

INDUSTRIAL GREASES, LUBES AND OILS

HYDRA-SAFE 2000

FIRE RESISTANT HYDRAULIC FLUID

HYDRA-SAFE 2000- is a fire resistant hydraulic fluid, which has excellent stability and oxidation life to extend drain intervals and protect against corrosion and varnish. Good demiscibility and rust protection properties minimize the possibility of corrosion and so reduce equipment maintenance and down time. High flash points and low volatility maintain fire safety with low oil consumption and little thickening. Superior anti-wear and lubricity characteristics.

HYDRA-SAFE 2000- Recorded 7000 hours oxidation test, it combines safety and unusual lubrication capabilities in wide temperature ranges. Superior oxidation inhibition compatible with the majority of seals and hoses.

It allows hydraulic systems to respond quickly and easily. Results of the Vickers Vane Pump test indicate that **HYDRA-SAFE 2000** is the best fire resistant hydraulic fluid in the market today. It also provides excellent resistance to rust and corrosion. Will provide the prevention of stable foam occurring. Will provide the protection against the formation of bacteria.

HYDRA-SAFE 2000- can be used in piston-type hydraulic systems containing bronze bearings and does not adversely affect hydraulic seals. Hydra-safe will provide superior metal compatibility.

HYDRA-SAFE 2000- is compatible with all conventional mineral oils and does not break down even at concentrations as high as 80%.

HYDRA-SAFE 2000- is a true multi-purpose fire resistant hydraulic fluid can be used in power steering fluid, non-hypoid gear lubricant and torque converter. It passed the requirements of Allison type C3 Caterpillar TO2, TO3, MIL-L46152, MIL-L2104-C specifications. Hydra-safe will provide Improved stability under freeze-thaw conditions, ambient temperature, and medium temperature conditions.

HYDRA-SAFE 2000- exceeds the requirements of U.S. Military specifications for fire resistant hydraulic fluid MIL-H 83282. It passed the Abex-Dension HF-O pump test, Vickers 35VQ25A Vane pump test wear and Cincinnati-Milacron P-68, 69 and 70 specifications for anti-wear hydraulic oils

HYDRA-SAFE 2000- has excellent storage and service life, and is environmentally acceptable.

TECHNICAL DATA SHEET

HYDRA-SAFE 2000...CONTINUED

TYPICAL PROPERTIES

BOILING POINT		379 - 550°C
VISCOSITY cst 210°F – (100°C)		46.4 (6.15)
VISCOSITY INDEX	ASTM-D2270	156
POUR POINT °c	ASTM-D 97	- 75
FLASH POINT °		204 ° C (MINIMUM) 550 ° C (MAXIMUM)
AUTO-IGNITION TEMPERATURE	ASTM-D 2155	>250 °C
APPEARANCE		PALE COLOR VISCOUS LIQUID
ASH BY WEIGHT		NIL
ACID VALUE mg KOL/g	ASTM-D 974	1.3
SPECIFIC GRAVITY 60 °F		7.9
FOAM TEST		
SEQUENCE I	HL – 3126	PASS
SEQUENCE II	HL – 3126	PASS
SEQUENCE III	HL – 3126	PASS
HOT SPRAY MANIFOLD 800 ° F	HL - 974	NO FIRE-SELF EXT.
T. B. N.	ASTM-D 664	7.6
VICKERS PUMP TEST WT. LOSS mg	HL - 921	PASS
COPPER STRIP CORROSION	ASTM-D 130	PASS
THERMAL HEAT TEST 500 ° F	RCKW 076E	PASS
FOUR BALL WEAT TEST, SCAR DIAMETER	ASTM- 2266	0.1
ISO VISCOSITY GRADE	ASTM-D2422	SAE 10-20
REFRACTIVE INDEX 25 ° C	ASTM-D1218	1.4487
HYDROXYL VALUE mg KOH/g	ASTM-D1957	2.0

TECHNICAL DATA SHEET

HYDRA-SAFE 2000...CONTINUED

STABILITY

HYDRAULIC STABILITY
ASTM D2619 procedure

TEST RESULTS

Copper weight loss, mg/cm ²	0.02
Acidity of water layer, mg KOH	1.4
T.A.N. change in fluid, mgsKOH/gm	+1.2
Copper Catalyst, appearance	clean and Bright
Sludge Formation	Nil

PUMP TEST DATA

Wear Test

ASTM D 2882 PROCEDURE

Pump	Vickers Vane V104C-10
Pressure, psi	2000
Temperature, °F	250
Speed, rpm	1800
Pump Output, gpm	7.5
System Capacity, gals.	15
Filtration, micron-rating	10
Test period, hrs.	588
Cam Ring Wear, mgs	9
Vane Set Wear, mgs	6
Total Wear	
Ring and Vane Set, mgs	10
Wear Rate, mg/hr	0.05

TECHNICAL DATA SHEET

ENVIROSAFE CHEMICALS CANADA MATERIAL SAFETY DATA SHEET

SECTION 1-PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER: Hydra Safe 2000 (PETROLEUM HYDROCARBON) NUMBER (PIN) HS2000
MANUFACTURER'S NAME: EnviroSAFE Chemicals Canada
ADDRESS: PO Box 1792 - 10011 Thatcher Avenue
CITY: North Battleford PROVINCE: SK POSTAL CODE: S9A 3W8 TEL: 306-446-0505

SECTION 2-HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS %	CAS NUMBER	LD50 OF INGREDIENT (SPECIFY SPECIES AND ROUTE)	LC OF INGREDIENT (SPECIFY SPECIES)	TLV(ACGIH)
Hydro treated paraffinic oil (C20-C45)	5 mg/m3 (oil mist) 7262386-0	>5000MG/KG (RAT, ORAL) N/A	N/A	N/A
ORGANO-ADDITIVE	72623-5-9	N/A	N/A	N/A
DEFOAMER	N/A	N/A	N/A	N/A

SECTION 3-PHYSICAL DATA

PHYSICAL STATE: LIQUID ODOUR AND APPEARANCE: ODOUR THRESHOLD (PPM): VISCOUS
PALE STRAW YELLOW / HYDROCARBON ODOUR

VAPOUR PRESSURE: (AT 25 °C) VAPOUR DENSITY: N/A EVAPORATION RATE:
(mm Hg) 0.001 kpa (AIR=1) n/a % VOLATILE: 0% (@ 20 ° c)

BOILING POINT (°C)/°F 379-550°C FREEZING POINT (°C) : N/A pH: N/A
SPECIFIC GRAVITY: N/A COEFF. WATER/OIL DIST.: N/A

SECTION 4-FIRE AND EXPLOSION DATA

FLAMMABILITY: UNKNOWN IF YES UNDER WHICH CONDITION? UNKNOWN

MEANS OF EXTINGUISHMENT: DRY CHEMICAL, FOAM, WATER.SPRAY FLASHPOINT (°C) AND METHOD:°F: 204°C
CARBON DIOXIDE METHOD USED =COC (MINIMUM)

UPPER FLAMMABLE LIMIT (% BY VOLUME): °C LOWER FLAMMABLE LIMIT (% BY VOLUME): °C

AUTOIGNITION TEMPERATURE (°C): >250°C HAZARDOUS COMBUSTION PRODUCTS: N/A

EXPLOSION DATA SENSITIVITY TO IMPACT: SENSITIVITY TO STATIC DISCHARGE:
UNKNOWN UNKNOWN

SECTION 5 REACTIVITY DATA

CHEMICAL STABILITY: STABLE

IF NO? UNDER WHICH CONDITION? AVOID EXCESSIVE HEAT, FORMATION OF OIL MIST.

INCOMPATIBILITY WITH OTHER SUBSTANCES: STRONG OXIDIZING AGENTS (PEROXIDES, CHLORINE, AND
STRONG ACIDS)

REACTIVITY, AND UNDER WHAT CONDITIONS: STABLE
HAZARDOUS DECOMPOSITION PRODUCTS: CO_x, SO_x, SMOKE ON COMBUSTION

TECHNICAL DATA SHEET

ENVIROSAFE CHEMICALS CANADA

pg2

PRODUCT IDENTIFICATION: HYDRASAFE 2000

SECTION 6-TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:

SKIN: SKIN ABSORPTION: EYE CONTACT: INHALATION: INGESTION:
EFFECTS OF ACUTE EXPOSURE TO PRODUCT: IF SPRAYED OR MISTED, MAY CAUSE MILD IRRITATION
EFFECTS OF CHRONIC EXPOSURE TO PRODUCT: UNKNOWN
EXPOSURE LIMITS: LD50>5000MG/KG (RAT ORAL) IRRITANCY OF PRODUCT: MILDLY IRRITATING
SENSITIZATION OF PRODUCT: MILDLY IRRITATING TO EYES, REPEATED CONTACT MAY CAUSE
DERMATITIS
CARCINOGENICITY: NONE KNOWN
TERATOGENICITY: N/A REPRODUCTIVE TOXICITY: PRACTICALLY NON-TOXIC
MUTAGENICITY: N/A SYNERGISTIC PRODUCTS: N/A

SECTION 7-PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: OIL-RESISTANT CLOTHING (NORMALLY NOT NECESSARY)
GLOVES: NITRILE, NEOPRENE RESPIRATOR: WEAR APPROVED ORGANIC VAPOUR RESPIRATOR (NORMALLY NOT NECESSARY. IF MIST GENERATED BY HEATING, SPRAYING, ETC. WEAR APPROVED ORGANIC VAPOUR RESPIRATOR SUITABLE FOR OIL MIST.

EYE: CHEMICAL GOGGLES FOOTWEAR: RUBBER BOOTS CLOTHING: OIL RESISTANT CLOTHING OTHER: NOT NECESSITY

ENGINEERING CONTROL (SPECIFY, EG. VENTILATION ENCLOSED PROCESS): GENERAL VENTILATION

LEAK AND SPILL PRODUCE: CONTAIN SPILL ABSORB WITH INHERT ABSORBENT SUCH AS DRY CLAY, SAND OR DIATOMACEOUS EARTH, COMMERCIAL SORBENTS, OR RECOVER USING PUMPS, SCOOP UP USED ABSORBENT AND RAGS INTO DRUMS.

WASTE DISPOSAL: DISPOSE IN APPROVED SECURE LANDFILL SITE OR LICENCED WASTE RECLAIMER FACILITY IN ACCORDANCE WITH FEDERAL, PROVINCIAL AND LOCAL REGULATIONS.

HANDLING PROCEDURES AND EQUIPMENT: GENERAL VENTILATION, WASH HANDS AFTER HANDLING AND BEFORE EATING. DISCARD ALL SATURATED LEATHER GOODS.

STORAGE REQUIREMENTS: STORE IN COOL WELL-VENTILATED AREA.

SPECIAL SHIPPING INFORMATION: NOT REGULATED BY TDG.

SECTION 8-FIRST AID MEASURES

EYE: COPIOUS WARM WATER FLUSH, CONSULT WITH PHYSICIAN IF EYES BECOME INFLAMMED
SKIN: REMOVE CONTAMINATED CLOTHING-LAUNDRER BEFORE REUSE SOAP AND WATERWASH REQUIRED.
INHALATION: EVACUATE TO FRESH AIR, ADMINISTER OXYGEN IF AVAILABLE
INGESTION: DO NOT INDUCE VOMITING, FORCE FLUIDS, ACTIVATED CHARCOAL TABLETS.

SECTION 9-PREPARATION DATE OF MSDS

PREPARED BY: ENVIROSAFE TECHNICAL DEPT. PHONE NUMBER: 306-446-0505

WHILE THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE LISTED, ENVIROSAFE CHEMICALS CANADA MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE HERE ON. ALL INGREDIENTS OF THIS PRODUCT ARE EITHER ON THE DOMESTIC SUBSTANCE LIST (DSL) OR EXEMPT. ALL PRODUCTS THAT ARE ON THE TSCA INVENTORY OR ARE NOT REQUIRED TO BE LISTED.

PREPARED BY ENVIROSAFE TECHNICAL DEPT PHONE NUMBER: 306-446-0505 DATE October 04, 2007

ENVIROSAFE CHEMICALS CANADA

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