Material Safety Data Sheet

Part 1 Chemicals and Company Identification

Product Identification

Product Name: L-HS ultra low temperature hydraulic oil

Product model: 10 #, 15 #, 22 #, 32 #, 46 #

Product Type: Liquid

Recommended use of the product and restrictions on use

Recommended use: Ultra-low temperature hydraulic oil is mainly used for hydraulic systems operating in extremely cold environments. It has excellent low-temperature fluidity, anti-wear performance, oxidation stability, and anti-rust and anti-corrosion capabilities. It can maintain good startability and system response at -40℃ or even lower temperatures, ensuring the reliable operation of hydraulic equipment in severe cold conditions. This product is suitable for engineering machinery, aviation ground equipment, military vehicles, polar scientific research equipment, and mining and oilfield hydraulic systems in high-cold areas. It is widely used in aerospace, national defense and military industry, cold-region transportation, oil and gas extraction, emergency rescue, and polar scientific research.

Restrictions on Use: This product is for use only as recommended without prior written permission from the supplier.

Corporate identity

Manufacturer: Chengdu Maxtor New Energy Lubricating Materials Co., Ltd.

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Emergency phone number: 028-85857666

Section 2. Hazards identification

Emergency Overview:

Liquid, flammable when exposed to open flame. Harmful to humans by inhalation. Harmful to aquatic life.

GHS Hazard Classification:

Aspiration hazard Category 1: H304

Long-term aquatic hazards - chronic Category 3: H412

Label elements:

Hazard pictograms:

Signal Word: Danger

Hazard Statements: H304 May be fatal if swallowed and enters airways.

H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Precautions: P273 Avoid release to the environment.

Incident Response: P301+P310+P331 If swallowed, immediately call a poison center or doctor. Do not induce vomiting.

Secure Storage: P405 Store in closed enclosure.

Disposal: P501 Dispose of contents and container in accordance with local, national and international regulations.

Health and Environmental Hazards: See Sections 11 and 12.

Other hazards: Prolonged or repeated contact may cause skin dryness and irritation.

Section 3 Product composition and ingredient information

This product is a mixture of deeply hydrorefined hydrocarbon base oil and composite additives , and the composition contents are all in weight percentage.

Product/ingredient name	Identification code	Content (WT%)	Hazard Type
Deeply hydrorefined hydrocarbon base oil	64742-55-8	94~96	H304
Compound Additives	-	4~6	H 412

Note: According to EU Regulation (EC) No 1272/2008 [CLP] Annex VI Nota L applies to the base oils of this product. If it can be shown that the substance contains less than 3% of DMSO extract as determined by IP346, it does not need to be classified as a carcinogen.

Section 4. First aid measures

first aid:

suck **Inhalation:** Leave the scene immediately to fresh air and keep the

respiratory tract open. If you feel dizzy, nauseous, or

If unconscious, seek medical attention immediately.

Skin contact: Take off contaminated clothing and wash the contaminated part with a soap dish and plenty of running water. If the product is injected into the subcutaneous tissue or any part of the human body, regardless of the appearance or size of the wound, the patient must be sent to the hospital for surgical examination and treatment immediately.

Eye contact: Immediately open the upper and lower eyelids and rinse with running water or saline. If persistent irritation occurs, seek medical attention.

Food Adverse symptoms may include nausea or vomiting, diarrhea. Do not induce vomiting unless directed to do so by a medical professional.
If the symptoms are severe, go to the hospital immediately for diagnosis and treatment, and take vomiting or other rescue measures under the guidance of the doctor.

Acute and delayed effects and most important symptoms and effects (overexposure):

suck Inhalation: Inhalation of oil mist or vapor at elevated temperatures may cause respiratory irritation.

Skin contact: Adverse symptoms may include irritation, dryness, and cracking.

Eye Contact: Slightly irritating.

Special note to doctors: Due to the low viscosity of the product, there is a risk of inhalation hazard if it enters the lungs, and symptomatic treatment should be

given.

Section 5 Firefighting measures

Fire extinguishing agent:

Foam, dry powder, carbon dioxide, sand and soil can be used to extinguish the fire. Do not use water as a fire extinguishing agent.

Special hazards:

The flash point of this product is greater than 75℃, and it may burn when exposed to open flame, high heat or contact with oxidants. Incomplete combustion may produce harmful combustion products such as CO, H2S, sulfide, solid suspended particles and complex combustion mixtures.

Fire extinguishing precautions and protective measures

Firefighting method: Firefighters must wear gas masks and full-body fire suits and fight fires in the upwind direction. Move containers away from the fire scene to an open area as much as possible. If the container in the fire scene changes color or sounds from the safety pressure relief device, it must be evacuated immediately.

Protection of firefighters Special firefighting equipment: Firefighters should wear appropriate protective gear and self-contained breathing apparatus (SCBA) with positive pressure mode on the front. Firefighter clothing that meets European standard EN 469 (including helmet, protective boots and gloves) provides basic protection for chemical incidents.

Section 6. Emergency measures for release

Personal protection measures, protective equipment and emergency response

procedures:

For non-emergency responders:

Avoid breathing vapor or mist. Keep non-involved personnel away from the spill area. Any action, except for small spills, should be evaluated and advised by a professional emergency manager. If a large spill occurs, alert downwind residents. Limited spills in the open air, especially vapors, will dissipate quickly and reduce hazardous concentrations.

For emergency responders:

Small leak: Ordinary antistatic work clothes can be used.

Large spills: Use full chemical, heat and corrosion resistant gear. Note: PVA gloves are not waterproof and are not suitable for emergency use. Wear a hard hat, anti-static and non-slip safety shoes or boots, goggles or a mask to prevent possible splashes or contact with eyes.

Respiratory protection: Wear a half-mask or full-face respirator that can filter organic vapors (suitable for hydrogen sulfide). Choose a self-contained breathing apparatus (SCBA) based on the extent of the leak and the foreseeable exposure. If the risk cannot be fully assessed or there is a possibility of hypoxia, only SCBA should be used.

Environmental protection measures:

If a large amount of leakage occurs, it may be harmful to the environment. If the product has caused environmental pollution (sewers, waterways, soil or air), the relevant departments should be notified promptly. Prevent the leakage from

entering sewers, surface water and groundwater. If necessary, build a bank with dry soil, sand or similar non-combustible materials. If soil contamination occurs, the contaminated soil should be removed and disposed of in accordance with local regulations.

In the event of a small spill in a closed water area (i.e. a port), a container with a floating barrier or other device and absorbent should be used to absorb the spilled product. If possible, a large spill in open water should be controlled by a floating barrier or other mechanical device. Otherwise, the spread of the spill should be controlled.

Containment and cleanup methods of leaked chemicals and the materials used:

Small leakage: Collect the leaked liquid in a sealed container as much as possible, and absorb the residual liquid with sand, activated carbon or other inert materials. You can also use an emulsion made of a non-flammable dispersant to scrub it, and the washing liquid should be disposed of harmlessly.

Large-scale leakage: Report the situation to relevant departments according to the risk level. Build dikes or dig pits to contain the leakage. Use pumps to transfer the leakage to sealed containers and recycle or transport it to waste disposal sites for disposal.

Section 7. Handling and Storage

Operational Disposal:

The place where this product is used should meet the requirements of fire protection design specifications, and excessive oil mist should be avoided during

operation. Operators should receive fire safety training and be equipped with necessary labor protection equipment to avoid inhaling oil mist. Production equipment should eliminate leakage to avoid the risk of slipping.

store:

This product should be stored in a sealed, cool, dry and ventilated place, away from open flames, high temperature heat sources, strong oxidants and flammable materials, and avoid mixing with water, impurities and other foreign matter. The storage area should be equipped with necessary fire-fighting equipment and leakage emergency treatment equipment. The storage container is recommended to be container material, or use low-carbon steel or stainless steel container lining. Some products may still remain in the empty container, so do not heat, cut or weld with open flame.

Section 8. Exposure controls and personal protection

Occupational exposure limits:

When oil mist and smoke appear, the following standards are recommended: AFS (Sweden, 2/2018) stipulates that the short-term exposure allowable concentration (STEL) is 3mg/ m^3 15min: the cumulative time average allowable concentration (TWA) is 1mg/ m^3 8h.

Engineering control methods:

Forced ventilation and local exhaust can reduce airborne exposure concentrations. Use oil-resistant materials for operating devices. Store under recommended conditions. If heating is required, use temperature control devices to

avoid overheating.

Personal protective equipment:

Respiratory protection: If the product needs to be heated manually, a respirator with filter A1P2 or A2P2 should be selected. If it is an automatic production line with good ventilation facilities, a respirator is not required.

Hand protection: Wear oil-resistant protective gloves (such as nitrile rubber), high-quality PVC.

Eye Protection: If splashing is possible, wear safety glasses.

Skin protection: If skin contact occurs, wear protective clothing and wash contaminated protective clothing before reuse.

Hygiene measures: Maintain good personal hygiene habits, such as washing hands after handling this product, and eating, drinking or smoking.
Wash hands before smoking. Wash work clothes and protective equipment regularly to remove pollutants. Discard contaminated clothing and shoes that cannot be washed. Develop good living habits.

Section 9. Physical and Chemical Properties

project	Technical requirements				
Viscosity grade (GB/T 3141)	10	15	twenty two	32	46
Kinematic viscosity (40℃)/(mm2 / s)	9.0~11.0	13.5~16.5	19.8~24.2	28.8~35.2	41.4~50.6
Viscosity index [b] Not less than	130	130	150	150	150
Pour point [c] /℃ No higher than	-45	-45	-45	-45	-39
Flash point/℃ Opening No less than	-	125	175	175	180

Shut up No less than	100	-	-	-	-
Acid value [d] (in KOH)/(mg/g)	Report				
Water (mass fraction)/% No more than	trace				
Mechanical impurities	none				
Copper corrosion (100℃, 3h)/level No more than	1				
Foaming properties (foaming tendency/foaming stability)/(mL/mL) Procedure I (24°C) No more than Procedure II (93.5℃) No more than Program III (24°C) No more than	150/0 75/0 150/0				
Sulfated ash (mass fraction)/%	Report				
Liquid phase corrosion (24h)	Rust-free				
Shear stability (After 250 cycles, 40℃ kinematic viscosity decrease rate)/% not more than	10				
Air release value (50℃)/min No more than	5	5	6	8	10
Demulsification (time for emulsion to reach 3ml)/min 54℃ No more than	30	30	30	30	30
Seal Adaptability Index No more than	Report	16	14	13	11
Oxidation stability (95℃, 312h) After 1500h, the total acid value [f] (in KOH)/(mg/g) is not more than Oil sludge after 1000h/mg	— —	— —	2.0 Report		
Rotating oxygen bomb (150℃)/min	Report				
Abrasion resistance Gear machine test [g] /failure level Not less than Wear spot diameter (392N, 60min, 75℃, 1200r/min)/mm	— Report	— Report	10 Report	10 Report	10 Report
Hydrolysis stability Copper sheet weight loss/(mg/cm ^{2}) not more than Total acidity of water layer (in KOH)/mg	0.2 4.0 No gray or black				

not more than Copper appearance	
Thermal stability (135℃, 168h) Copper rod weight loss/(mg/200mL) not more than Steel rod weight loss/(mg/200mL)	 10 Report

Section 10. Stability and Reactivity

Stability: Under normal conditions this product is stable.

Possibility of hazardous reactions: None under normal conditions of storage and use.

Conditions to avoid: Open flames, high heat sources.

Incompatible Materials: Strong oxidizing agents.

Hazardous decomposition products: Incomplete combustion may produce CO, H2S, sulfides, solid suspended particles and complex combustion mixtures.

Section 11 Toxicological information

Acute Toxicity: No known significant effects or significant hazards.

Skin Irritation or Corrosion: No known significant effects or significant hazards.

Eye Irritation or Corrosion: No known significant effects or significant hazards.

Respiratory or Skin Sensitization: No known significant effects or significant hazards.

Germ Cell Mutagenicity: No known significant effects or significant hazards.

Carcinogenicity: Product is not a carcinogen. There are no known significant effects or significant hazards from long-term exposure.

Reproductive Toxicity: No known significant effects or significant hazards.

Specific target organ toxicity - single exposure: No known significant effects or significant hazards.

Specific target organ toxicity - repeated exposure: No known significant effects or significant hazards.

Aspiration Hazard: Category 1 aspiration hazard.

Section 12. Ecological information

Ecotoxicity: This product may produce ecotoxicity under conditions of long-term penetration and long-term large-scale accumulation.

Persistence and Degradability: Components of this product are not readily biodegradable and have the potential to bioaccumulate.

Bioaccumulative Potential: Has the potential to bioaccumulate.

Mobility in soil: This product is a non-volatile liquid. It will not produce oil vapor to affect the atmosphere in the natural environment. It has low water solubility and can migrate from water to land in a floating state. Once it enters the soil, it will be absorbed by soil particles and cannot flow.

Section 13. Disposal considerations

Waste nature: HW08 in the National Hazardous Waste List - Waste Mineral Oil

Waste chemicals: must comply with the local laws and regulations in use at the time. If possible, they should be handed over to institutions with relevant hazardous waste treatment qualifications for product recycling. It is recommended to use them as boiler fuel under controlled conditions, and to test the harmful

substances in the exhaust gas produced by high-temperature combustion. For temporary storage of waste, sealed containers should be used to avoid light and necessary labels should be made.

Contaminated packaging: Contaminated packaging should be recycled. Incineration or landfill should only be considered if recycling is not feasible.

Section 14. Transport Information

According to GB6944 "Classification and Product Name Numbering of Dangerous Goods" and GB12268 "List of Dangerous Goods": This product is not a dangerous good.

United Nations Dangerous Goods Number (UN Number): None.

UN Hazard Classification: Not applicable.

Packing group: Not applicable.

Marine Pollutant (yes/no): No

Transportation precautions: The product should be transported safely and in a sealed container. Ensure that the transport personnel are aware of the disposal methods in case of accidents or leaks.

Section 15. Regulatory information

According to the European Union Safety, Health and Environment Regulation (EC) No. 1907/2006 (REACH), it complies with the requirements of the following national and regional chemical catalogs: IECSC (China Existing Chemical Substances Inventory), DSL (Canada), EINECS (EU), ENCS (Japan), KECI (Korea), PICCS (Philippines), TSCA (USA), AICS (Australia).

Section 16. Other Information

This product safety data sheet is developed based on current knowledge and applicable laws and regulations. It describes this product from the perspective of health, safety and environmental regulations. It is subject to revision based on updates to referenced standards and test data.

The data and recommendations provided in this product safety data sheet are only applicable to the specified use of this product. Chengdu Maxtor New Energy Lubricating Materials Co., Ltd. will not be held responsible for any damage or injury caused by failure to follow the recommendations other than the specified use. Users who purchase this product can obtain other information through the sales department and technical service department.