FLAG E.3

Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **HYDEX 46- Antiwear Hydraulic Oil ISO VG 46 (HF-0)**

Manufacturer/Supplier : NanoC Ventures Sdn Bhd
No. 3, Jalan SR 7/11, Taman Serdang Raya
43300 Seri Kembangan, Selangor Darul Ehsan.

MSDS Request :

Emergency Telephone Number

Spill Information : +603 8957 9920

Health Information : +603 8957 9920 / +6012 323 0407

2. COMPOSITION/INFORMATION ON INGREDIENTS

Highly refined mineral oils and additives.

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance and Odour : Amber. Liquid at room temperature. Slight hydrocarbon.

Health Hazards : Not classified as dangerous for supply or conveyance.

Safety Hazards : Not classified as flammable but will burn.

Environmental Hazards : Not classified as dangerous for the environment.

Health Hazards : Not expected to be a health hazard when used under normal conditions.

Health Hazards Inhalation : Under normal conditions of use, this is not expected to be a primary route of exposure.

Skin Contact : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis

Eye Contact : May cause slight irritation to eyes.

Ingestion : Low toxicity if swallowed.

Other Information : Used oil may contain harmful impurities.

Signs and 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.

Aggravated Medical Condition : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: skin

Environmental Hazards : Not classified as dangerous for the environment.

Additional Information : 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.

4. FIRST AID MEASURES

General Information : Not expected to be a health hazard when used under normal conditions.

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

Skin Contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

Eye Contact : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

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

Advice to Physician : Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise 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 anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anesthetics, and wide exploration is essential.

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5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	: Typical 244 °C (COC)
Upper / lower	: Typical 1 - 10 %(V)(based on mineral oil)
Flammability or Explosion limits	
Auto ignition temperature	: > 320 °C / 608 °F
Specific Hazards	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
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.
Protective Equipment for Firefighters	: Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe all relevant local and international regulations.

Protective measure	: Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Clean Up Methods : 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.

Additional Advice : Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. 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.

Handling : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F

Recommended Materials: For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	mg/m3
Oil mist, mineral	ACGIH	TWA(Mist.)	5 mg/m3
Oil mist, mineral	ACGIH	STEL(Mist.)	10 mg/m3

Exposure 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.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene 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 combined particulate/organic gases and vapors [boiling point >65 °C (149 °F)].

Hand Protection : 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, glove thickness, 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.

Eye Protection : Wear safety glasses or full face shield if splashes are likely to occur.

Protective Clothing : Skin protection not ordinarily required beyond standard issue work clothes.

Monitoring Methods : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Environmental Exposure Control: Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Amber. Liquid at room temperature.
Odour	: Slight hydrocarbon.
pH	: Data not available.
Initial Boiling Point and Boiling Range	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -60 °C / -22 °F
Flash point	: Typical 244 °C / 430 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V) (based on mineral oil)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	: Typical 0.893 at 15 °C / 59 °F
Density	: Typical 893 g/cm3 at 15 °C / 59 °F
Water solubility	: Negligible.
Kinematic viscosity	: Typical 41.70 mm2/s at 40°C
Vapour density (air=1)	: > 1 (estimated value(s))

10. STABILITY AND REACTIVITY

Stability	: Stable.
Conditions to Avoid	: Extremes of temperature and direct sunlight.
Materials to Avoid	: Strong oxidising agents.
Hazardous Decomposition Products	: Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	: Information given is based on data on the components and the toxicology of similar products.
Acute Oral Toxicity	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
Acute Dermal Toxicity	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
Acute Inhalation Toxicity	: Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	: Expected to be slightly irritating. Prolonged or repeated skin contact Without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	: Expected to be slightly irritating.
Respiratory Irritation	: Inhalation of vapours or mists may cause irritation.
Sensitisation	: Not expected to be a skin sensitiser.
Repeated Dose Toxicity	: Not expected to be a hazard.
Mutagenicity	: Not considered a mutagenic hazard.
Carcinogenicity	: Product contains mineral oils of types shown to be noncarcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	: Not expected to be a hazard.
Additional Information	: 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. Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity	: Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

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

Persistence/degradability: Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effect : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : 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.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

IMDG
This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)
This material is not classified as dangerous under IATA regulations.

15. REGULATORY INFORMATION

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

Federal Regulatory Status

Notification Status

DSL : All components listed.
EINECS : All components listed. Polymer Exempted
TSCA : All components listed.

SARA Hazard Categories (311/312)
No SARA 311/312 Hazards.

State Regulatory Status

This material does not contain any chemicals known to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity) : 0, 1, 0
MSDS Version Number : 1.0
MSDS Effective Date : 01/05/2010
MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Regulation : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

MSDS Distribution : The information in this document should be made available to all who may handle the product.
Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.