



# SAFETY DATA SHEET

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

### Enhance™ HydraFlo – AW 46

**PRODUCT USE:** Anti-Wear Hydraulic & Circulating Fluid

**COMPANY IDENTIFICATION:** Enhance™ Lubricants, LLC  
1959 Bluff Road  
Columbia, SC 29201  
www.enhanceoil.com

**TRANSPORTATION EMERGENCY RESPONSE:** PERS – 800-633-8253

## SECTION 2: HAZARDS IDENTIFICATION

**CLASSIFICATION:** Not classified as hazardous according to 29 CFR 1910.1200 (2012).

**HAZARDS NOT OTHERWISE CLASSIFIED:** Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities. High-pressure injection under the skin may cause serious damage including local necrosis. Not classified as flammable but will burn. The classification of this material is based on OSHA HCS 2012 criteria. Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

**CHEMICAL NATURE:** Highly refined mineral oils and additives. The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

\*Contains one or more of the following CAS-numbers: 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-65-0, 68037-01-4, 72623-86-0, 72623-87-1, 8042-47-5, 848301-69-9.

HAZARDOUS COMPONENTS		
CHEMICAL NAME	CAS NO.	CONCENTRATION (% W/W)
2,6-di-tert-butyl phenol	128-39-2	0.1 – 0.249
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Not Classified	0 - 90

## SECTION 4: FIRST AID MEASURES

**EYES:** Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention.

**SKIN:** Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.

**INGESTION:** In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

**INHALATION:** No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

**MOST IMPORTANT SYMPTOMS AND EFFECTS:**

**SYMPTOMS:** Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhea. Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection.

**INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:**

**PROTECTION OF FIRST AIDERS:** When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

**NOTE TO PHYSICIANS:** Treat Symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimize tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anesthetics, and wide exploration is essential.

**SECTION 5: FIRE FIGHTING MEASURES**

**SUITABLE EXTINGUISHING MEDIA:** Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

**UNSUITABLE EXTINGUISHING MEDIA:** Do not use water in a jet.

**SPECIFIC HAZARDS DURING FIRE-FIGHTING:** Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.

**SPECIFIC EXTINGUISHING METHODS:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:** Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** Use personal protective equipment as required. Avoid contact with skin and eyes.

**ENVIRONMENTAL PRECAUTIONS:** Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Local authorities should be advised if significant spillages cannot be contained.

**METHODS AND MATERIALS FOR CONTAINMENT & CLEAN UP:** Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment

material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

## SECTION 7: HANDLING AND STORAGE

**TECHNICAL MEASURES:** Use local exhaust ventilation if there is risk of inhalation of vapors, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

**PRECAUTIONS FOR SAFE HANDLING:** Avoid prolonged or repeated contact with skin. Avoid inhaling vapor and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

**PRODUCT TRANSFER:** Proper grounding and bonding procedures should be used during all bulk transfer operations to avoid static accumulation.

### **CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:**

**STORAGE CONDITIONS:** Store at ambient conditions. Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers.

**PACKAGING MATERIAL:** Suitable material: For containers or container linings, use mild steel or high-density polyethylene. Unsuitable material: PVC. Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

**INCOMPATIBLE MATERIALS:** This product may react with strong oxidizing agents.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

COMPONENTS	CAS-NO.	VALUE TYPE	CONTROL PARAMETERS / PERMISSIBLE CONCENTRATION	BASIS
Oil mist, mineral	Not Assigned	TWA (Mist)	5 mg/m <sup>3</sup>	OSHA Z-1
Oil mist, mineral	-	TWA (Inhalable Fraction)	5 mg/m <sup>3</sup>	ACGIH

**ENVIRONMENTAL EXPOSURE CONTROLS:** Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being dis-charged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapor.

**BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS:** This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

**APPROPRIATE ENGINEERING CONTROLS:** The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated. General Information: Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated

with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or subsequent recycle. Always observe good personal hygiene measures, such as washing hands 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. Practice good housekeeping.

#### **INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:**

**EYE/FACE PROTECTION:** If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

**SKIN/BODY PROTECTION:** Skin protection is not ordinarily required beyond standard work clothes. It is good practice to wear chemical resistant gloves.

**HAND PROTECTION REMARKS:** Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. For continuous contact we recommend gloves with break-through time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

**RESPIRATORY PROTECTION:** No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for the combination of organic gases and vapors [Type A/Type P boiling point >65°C (149°F)].

**PROTECTIVE MEASURES:** Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

**GENERAL HYGIENE CONSIDERATIONS:** Use good hygiene when handling petroleum product. Launder contaminated clothing before reuse. Excessive misting may cause slippery floors – wear appropriate footwear.

### **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Amber

**Physical State:** Liquid at room temp.

**Odor:** Slight hydrocarbon

**Odor Threshold:** No data available

**pH:** Not applicable

**Vapor Pressure:** < 0.5 Pa (20°C / 68°F)

**Vapor Density (Air = 1):** >1

**Relative Density:** 0.879 (15.0°C / 59.0°F)

**Density:** 879 kg/m<sup>3</sup> (15.0°C / 59.0°F)  
(Method: ISO 12185)

**Boiling Point/Boiling Range:** > 280°C / 536°F  
**Solubility:** No data available  
**Pour Point:** -30°C / -22°F (Method: ISO 3016)  
**Evaporation Rate:** No data available  
**Decomposition Temperature:** No data available  
**Partition Coefficient:** log Pow: > 6  
**Flash Point:** 230°C / 446°F (Method: ISO 2592)  
**Flammability (Solid, Gas):** No data available  
**Upper Flammability Limit:** Typical 10 %(V)

**Lower Flammability Limit:** Typical 1 %(V)  
**Auto-Ignition Temperature:** > 320°C / 608°F  
**Kinematic Viscosity:** 580 mm<sup>2</sup>/s (0°C / 32°F)  
(Method: ISO 3104); 6.7 mm<sup>2</sup>/s (100°C / 212°F)  
(Method: ISO 3104); 46 mm<sup>2</sup>/s (40.0°C / 104.0°F)  
(Method: ISO 3014)  
**Dynamic Viscosity:** No data available  
**Explosive Properties:** Not classified  
**Oxidizing Properties:** No data available

## SECTION 10: STABILITY AND REACTIVITY

**REACTIVITY:** Not reactive under normal conditions.

**CHEMICAL STABILITY:** Stable under recommended storage conditions.

**POSSIBILITY OF HAZARDOUS REACTIONS:** None under normal processing.

**CONDITIONS TO AVOID:** Keep away from extreme heat, sparks, open flame, incompatible materials and sunlight.

**INCOMPATIBLE MATERIALS:** This product may react with strong oxidizing agents.

**HAZARDOUS DECOMPOSITION PRODUCTS:** No decomposition if stored and applied as directed.

## SECTION 11: TOXICOLOGICAL INFORMATION

**BASIS FOR ASSESSMENT:** Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

**ACUTE ORAL TOXICITY:** LD50 (rat): > 5,000 mg/kg; low toxicity – based on available data, the classification criteria are not met.

**ACUTE INHALATION TOXICITY:** Low toxicity – based on available data, the classification criteria are not met.

**ACUTE DERMAL TOXICITY:** LD50 (rabbit): > 5,000 mg/kg; low toxicity – based on available data, the classification criteria are not met.

**SKIN CORROSION / IRRITATION:** Slightly irritating to skin. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/ folliculitis. Based on available data, the classification criteria are not met.

**INFORMATION OF LIKELY ROUTES OF EXPOSURE:** Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

**EYE CONTACT:** Slightly irritating to the eye

**SKIN CONTACT:** Avoid contact with skin – not a skin sensitizer

**INHALATION:** Do not inhale; not an aspiration hazard

**INGESTION:** Do not ingest

### **DELAYED AND IMMEDIATE EFFECTS AS WELL AS CHROMIC EFFECTS FROM SHORT AND LONG-TERM EXPOSURE:**

**CARCINOGENICITY:** This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP. Product contains mineral oils of types shown to be non-carcinogenic in animal

skin-painting studies., Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**REPRODUCTIVE TOXICITY:** Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

**STOT (SINGLE EXPOSURE):** Based on available data, the classification criteria are not met.

**STOT (REPEATED EXPOSURE):** Based on available data, the classification criteria are not met.

**REMARKS:**

1. Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.
2. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.
3. Slightly irritating to respiratory system.

**SECTION 12: ECOLOGICAL INFORMATION**

This product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have harmful or damaging effect on the environment.

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole rather than for individual component(s). (LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

**ECOTOXICITY:**

**TOXICITY TO FISH:** Practically non-toxic; LL/EL/IL50 > 100 mg/l

**TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES:** Practically non-toxic; LL/EL/IL50 > 100 mg/l

**TOXICITY TO ALGAE:** Practically non-toxic; LL/EL/IL50 > 100 mg/l

**COMPONENT INFORMATION:**

**MOBILITY IN SOIL:** Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile. Floats on water.

**PERSISTENCE/DEGRADABILITY:** No data available.

**BIOACCUMULATION:** Contains components with the potential to bioaccumulate.

**OTHER ADVERSE EFFECTS:** Does not have ozone depletion potential, photochemical ozone creation potential or global warming potential. Product is a mixture of non-volatile components, which will not be

released to air in any significant quantities under normal conditions of use. Poorly soluble mixture. Causes physical fouling of aquatic organisms. Mineral oil does not cause chronic toxicity to aquatic organisms at concentrations less than 1 mg/l.

### **SECTION 13: DISPOSAL CONSIDERATIONS**

**DISPOSAL OF WASTES:** Disposal should be in accordance with applicable regional, national, and local laws and regulations.

**CONTAMINATED PACKAGING:** Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Disposal should be in accordance with applicable regional, national, and local laws and regulations. The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**WASTE FROM RESIDUES:** Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Waste, spills or used product is dangerous waste.

### **SECTION 14: TRANSPORT INFORMATION**

**DOT:** Not regulated as a dangerous good.

**IMO/IMDG:** Not regulated as a dangerous good.

**ICAO/IATA:** Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code. Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

### **SECTION 15: REGULATORY INFORMATION**

#### **US FEDERAL REGULATIONS:**

#### **EPCRA - Emergency Planning and Community Right-to-Know Act / CERCLA**

This material does not contain any components with a CERCLA RQ., Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

#### **SARA 304: EXTREMELY HAZARDOUS SUBSTANCES REPORTABLE QUANTITY**

This material does not contain any components with a section 304 EHS RQ.

#### **SARA 302: EXTREMELY HAZARDOUS THRESHOLD PLANNING QUANTITY**

This material does not contain any components with a section 302 EHS TPO.

#### **SARA 311/312 Hazard Categories**

No SARA hazards.

#### **SARA 313**

This material does not contain any chemical components with known CAS numbers that exceed the

threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**CWA (Clean Water Act)**

This product does not contain any Hazardous Chemicals listed under the U.S. Clean Water Act, Section 311, Table 117.3.

**US STATE REGULATIONS:**

**PENNSYLVANIA RIGHT TO KNOW:** Zinc dialkyl dithiophosphate - 68649-42-3

**CALIFORNIA PROP. 65:**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**OTHER REGULATIONS:**

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

The components of this product are reported in the following inventories:

EINECS: All components listed or polymer exempt.

TSCA: All components listed.

DSL: All components listed.

**SECTION 16: OTHER INFORMATION**

**NFPA RATINGS:** Health: 0      Flammability: 1      Reactivity: 0      Special Hazards: NA

**DISCLAIMER**

*The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose*

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