Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Company Identification

SUPERO KIKAI KOGYO Co., Ltd.
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SDS No. SMO-H-27-2 Rev.3

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SDS name (Trade Name) SMOCON , Anti-seize agent for screws

Section 2. Hazards Identification:

GHS category

Classification and specifics of physical hazards

Combustible solids : Not classified

Pyrophoric solids : Not classified

Water-reactive combustible substances : Not classified

Graphic indication or symbol

Signal words : Danger

Hazard and Toxicity Information :

Suspected of causing cancer

Suspected of damaging fertility or the unborn child

Causes damages to organs through prolonged or repeated exposure

Precautions:

<Safety measures>

Never use the product unless you read and understand thoroughly all the safety precautions.

Prepare a copy of instruction manual before use.

Use designated personal protective wear.

Avoid inhalation of fume, gas, steam, dust, mist, spray.

Wash contaminated parts carefully after handling.

Avoid release to the environment.

Do not take food, drink and smoking while handling.

< First-aid measures >

Seek medical attention if you are or might have been exposed.

Take medical treatment if you are or might have been exposed.

If you feel ill, seek medical attention and/or take medical treatment.

< Storage >

Store residue in a tightly closed after use. Keep the product away from sources of ignition and inflammables.

< Disposal >

Disposal of the contents and containers must be entrusted to the industrial waste disposal contractors licensed by the Governor.

The product is a mixture consisting of several chemicals as described above. Even though each ingredients alone may be hazardous or harmful, the product mixture itself is a moderately viscous paste. The product is delivered, transported and stored in cans with appropriate net contents of 1.5kg, and the purpose and place of use of the product is isolated from the general public's living environment. It is applied as anti-seize agent to spaces between metallic bolt and nut in a reasonable amount. Unlike oils, it will not flow out or leak. Virgin products are hermetically sealed. Although the main ingredient trilead tetraoxide itself is a fine powder with an approximately 3μ diameter and may cause pneumoconiosis, the product causes no such hazard.

Mineral oils used as ingredients are kneaded and hardened to such a degree that the flash point is much higher than the original ones. Without massive fire, the product will not ignite by itself.

Physical changes of SMOCON with heating

200 ℃ : Gas and oily smoke generation resulted from vaporization of oil ingredients.

230 ℃ : Gas starts igniting.

500 ℃ : Pb_3O_4 transforms into PbO. Molten lead generates, releasing oxygen.

Hazards: Fire Defense Law : Non-hazardous material

Toxicity: Acute toxic substance, other hazardous substances.

Trilead tetraoxide is regulated by the Regulations regarding Lead Poisoning Prevention. However, since the product contains it in the oil phase and the purpose and place of use of the product are unlikely to cause health hazards orally, acute poisoning is also unlikely. Chronic poisoning is no

concern because the exposure level is low and the exposure time is short.

Section 3. Composition and Information on Ingredients

Single / mixture classification: Mixture

General application: Mainly for anti-seize agent for screws

Ingredients: Trilead Tetraoxide (Pb_3O_4) – based solid

Mineral based oils

(The product is manufactured by stirring and mixing a lead compound known as a solid lubricant (main ingredient) with mineral oils containing surfactants used to impart viscosity and uniform suspensibility.)

Composition: 65-70% Solid, 30-35% oils

Incl. Trilead Tetraoxide 55% or more

Chemical formula or structure: Not applied to mixture

Gazette Notice No.

Law concerning the Examination and Control of Manufacture of Chemical substance & Occupational Health and Safety Law: 1-527

CAS No. Trilead Tetraoxide: 1314 - 41 – 6

EC No. Trilead Tetraoxide(Orange Lead): 215-235-6

Other ingredients are trade secret.

UN category / UN number: Unlisted

Law concerning Pollutant Release and Transfer Register / PRTR Law :

< Trilead Tetraoxide : Type1, #305 in Appendix I >

Section 4. First-aid Measures:

Eye	Immediately flush eyes with plenty of running water for at least 15 minutes. Seek ophthalmologist's assistance if irritation persists.
Skin	Flush skin with plenty of soap and then water.
Inhalation	-
Ingestion	Sputter and wash the mouth. In case of putting material into the mouth accidentally, swallowing is unlikely to occur physiologically. Spit all out and get medical aid.

Section 5. Fire Fighting Measures:

Use extinguishing media immediately. Move container to a safe place. In case of immovable, sprinkle water to containers and adjacent to keep them cool.

Section 6. Accidental Release Measures:

Because of use of standard, appropriate-size containers to transport and store the material and economically controlled amount of stock, massive leakage is unlikely. In case of light leakage, wipe spill with cloth or paper and solvent, such as gasoline. In case of massive leakage, collect material with shovel and dispose in proper way.

7. Handling and Storage:

Handling: Wear gloves to avoid direct contact during handling, and wash your hands with appropriate solvent after handling.

Storage: Proper amount of the product is put and tightly closed in standard-size container that contains a modest amount. Store residue in a tightly closed container. Keep away from sources of ignition and inflammable materials.

8. Exposure Controls and Personal Protection:

Administrative levels: 0.05 mg/m³(as Pb)

<According to Work Environment Assessment Standard, Appendix as of Feb 17, 2017>

(Announced by Ministry of Health, Labor, and Welfare Notification No.79 in Sep, 1988)

Permissible Limit: -

Protective equipment: Container with compatible solvent

Personal protective equipment: Protective gloves

Section 9. Physical and Chemical Properties:

Appearance: Red brown, pasty. Specific gravity: 2.1 (at 30℃). Vapor pressure: Extremely low.

Solubility: Soluble in gasoline, benzene and carbon tetrachloride.

Insoluble in water, methyl / ethyl alcohol and acetone.

Boiling point: Data not available

Odor: None

Volatilization: None

Viscosity: 80 poise (at 30℃)

Hygroscopicity: None

Note: Trilead Tetraoxide (Pb_3O_4) is produced via lead monoxide (PbO) by combustion (oxidation) of lead (Pb). The oxidation temperature of PbO and the decomposition temperature of Pb_3O_4 are so close, thus, Pb_3O_4 that has been produced decomposes into PbO when temperatures are too high.

$Pb+O \rightarrow PbO$ $3PbO+O \rightarrow Pb_3O_4$ $2Pb_3O_4 \rightarrow 6PbO+O_2$

For this reason, products made from Pb_3O_4 also contain PbO.

Section 10. : Stability and Reactivity

Flash Point : Not-inflammable Ignition Point : 230 ℃

Explosion Limit : Data not available Combustibility : Data not available

Ignitability (Spontaneous Combustibility and Reactivity with water): No

Oxidizing Property : No Autoreadtivity and explosibility : No

Stability and Reactivity : Stable under routine use and handling conditions.

Section 11. : Toxicological information (Incl.Human cases and epidemiological information)

This section relates to poisonous solid ingredient Pb_3O_4 only.

Skin Corrosion : -

Irritability (skins and eyes) : -

Sensitizing property : -

Acute Toxicity (Incl. LD_{50}) : Pb_3O_4 as solid ingredient - rat: LD50=630mg/kg (intraperitoneal injection).

Chronic toxicity : Pb_3O_4 causes fatigue, headache, anemia, and disturbance of sensation of limbs etc.

Carcinogenicity : IARC / Group 2B Possibly carcinogenic to humans.

Mutagenicity: Bacteria, Chromosomal aberration : -

Reproductive Effects : -

Teratogenicity : -

Other studies : -

Section 12. : Ecological Information

Environmental Fate : -

Accumulation : -

Toxicity in fish : -

Other studies : -

Section 13. : Disposal Considerations

1. Every business proprietor must dispose industrial wastes on his own responsibilities or entrust the disposal with industrial waste disposal contractors licensed by the Governor or, if applicable, municipal waste disposal facilities.
2. This material is banned from land disposal.
3. For landfill disposal, incinerate the material with an incinerator, and confirm that the levels of the following substances in combustion residue are below the limits determined by the General Administrative Agency of the Cabinet. Copper and compounds thereof, zinc and compounds thereof, fluoride, alkylmercuric compounds, quicksilver and compound thereof, arsenic and compounds thereof, hexavalent chromes, organophosphorus compounds, lead and compounds thereof, cadmium and compounds thereof, cyanides, and PCB.
4. Combust the material in a safe place under the eye of an observer in a manner causing no hazards or losses by combustion explosion.

Section 14. : Transport Information

Observe instructions for handling and storage.

(There is no problem on consolidated service by truck or train since the material is stored in tightly closed, appropriate-size containers and packed in corrugated fiberboard boxes, and invite no danger by fire or corrosion caused by leakage.)

Section 15. : Regulatory Information

1. Mineral oils and mixture

   Law concerning the Examination and Control of Manufacture of Chemical Substances and Occupational Health and Safety Law: These oils are listed in the Existing Chemical List.

   Fire Defense Law: Hazardous material (Calss IV, Type III petroleum liquid) and non hazardous material.

   Water Pollution Prevention Law: Oil discharge control limit (permissible limit: 5 mg/L) .Detected as n-hexane extract.

   Marine Pollution Prevention Law: Oil discharge control (principal control)

   Swage Water Law: Mineral oil discharge control limit: 5 mg/L

   Water Treatment and Disposal Low: Industrial waste control (ban of proliferation and spillage)

2. Trilead tetraoxide in mixture

   Industrial Safety and Health Act

   Ordinance on the Prevention of Lead Poisoning

   Working Environment Measurement Act

   Working Environment Measurement Law

Section 16. : Reference List

1. Guidelines for Preparing MSDS (Japan Chemical Industry Association)
2. MSDS on each ingredient provided by the manufacturers

   Item: Trilead tetraoxide Mitsui Mining and Smelting Co.,ltd

   Marine Engine Oil Idemitsu Kosan Co.,ltd

   SM grease Nippon Grease Co.,ltd
3. Practical Guide Regarding the Lead Poisoning Prevention Law (Namari Chudoku Yobou Kisoku no Kaisetsu) - JISHA (Japan Industrial Safety and Health Association)
4. Industrial Poisoning Manual (Sangyo Chudoku Binran) - Ishiyaku Publishers Inc.
5. Notices Regarding Poisonous Material Control Limits (Dokugekibutsu Kijun Kankei Tsuchi-shu)

- Yakumukoshosha, edited by The Safety Division, The Pharmaceutical and Medical Safety Bureau, the Ministry of Health and Welfare

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Notes:

1. The symbol “-“ in this SDS indicates that no data was available as of this SDS preparation.
2. Ensure to handle the product carefully, taking into account that possible hazards may not have been investigated adequately.

The SDS is distributed to business proprietors handling hazardous chemicals as useful information to ensure safe handling. Every business proprietor should understand his/her own responsibility for taking appropriate measures under individual practical conditions according to the provided information. This SDS does not guarantee the safety.

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