE DISPOSAL METHOD

Absorb spilled material with absorbent compound, incinerated/dispose to conform with local disposal regulations.

SECTION X: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED IS MADE.

DATE ISSUED: November 10, 1990
SUPERSEDES: April 1997
BY: Product Safety Committee

DATE REVISED: April 1, 2000
DATE REVISED: January 2002

SECTION 1. CHEMICAL IDENTIFICATION

CHEMINFO Record Number: 25
CCOHS Chemical Name: Gasoline

Synonyms:

Automotive Gasoline
Petrol
Motor Spirits
Benzin
Natural Gasoline
Gasolene
Gas

Chemical Name French: Essence (Gazoline) // Essence

CAS Registry Number:	8006-61-9
Other CAS Registry Number (s):	8006-61-9 68425-31-0 68514-15-8 68606-11-1
UN/NA Number(s):	1203
RTECS Number(s):	LX3300000
Chemical Family:	Mixed hydrocarbons / petroleum hydrocarbon distillate
Molecular Formula:	Complex. See Composition.
Structural Formula:	Complex

Status of Record:

The CHEMINFO record for this chemical is complete. The full format provides a detailed evaluation of health, fire and reactivity hazards, as well as recommendations on topics such as handling and storage, personal protective equipment, accidental release and first aid.

SECTION 2. DESCRIPTION

Appearance and Odour:

Colourless liquid with a characteristic odour. It may be dyed for recognition.

Odour Threshold:

0.12-0.15 ppm (recognition); 0.06-0.08 ppm (threshold) (1)

Warning Properties:

GOOD - TLV is more than 10 times the odour threshold.

Composition/Purity:

This CHEMINFO record refers to common, commercial unleaded gasoline used for automotive purposes, unless otherwise specified. Gasoline is a complex mixture of petroleum hydrocarbons. The composition of the hydrocarbons depends on factors such as the origin of the crude oil used for refining and refining conditions. In general, the hydrocarbon groups consist of chains containing 4 to 12 carbons, and are mostly paraffins (alkanes), isoparaffins (isoalkanes), cycloparaffins (cycloalkanes) and aromatics. n-Hexane (1.5-3.0%) and benzene (0.5-2.0%) are normally present. In

addition, trace or small amounts of additives and blending agents such as anti-knock compounds (MMT - methylcyclopentadienyl manganese tricarbonyl), anti-icing agents, anti-rust agents and metal deactivators can be found in gasoline. The chemical and physical properties of gasoline are highly variable depending on the specific product. As well, the hazards of gasoline are affected by the proportion of individual components. For example, gasoline containing a significant proportion of n-hexane may have toxic effects attributable to n- hexane. For information on specific components in gasoline consult the manufacturer or the appropriate CHEMINFO record.

Uses and Occurrences:

Fuel for motor vehicles; some use as diluent and solvent.

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Colourless liquid with characteristic odour. May be dyed yellow. EXTREMELY FLAMMABLE LIQUID AND VAPOUR. Liquid can accumulate static charge by flow or agitation. Vapour is heavier than air and may spread long distances. Distant ignition and flash back are possible. Liquid can float on water and may spread to distant locations and/or spread fire. POSSIBLE CANCER HAZARD. May cause cancer, based on animal data. Central nervous system depressant. High vapour concentrations may cause headache, nausea, dizziness, drowsiness, unconsciousness and death. Aspiration hazard. Swallowing or vomiting of the liquid may result in aspiration into the lungs.

POTENTIAL HEALTH EFFECTS

Effects of Short-Term (Acute) Exposure

Inhalation:

Gasoline vapours can cause central nervous system (CNS) depression.(1) No significant effects except eye and throat irritation were seen in volunteers exposed for 30 minutes to concentrations as high as 1054 ppm, or for 8 hours to concentrations around 150-270 ppm.(6,7) Mild dizziness was experienced by volunteers exposed for 1 hour to 2600 ppm. Pronounced dizziness was experienced by volunteers after about 5 minutes exposure to about 1100 ppm.(6) Other CNS effects such as headache, lack of appetite, drowsiness and incoordination can occur. In one case, exposure for a few minutes to very high concentrations (above 5000 ppm) of aviation gasoline caused unconsciousness, pulmonary edema (a life-threatening accumulation of fluid in the lungs) and death.(15)

Skin Contact:

When gasoline is NOT trapped against the skin and can freely evaporate, it is probably only mildly irritating or not irritating. However, case reports indicate that when gasoline is trapped against the skin (clothing is soaked in gasoline, skin is in contact with a puddle) for a long period (probably more than 30 minutes), serious burns and skin loss may occur. Absorption through the skin occurs, but is normally not significant.(1,8)

Eye Contact:

Irritation reported by volunteers exposed to vapour concentrations as low as

164 ppm for 30 minutes.(7) The liquid may cause temporary pain if splashed in the eye(s), but probably does not cause permanent damage. No significant irritation was observed in studies with rabbits.

Ingestion:

Gasoline is moderately toxic if ingested. It may cause burning in the mouth, throat and chest as well as stomach irritation, nausea, vomiting and cyanosis (bluish discoloration of the fingertips, toes, lips and other extremities). Central nervous symptom depression, such as unconsciousness and coma, can occur. Inhalation of gasoline into the lungs (aspiration) can occur while gasoline is in the mouth, being swallowed or during vomiting. Aspiration often occurs when gasoline is siphoned by mouth. The aspiration of even a small amount (less than an ounce) of gasoline into the lungs is very hazardous and may cause death. Aspirated gasoline can cause chemical pneumonitis (inflammation of the lungs) and/or pulmonary edema (a life- threatening accumulation of fluid in the lungs).(1,11,12,13)

Effects of Long-Term (Chronic) Exposure

EFFECTS ON THE SKIN: Repeated or prolonged contact can dry the skin (removes fat from skin) and cause cracking, irritation and dermatitis. Allergic reactions (hypersensitivity) have been reported but these are rare occurrences.(1,10)

EFFECTS ON THE BLOOD: There are reports of effects on the blood in gasoline tanker crewmen and painters who were exposed to gasoline.(5) These workers were probably exposed to other chemicals and therefore it is not possible to establish a causal relationship. However, benzene is known to cause harmful effects on the blood and may be present in gasoline in small amounts.

EFFECTS ON THE PERIPHERAL NERVOUS SYSTEM: Gasoline is composed of different paraffins (alkanes) such as n-hexane. Prolonged and/or repeated exposure to n-hexane can cause irreversible damage to the peripheral nervous system. Whether or not exposure to gasoline can cause this effect depends on the presence of n- hexane and its concentration and on the degree and duration of exposure.

EFFECTS ON THE NEUROLOGICAL SYSTEM: Abuse of gasoline by inhalation of the vapours by so-called "sniffers" has resulted in many neurological effects. Dizziness, tremor, visual and auditory hallucinations, and loss of memory were symptoms reported in case studies of abusers who sniffed vapours sometimes daily for years. (16,17,18) These situations are not relevant to occupational exposures.

Effects on memory, intellectual capacity, psychomotor and learning ability were seen in attendants exposed to gasoline vapours at gas stations. The most significant effects were seen in attendants exposed for more than 5 years. Very little effect was seen in attendants with less than 1 year of exposure.(26) The exposure concentrations were not cited in the study. Therefore, it is difficult to evaluate the results.

Carcinogenicity:

The available human information is inadequate for evaluation because there is no detailed data concerning actual exposure to gasoline. Unleaded gasoline caused kidney cancers in male rats and liver cancers in female mice. Gasoline may contain known carcinogens (e.g. benzene, ethylene dibromide).

The International Agency for Research on Cancer (IARC) has concluded that this chemical is possibly carcinogenic to humans (Group 2B).

The American Conference of Governmental Industrial Hygienists (ACGIH) has designated this chemical as an animal carcinogen (A3).

The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens.

Teratogenicity and Embryotoxicity:

No human information available. No effect seen in one rat study.

Reproductive Toxicity:

No information suitable for evaluation. There is a Russian study of women exposed to gasoline above the maximum permissible level which described effects on menstrual cycle, and childbearing and lactation functions were observed. Also, a number of newborns were malformed. The actual exposure concentration and the length of exposure were not cited and so this study is not suitable for evaluation.(25)

Mutagenicity:

The bulk of the data indicate gasoline is not mutagenic or genotoxic. There was a positive effect seen in one in-vivo and one in-vitro test.

Toxicologically Synergistic Materials:

Methyl ethyl ketone or methyl isobutyl ketone enhance the action of n-hexane. n-Hexane is one type of paraffin (alkane) found in gasoline.

Potential for Accumulation:

Inadequate information for evaluation.

SECTION 4. FIRST AID MEASURES

Inhalation:

This product is flammable. Take proper precautions (e.g. remove any source of ignition). Take proper precautions to ensure your own safety before attempting rescue; (e.g., wear appropriate protective equipment, use the "buddy" system). Remove source of contamination or move victim to fresh air. If breathing has stopped, trained personnel should begin artificial respiration (AR), or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Immediately transport victim to an emergency care facility.

Skin Contact:

Avoid direct contact. Wear chemical protective clothing if necessary. Quickly and gently blot or brush away excess chemical quickly. Wash gently and thoroughly with water and non-abrasive soap for 5 minutes or until the chemical is removed. Under running water, remove contaminated clothing, shoes, and leather goods (e.g., watchbands, belts). If irritation persists, repeat flushing. Obtain medical advice immediately. Completely decontaminated clothing, shoes and leather goods before re-use or discard.

Eye Contact:

Avoid direct contact. Wear chemical protective clothing if necessary. Quickly and gently blot away chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the chemical is removed, while holding the eyelid(s) open. Obtain medical advice immediately.

Ingestion:

Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediate. Quickly transport victim to an emergency care facility.

First Aid Comments:

Provide general supportive measures (comfort, warmth, rest). Consult a physician and/or the nearest Poison Control Centre for all exposures except minor instances of inhalation or skin contact. All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point:

-43 deg C (-45 deg F) (19); -38 deg C (-36 deg F) (19); -30 deg C (-22 deg F) (22)

Lower Flammable (Explosive) Limit (LFL/LEL):

1.4% (19); 0.6% (21)

Upper Flammable (Explosive) Limit (UFL/UEL):

7.6% (19); 8.0% (21)

Autoignition (Ignition) Temperature:

257 deg C (495 deg F) (20); 280 deg C (536 deg F) (19,22); 400 deg C (750 deg F) (23); 456 deg C (853 deg F) (19)

Sensitivity to Mechanical Impact:

Probably not sensitive. Stable material.

Sensitivity to Static Charge:

Vapour can be readily ignited by static charge. Liquid can accumulate static charge by flow or agitation.

Combustion and Thermal Decomposition Products:

Hydrocarbons, aromatics, oxides of nitrogen, lead and other trace elements, phenols, polynuclear aromatic hydrocarbons.

Fire Hazard Summary:

Extremely flammable. Material will readily ignite at room temperature. Can release vapours that form explosive mixtures with air. Liquid can accumulate static charge by flow or agitation. Vapour can be ignited by static discharge. Vapour is heavier than air and may travel a considerable distance to a source of ignition and flash back to a leak or open container. Liquid can float on water and may travel to distant locations and/or spread fire. During a fire, irritating/toxic gases may be generated. Can accumulate in confined spaces, resulting in a toxicity and flammability hazard. Containers may

explode in heat of fire.

Extinguishing Media:

Carbon dioxide, dry chemical, foam, water spray or fog. Water may be ineffective, since it may not cool gasoline below its flash point.

Fire Fighting Instructions:

Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Stop leak before attempting to put out the fire. If the leak cannot be stopped, and if there is no risk to the surrounding area, let the fire burn itself out. If the flames are extinguished without stopping the leak, vapours could form explosive mixtures with air and reignite. Isolate materials not yet involved in the fire and protect personnel. Containers may explode in the heat of fire. Move containers from fire area if this can be done without risk. Otherwise, keep cooling streams of water on fire-exposed tanks or containers. Water may be ineffective for fighting fires involving gasoline because of its low flash point, unless used under favourable conditions by experienced firefighters trained in fighting all types of flammable liquid fires. However, water can be used on low flash point liquids when applied as a spray to absorb heat and protect exposed material of structures. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Solid streams of water may be ineffective and spread material. For a massive fire in a large area, use unmanned hose holder or monitor nozzles. If this is not possible, withdraw from fire area and allow fire to burn. Stay away from ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. Chemical resistant clothing (e.g. chemical splash suit) and positive pressure self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) may be necessary.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD IDENTIFICATION

NFPA - Health:	1 - Exposure would cause significant irritation, but only minor residual injury.
NFPA - Flammability:	3 - Liquids and solids that can be ignited under almost all ambient temperature conditions.
NFPA - Instability:	0 - Normally stable, even under fire conditions, and not reactive with water.

SECTION 6. ACCIDENTAL RELEASE MEASURES