THAILAND Diversity & Refinement MI 0012/07

Hydraulic Treatment

Normally heavy equipment or earth moving machine they are working by 3 parts.

1. Engine they are using engine oil.
2. Gear system they are using gear oil.
3. Hydraulic system they are using hydraulic oil.

But inside all the system they are the same material steel parts moving. They need the oil for lubricate the moving parts. As you know from demonstration that when metal to metal moving .The heat is happen because of friction. When the oil touch the metal that heat it will become heat by automatic. Oil heat time to time heat will be increase till the viscosity drop down. When the viscosity drop down it will effect to oil film become very thin. The oil film become thin it cannot protect metal to metal. Metal to metal high friction become heat it will destroy surface of metal become wearing. When metal wearing it become metal particle like powder. Metal powder come out and remove by oil will go to filter.

This cycle all the mechanic they know. Because of this cycle happen every day it will make the metal gap (clearance) become bigger and bigger. The oil pressure will drop down. Hydralic system will less oil pressure. And the sound of hydraulic pump will happen. The heat still remain because metal to metal still friction. Oil heat day time and become temperature come down in evening. Heat gone out and oxygen replace to reduce heat. Everyday happen by this cycle. Oil is hydrocarbon combine with oxygen it become H2O .It is water. Water accumulate day by day it will making oil contaminate. Oil contaminate is meaning PH less than 7.It will calling acid. Acid happen it will starting steel oxidation or corrosion.

Problem of hydraulic system.

1. Oil pump make noise
2. Oil low compression.
3. Oil high heat temperature.

All the problem came from friction inside of the oil pump that made by steel.

Less friction that will effect to everything that I have explain.
1. Less heat, oil will keep strong oil film to protect metal to metal.
2. Less heat, oxygen will absorb less and water will not happen. Oil life will be longer .
3. Less heat, metal surface will be less wearing.71% reduce by test report.
4. Less heat, viscosity will not drop the pressure still remain.

All problem came from FRICTION metal to metal. EZI hydraulic system design to cover all the problem that I had explain. Inside ingredient not only friction modifier but containing.
1. Anti - oxidation
2. Anti-corrosion
3. Anti-Foaming
4. Anti-Acid

How to use it.
Just mixing with hydraulic oil.
First time. 1 litre mix with hydraulic 60 litres.
After that only 1 per 100 litres.

Benefits.
1. Extend oil life time
2. Save cost for oil filter
3. Oil pump smooth and quiet working
4. Increase oil pressure
5. Reduce oil heat.

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Material Safety Data Sheet

1. Identification of the Substance / Preparation and Company / Undertaking

Product Name : Hydraulic Treatment

Technical Name : Metal Treatment
: Metal Conditioner
: Anti - Friction Treatment
: Friction Modifier

Validation Date : 31 December 2024

In Case of Emergency Call :

Manufacturer / Supplier

Pheeramas Group Company Limited.
21/492-493 Klongjan Villa 4, Soi Ramkhamhaeng 142,
Ramkhamhaeng Rd., Saphansung, Bangkok 10240, Thailand
Telephone number : (66) 2728-0845, 2728-0846, 2728-0255
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2. Composition and Information on Ingredients

Product Description

- Metal Treatment Concentrated, it's the complex chemical containing the chemical ingredients.
- The main composition are include Phosphorus, Zinc, Barium and Dioctyl not more than 39 %
- The rest of 61 % of containing are Hydrocarbone and others additive.

Hazardous Ingredient(S) : Contains no Hazardous Ingredients in accordance with EC Directive 93 / 112 / EEC

Hazard Symbol "R" Phrases

3. Hazards Identification

Low acute toxicity under normal conditions of handling and use.

Slightly irritant to eyes.

Repeated exposure to high levels may produce liver and kidney damage.

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4. First Aid Measures

Inhalation : Remove patient from exposure, keep warm and at rest.

Ingestion : DO NOT induce vomiting. Wash out mouth with water and give 200-300 ml. (half a pint) of water to drink.

Skin Contact : Remove contaminated clothing. Wash Skin with soap and water.

Eye Contact : Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain medical attention.

Further Medical Treatment : Unlikely to be required but if necessary treat symptomatically.

5. Fire-Fighting Measures

Non-Flammable

May decompose if heated above 200 Deg C with liberation of phosphoric / sulfuric

Extinguishing Media : Normal extinguishing media

Fire Fighting Protective Equipment : A self contained breathing apparatus and full protective clothing should be worn in fire conditions.

6. Accidental Release Measures

Caution - spillages may be slippery.

Absorb spillages onto sand, earth or any suitable adsorbent material.

Transfer to a container for disposal.

Do not allow to enter drains, sewers or watercourses.

Spillages or uncontrolled discharges into watercourses must be alerted to the environment agentcy or other appropriate regulatory body.

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7. Handling and Storage

Handling : Avoid contact with eyes.
Avoid prolonged skin contact.
Provide adequate ventilation where operational procedures demand it.
Do not allow to enter drains, sewers or watercourses.

Storage : Keep only in original container at temperatures not exceeding 40 Deg C.
Keep container dry.
Keep away from direct sunlight.
Storage vessels should be made of lined mild steel in accordance with the advice given in bulk storage and handling brochure.

Storage Life : In excess of 2 years if stored in accordance with advice given above.

8. Exposure Controls and Personal Protection

If prolonged or excessive skin contact is likely : Wear suitable protective clothing and gloves.

If splashing or mist is likely to occur : Wear eye / face protection.

Good working practice suggests gloves and goggles should be worn.

Occupational Exposure Limits

	LTEL 8 hr TWA		STEL		Notes
Hazardous Ingredient(s)	ppm	mg/m^3	ppm	mg/m^3	

No Occupational Exposure limit Assigned

9. Physical and Chemical Properties

For specific physical properties of individual grades, please refer to technical literature and / or product specifications.

Form : Mobile liquid - viscous liquid.

Odour : low

Boiling Point (Deg C) : >200, Decomposes below boiling point.

Flash Point (Deg C) : None

Vapor Pressure : Practically non-volatile

Solubility (Water) : Insoluble

Solubility (Other) : Soluble in most aromatic hydrocarbons, solvents, esters and ketones.

Pour Point (Deg C) : -40 to +27

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10. Stability and Reactivity

Hazardous Reactions : Can react with alkali metals and alkaline earth metals which have a strong affinity Friction Proofing can react with iron, zinc and aluminium at high temperatures leading to decomposition.

Conditions to avoid : Strong oxidising agents, heat and hot surfaces.

Hazardous Decomposition Product(s) : Prolonged heating at temperatures in excess of 180°C or heating above 200°C for short periods of time will result in decomposition.

11. Toxicological Information

This health hazard assessment is based on information available on similar products.

Inhalation : Unlikely to be hazardous by inhalation.

Skin Contact : Unlikely to cause skin irritation in man.

Eye Contact : By analogy with a similar substance this material is likely to cause slight eye irritation.

Ingestion : Unlikely to be hazardous if swallowed.

Long term Exposure : Repeated exposure to high levels may produce liver and kidney damage chronic ingestion studies in animals have shown that repeated does of a similar complex chemical blend (C14-17 52%) gave no effect levels in the range of 250-300 ppm. Slight effects on the liver were seen at higher doses. Adverse effects (blood disorders) have been seen in newborn rats, reared by dams fed on high does of a similar complex chemical blend as a group of chemicals are not genotoxic.
Their lack of genotoxic activity together with the results of other studies leads us to conclude that complex chemical are unlikely to present a carcinogenic hazard to man under normal conditions of handling and use.

12. Ecological Information

Environmental Fate and Distribution : High tonnage material produced in wholly contained systems.
High tonnage material use in wholly contained systems.
Liquid with low volatility.
The product is essentially insoluble in water.
The Product has potential for bioaccumulation.

Persistence and Degradation : There is evidence of partial hydrolysis in water.
There is evidence of slow degradation in soil and water.

Toxicity : Unlikely to have any ecotoxic or environmentally toxic effect.

Effect on Effluent Treatment : The product is partially remove in biological treatment processes.

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13. Disposal Considerations

Do not discharge into drains or the environment, dispose to an authorized waste collection point.
Disposal should be in accordance with local, state or national legislation.

14. Transport Information

Not classified as dangerous for transport.

15. Regulatory Information

Not classified as dangerous for supply / use

16. Other Information

PREPARATION INFORMATION

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*** * * END OF MSDS * * ***

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