

MONARCH OIL (KITCHENER) LIMITED
 P.O. BOX 653
 808 VICTORIA STREET NORTH
 KITCHENER, ONTARIO N2G 4B6
 PHONE: (519) 743-8241 FAX: (519) 743-9802
 1-800-268-6457

PRODUCT: Hydraulic Oil 22H, 32H, 46H, 68H, 100H MO120PC

SECTION 01: PRODUCT INFORMATION

Product Name: Hydraulic Oil 22H, 32H, 46H, 68H, 100H
 Chemical Name: N.ap
 Synonyms: None
 Chemical Family: Petroleum hydrocarbon
 Molecular Formula: N.ap

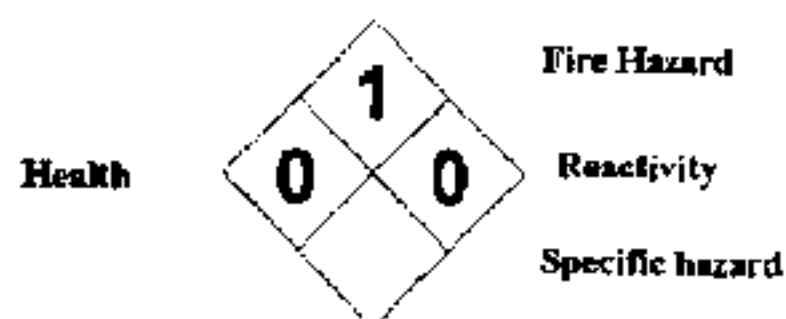
CAS #: 72623-86-0, 72623-87-1, 72623-85-9
 WHMIS Classification/Symbol: Not controlled by WHMIS



HMIS (USA)

Health Hazard 0
 Fire Hazard 1
 Reactivity 0
 Personal Protection b

National Fire Protection Association (USA)



Transportation Information

DOT (Pictogram)



Not Regulated under Canadian TDG Act

Rating
0 - Insignificant
1 - Slight
2 - Moderate
3 - High
4 - Extreme

Manufacturer: Petro-Canada, P.O. Box 2844 Calgary, Alberta T2P 3E3
 403-296-3000

SECTION 02: HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	C.A.S	%(V/V)	TLV-TWA(8h)	STEL	CEILING
Severely Hydrotreated base oil and proprietary	Mixture	100	5mg/m ³	N.es	N.es

additives.

Exposure Limits: 8-hour TLV-TWA of 5 mg/ml recommended by Petro-Canada based on ACGIH TLV for oil mists. Consult authorities for acceptable exposure limits.

Hazards Identification

Potential Health Effects: Non irritating to eyes, non irritating to slight transient irritating to skin, but no permanent damage. Relatively non-toxic via ingestion. This product has a low vapour pressure and is not expected to present an inhalation exposure at ambient conditions. Upon heating to high temperatures, or mechanical actions which may produce vapours, mists or fumes, inhalation of product may cause irritation of the breathing passages. For more information, refer to Toxicological Information.

SECTION 03: PHYSICAL DATA

Physical State:	Viscous liquid
Odour:	Mild petroleum oil like
Taste:	N.av
Colour:	Pale, straw yellow
Molecular Weight:	N.ap
pH (1 % soln/water):	N.ap
Boiling Point:	349°C (660.2°F)
Melting Point:	N.av
Critical Temperature:	N.av
Specific Gravity:	0.86 to 0.87 kg/L @ 15-C (59.F).
Vapor Pressure:	Negligible at ambient temperature and pressure.
Vapor Density:	N.av
Volatility:	Non-volatile
Odour Threshold:	N.av
Evaporation rate	N.av
Viscosity:	22H: 22.0 cSt; 32H: 32.0 cSt; 46H: 47.0 cSt; 68H: 68.4 cSt; 100H:94.6 cSt @ 40-C (104.F).
Pour Point:	22H: -39 C (-38 F); 32H: -36 C (-33 F); 46H/68H: -33 C (-27 F) 100H: -27C (-17 F)
Softening Point:	N.ap
Dropping Point:	N.ap
Penetration:	N.ap
Water/Oil Dist. Coeff:	Not measurable. This product is more soluble in oil.
Ionicity (in Water):	Insoluble in water.
Dispersion Properties:	Non-volatile and immobile.
Solubility:	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

SECTION 04: FIRE AND EXPLOSION HAZARD

Flammability of the Product:	Non-flammable, but will burn on prolonged exposure to flame or high temperature.
Auto-Ignition Temperature:	250°C (482°F)
Flash Points:	Open Cup: >165°C (>331°F), ASTM D92, Cleveland.

Flammable Limits:	N.ap
Products of Combustion:	Carbon oxides (CO, CO ₂), smoke and irritating fumes as products of incomplete combustion.
Fire Hazards in Presence Of Various Substances:	Low fire hazard. This material must be heated before ignition will occur. Avoid contact with strong oxidizing agents, including peroxides, chlorine and strong acids.
Explosion Hazards in Presence Various Substances:	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.
Fire Fighting Media:	NAERG96, Guide 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. DO NOT extinguish a leaking gas flame unless leak can be stopped. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, auto-ignition or explosion. SMALL FIRE: Use DRY chemicals, foam, or CO ₂ . LARGE FIRE: Use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used, and self-contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.

SECTION 05: REACTIVITY

Stability:	The product is stable under normal conditions of storage.
Incompatibility with various substances:	Can react with strong organic oxidizing agents.
Corrosivity:	Non-corrosive
Hazardous Polymerization:	Will not occur under normal working conditions.
Decomposition Products:	CO _x , NO _x , PO _x , SO _x , H ₂ S and Zn compounds, smoke and irritating fumes as products of incomplete combustion.

SECTION 06: TOXICOLOGICAL PROPERTIES

Routes of Entry:	Skin contact, eye contact, inhalation, and ingestion.
Acute Lethality :	Acute oral toxicity (LD ₅₀): >5000 mg/kg (rat) Acute dermal toxicity (LD ₅₀): > 2000 mg/kg (rabbit) Acute inhalation toxicity (LC ₅₀): >2500 mg/m ³ /4h (rat) Acute dermal/eye irritation: non-irritation to rabbit.
Dermal Route:	Base oils are not skin irritants. However, prolonged or repeated contact may cause skin irritation characterized by dermatitis or oil acne for sensitive individuals.
Inhalation Route:	Due to low volatility, inhalation is not likely. However, prolonged or repeated inhalation of excessive amount of mists or fumes may cause

	irritation of the respiratory tract. Oil deposits in the lung may lead to fibrosis and reduced pulmonary function.
Oral Route:	Low toxicity; has laxative effect.
Eye Irritation/Inflammation:	Eye contact may cause no reaction or slight transient irritation, but no permanent damage.
Immunotoxicity:	No studies were found.
Skin Sensitization:	Based on toxicity of similar product, base oils are not a skin sensitizer in guinea pig.
Respiratory Tract Sensitization:	No studies were found.
Mutagenic:	Base oils exhibited negative mutagenic activity toward: (a) Salmonella Typhimurium TA98 using the Modified Ames Assay for Petroleum Product; (b) Salmonella-Escherichia coli/Mammalian-Microsome Reverse Mutation Assay (Ames test) with a Confirmatory Assay.
Reproductive Toxicity:	Based on the available animal data, severely hydrotreated base oils do not pose a reproductive risk.
Teratogenicity/Embryotoxicity:	Based on the available animal data, severely hydrotreated base oils do not pose a developmental or reproductive risk.
Carcinogenicity (ACGIH):	Based on the available human studies, exposure to oil mist alone has not been demonstrated to cause human health effects at levels below 5 mg/m ³ . It is anticipated that this level minimize the potential for skin and respiratory tract irritation.
Carcinogenicity (IARC):	Group 3: cannot be classified as to carcinogenicity to humans.
Carcinogenicity (NTP):	No studies were found.
Carcinogenicity (IRIS):	No studies were found.
Carcinogenicity (OSHA):	OSHA PEL (8-hour TWA) = 5 mg/m ³ for mineral oil mists.
Special Remarks on Toxicity to Animals:	Based on toxicity of severely hydrotreated paraffinic oil only.
Other Considerations:	An API study has indicated that prolonged or repeated skin exposure to used motor oils can cause cancer in mice.

Ecological Information

Environmental Fate:	The product has the potential for degradation by bacteria over an extended period of time.
BOD5 and COD:	N.av
Products of Biodegradation:	No studies were found.
Persistence/Bioaccumulation Potential:	Based on properties of hydrocarbon, if released to soil, some components may strongly absorb. It may be susceptible to microbial degradation under aerobic conditions.
Additional Remarks:	Base oils are non to low acute toxicity toward aquatic organisms: LC50 (rainbow trout): > 400,000 ppm in 96 hours; 0% mortality at 400,000 ppm in 96 hours; LC50 (Mysidopsis bahal): >500,000 ppm in 96 hours; passed the EPS 1/RM24 Microtox test using luminescent bacteria: 57-99% of base oils are biodegradable in 28 days.

SECTION 07: PREVENTIVE MEASURES

Accidental Release Measures

Material Release or Spill: NAERG96, Guide 171, Substances (low to moderate hazard).
ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. Contain spill. Absorb with inert absorbents such as dry clay, or diatomaceous earth. Avoid inhaling dust of diatomaceous earth for it may contain silica in very fine particle size, making this a potential respiratory hazard. DO NOT flush to sewers, streams or other bodies of water. Check with applicable jurisdictions for specific disposal requirements of material and empty containers. Notify the appropriate authorities immediately.

Handling and Storage

Precautions: Keep away from sources of ignition. DO NOT reuse empty containers without commercial cleaning or reconditioning. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.

Storage: Store in tightly closed containers in cool, dry, isolated and well-ventilated area and away from strong oxidizing agents.

Exposure Controls/Personal Protection

Engineering Controls: For normal application, special ventilation is not necessary. If user's operations generate fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety showers are close to workstation.

Personal Protection:
Eyes: Safety Goggles
Body: Wear long sleeved clothing to minimize skin contact.
Respiratory: No special respiratory protection is normally required. If mist generated by heating, spraying, etc., wear an organic vapour respirator with a mist filter. All respirators must be NIOSH certified.
Hands: For casual contact, PVC gloves are suitable. For direct contact for more than 2 hours, NEOPRENE or NITRILE gloves are recommended.
Feet: Safety boots or shoes.

Disposal Considerations

Waste Disposal: Spent/used/waste oil may meet the requirements of a hazardous waste. Consult your local or regional authorities. Preferred waste management priorities are: (1) recycle or reprocess; (2) incineration with energy recovery; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations.

SECTION 08: FIRST AID MEASURES

Eye Contact: Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. DO NOT use an eye ointment. Seek medical attention if irritation persists.

Skin Contact: Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Get medical attention if redness or irritation occurs.

Inhalation: Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform mouth-to-mouth resuscitation. Administer oxygen if available. Allow the victim to rest in a well-ventilated area. Seek medical attention.

Ingestion: DO NOT induce vomiting because of danger of aspirating liquid into lungs. Get immediate medical attention.

Note to Physician: No additional remark. Activate charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 gm activated charcoal in 400 ml water and mix thoroughly. Administer 5ml/kg or 350 ml for an average adult.

SECTION 09: PREPARATION OF THE MSDS

Monarch Oil (Kitchener) Ltd.
1-800-268-6457

Emergency, call

Canotec Transportation:
613-996-6666

Poison Control Centre: Consult local telephone directory for emergency number(s)

Validated on: August 25, 1998

SECTION 10: GENERAL COMMENTS

TLV - Threshold Limit Value

TWA - Time Weighted Average

STEL - Short Term Exposure
Limit(15 min.)

N.ap. - Not applicable

N.av. - Not available

N.es - Not established

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