

MATERIAL SAFETY DATA SHEET

SECTION 1

PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: CAT HYDO ADVANCED 10
Product Description: Base Oil and Additives
MSDS Number: 19993
Product Code: 20202050B027
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: Imperial Oil Products Division
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada
24 Hour Environmental / Health Emergency Telephone 1-866-232-9563
Transportation Emergency Phone Number 1-866-232-9563
Product Technical Information 1-800-268-3183
Supplier General Contact 1-800-567-3776

SECTION 2

COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3

HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0
HMS Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4	FIRST AID MEASURES
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INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5	FIRE FIGHTING MEASURES
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EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurised mists may form a flammable mixture.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [Estimated] [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6	ACCIDENTAL RELEASE MEASURES
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NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following is recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction).

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.81
Flash Point [Method]: >200°C (392°F) [Estimated] [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F) [Estimated]
Vapour Density (Air = 1): > 2 at 101 kPa [Estimated]
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible
Viscosity: 47 cSt (47 mm²/sec) at 40°C | 6.7 cSt (6.7 mm²/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -33°C (-27°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt
Decomposition Temperature: N/D

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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ACUTE TOXICITY

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
Inhalation	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

CMR Status: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1	3 = IARC 2B	5 = ACGIH A1
2 = IARC 2A	4 = ACGIH ALL	6 = ACGIH A2

SECTION 12	ECOLOGICAL INFORMATION
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The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

SECTION 14 TRANSPORT INFORMATION

LAND (TDG): Not Regulated for Land Transport

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

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

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

Complies with the following national/regional chemical inventory requirements: AICS, ENCS, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
NDSL	Restrictions Apply

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	6
ZINC ALKYL DITHIOPHOSPHATE	68649-42-3	6

--REGULATORY LISTS SEARCHED--

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|--------------|-------------|--------------|
| 1 = TSCA 4 | 3 = TSCA 5e | 5 = TSCA 12b |
| 2 = TSCA 5a2 | 4 = TSCA 6 | 6 = NPRI |

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

- Revision Changes:
- Section 06: Protective Measures was modified.
 - Section 09: Boiling Point C(F) was modified.
 - Section 09: Pour Point C(F) was modified.
 - Section 09: Vapour Pressure was modified.
 - Hazard Identification: Health Hazards was modified.
 - Section 11: Dermal Lethality Test Data was modified.
 - Section 11: Dermal Lethality Test Comment was modified.
 - Section 11: Oral Lethality Test Data was modified.
 - Section 11: Inhalation Lethality Test Data was modified.
 - Section 11: Dermal Irritation Test Data was modified.
 - Section 11: Eye Irritation Test Data was modified.
 - Section 11: Oral Lethality Test Comment was modified.
 - Section 11: Inhalation Lethality Test Comment was modified.
 - Section 11: Dermal Irritation Test Comment was modified.

Section 11: Eye Irritation Test Comment was modified.
Section 11: Inhalation Irritation Test Data was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 09 Viscosity was modified.
Section 09 Viscosity was modified.
Section 14: LAND (TDG) - Header was modified.
Section 15: National Chemical Inventory Listing was modified.
Section 09: Relative Density was modified.
Section 11: Additional Health Information was modified.
Section 08: Exposure limits/standards was modified.
Section 15: Canadian List Citations Table was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 15: Special Cases - Header was added.
Section 15: Special Cases Table was added.
Section 15: Inventory - Header was added.
Section 15: Status - Header was added.
Section 09: Decomposition Temperature was added.
Section 09: Decomposition Temp - Header was added.
Section 01: Product Code was added.
Section 01: Product Code - Header was added.

WHMIS Classification: Not controlled

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