

Safety Data Sheet

1. Identification of the Substance/Mixture and the Supplier

Supplier : The National Institute of Advanced Industrial Science and Technology
 Address : 1-3-1, Kasumigaseki, Chiyoda, Tokyo, Japan
 Department : Reference Material Office, Center for Quality Management of Metrology, The National Metrology Institute of Japan
 Person in Charge : Certified Reference Material Staff
 Phone Number : 029-861-4059 Fax Number : 029-861-4009
 Emergency Contact : Same as above

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Identity of Substance/Mixture : Certified reference material: NMIJ CRM 7905-a Polychlorinated Biphenyls in Fuel Oil(PCB blank)
 Recommended Use of the Chemical and Restriction on Use : This CRM is intended for use in controlling the precision of analysis or confirming the validity of analytical methods or instruments during the analysis of polychlorinated biphenyls (PCBs) in mineral oil samples and similar materials.
 Do not use this reference material for other purposes than testing/research.

2. Hazards Identification

GHS Classification :
 • Flammable liquid : Hazard Category 3
 Acute Toxicity (percutaneous) : Hazard Category 5
 Skin corrosion/irritation : Hazard Category 2
 Serious Eye Damage/ Eye Irritation : Hazard Category 2B
 Germ cell mutagenicity : Hazard Category 2
 Respiratory system toxicity, if inhaled : Hazard Category 1
 Toxic to the aquatic environment (Acute) : Hazard Category 2
 Toxic to the aquatic environment (Chronic) : Hazard Category 2

GHS Label Element :



Signal Word : Danger
 Hazards Statement : Flammable liquid/vapor
 If on skin it may causes the damage.
 Mild dermal irritation
 Suspect of causing genetic defects
 May be fatal if swallowed and enters airways
 Toxic to aquatic life

Precautionary Statement :	<p>Very toxic to aquatic life with long lasting effects</p> <p>[Safety Precaution]</p> <p>Do not handle until all safety precautions have been read and understood.</p> <p>Get the instruction manual before use.</p> <p>Do not eat, drink or smoke when using this product.</p> <p>Wash hands thoroughly after handling.</p> <p>Avoid breathing dust/fume/gas/mist/vapors/spray.</p> <p>Wear protective gloves.</p> <p>Keep away from heat/sparks/open flames/hot surfaces. No smoking.</p> <p>Use only outdoors or in a well-ventilated area.</p> <p>Take precautions against electrostatic discharge and use explosion-proof electrical/ventilating/lighting equipment.</p> <p>Use hose or the like in the case of use. Do not draw up in the mouth.</p> <p>Avoid release to the environment. Collect spillage.</p> <p>[Action]</p> <p>If swallowed: Rinse mouth. Do not induce vomiting. Immediately get medical advice/attention.</p> <p>If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.</p> <p>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>If eye irritation persists: Get medical advice/attention.</p> <p>If exposed or concerned: Get medical advice/attention.</p> <p>Get medical advice/attention if you feel unwell.</p> <p>If on skin: Wash with plenty of soap and water. Then Remove/Take off all contaminated clothing and adhered materials. If skin irritation or rash occurs: Get medical advice/attention.</p> <p>In case of fire, use a powder fire extinguisher</p> <p>Wash polluted clothing, if reuse them.</p> <p>In case of leakage, collect the spillage.</p> <p>[Storage]</p> <p>Store this reference material in a locked storage. Store this reference material in a light-shielded clean environment at room temperature less than 30 °C.</p> <p>[Disposal]</p> <p>Incinerate this reference material and its containers in an appropriate incinerator. Or entrust disposal of this reference material and its containers to a professional waste disposal company licensed by prefectural government.</p> <p>The other hazards than the above do not result in classification or are not covered by the GHS.</p>
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3. Composition/Component Information

Single substance/Mixture : Single substance



Chemical name	: Petroleum hydrocarbons
Alias	: Heavy oil
ID Number in Official Gazette	: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.: (9) -1700 Industrial Safety and Health Act : 12 -137
CAS Number	: 64742-79-6、101316-57-8
EINECS	: 3098630、2651828

4. Emergency Measures

Eye contact	: Rinse cautiously with clean water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention immediately.
Skin contact	: Remove/Take off contaminated clothing, etc. Rinse thoroughly with clean water and soap. Seek medical attention, if necessary.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing and warm. Get medical advice/attention immediately.
Ingestion	: Rinse mouth thoroughly with water. Do not induce vomiting, if it is not the instructions from a doctor. Get medical advice/attention when feeling unwell.
Expected acute symptoms and delayed symptoms, most important signs and symptoms	: If swallowed, it irritates the gastric mucosa and may cause vomiting. While vomiting, if it is inhaled into lungs, it can cause chemical pneumonia and possibly be fatal.
Protection for first aid provider	: Wear appropriate protective equipment to avoid skin contact and inhalation.
Special information for medical doctor	: No information.

5. Fire-Fighting Measures

Extinguishing Media	: Powder, foam, carbon dioxide, and strengthening solution spray. During large fire, it is effective to cut off the air using a foam. (rod-like water injection prohibited)
Specific hazards with regard to fire-fighting	: Contact of the hot metal surface and the like, and/or leakage from the fuel pipe, which may occur combustion or explosion by generated vapor. May form irritating or toxic fume (or gas) at the time of fire.
Specific methods of fire-fighting	: Eliminate ignition sources at the origin of a fire and put out fire by using extinguishing media. Remove movable containers promptly to a safe place. In the case of immovable containers, cool their surroundings with sprayed water.
Protection for firefighters	: Carry out fire-fighting from the windward in order to avoid breathing hazardous gas. Use personal protective equipment such as fire protection clothing, heat-resistant clothing,

protective clothing, breathing apparatus, circulating oxygen respirator, rubber gloves, and rubber boots. If contact with the skin is assumed, wear impervious protective equipment and gloves.

6. Accidental Release Measures

- Personal precautions : Remove ignition source in the vicinity immediately. Prepare fire-fighting equipment for the possibility of fires. Ventilate the affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed.
- Protective equipment and emergency measures : Ventilate the affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed. Use appropriate personal protective equipment during the operation to avoid skin contact of splash etc. and inhalation of dust and gas.
- Environmental precautions : Take precautions to prevent spillage from draining into rivers etc. to adversely impact the environment. Make it sure to appropriately treat contaminated wastewater in order to prevent untreated wastewater from being released into the surrounding environment.
- Recovery and neutralization : When the amount is small, use sand, waste cloth, etc. as an absorbent to retrieve, and then wipe off completely. When the amount is large, prohibit the entry in the area near the spill by roping off for example. Block the flow of spill with sand and the like. Guide it to a safe place, and then retrieve it in empty containers to the extent possible. At sea, prevent the spread with oil fences and absorb with oil absorption mats and the like. Only use chemicals conform to the technical standards in the ordinance of the Ministry of Transportation.
- Prevention of second accident : In case of the leak, immediately report to the concerned authority to prevent accident and expansion. Seal off access to the leaked area using ropes etc. Operate from the upwind and evacuate the people in the downwind.

7. Handling and Storage Precautions

- Handling Engineering Precautions : Wear appropriate protective equipment to avoid direct contact upon handling. Use tools such as a pump to take the oil out from the container. Flammable. Keep away from heat sources, flame, spark, and static electricity. Use explosion-proof equipment and take precautions against electrostatic discharge. Wear electro conductive clothes and shoes.
- Local and General : Use local ventilation system in indoor handling areas.



Ventilation

Precautions for Safe Handling : Avoid the contact with halogens, strong acids, alkalis, and oxidizing substances.

Storage

Appropriate Storage Conditions : Store this reference material in a light-shielded clean environment at room temperature less than 30 °C.
Keep away from heat sources, flame, spark, and static electricity.
Avoid the contact and storage with halogens, strong acids, alkalis, and oxidizing substances.

Safe packaging materials : Packaging should not be welded, heated, drilled or cut. The residue in the package may ignite along with an explosion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Acceptable concentration (mineral oil mist)

Not specified.

Permissible Concentration(Mineral oil mist)

- ACGIH TWA(2004) : 5 mg/m³
- Value recommended by Japan Society for Occupational Health (2004) : 3 mg/m³

Society for Occupational Health (2004)

Engineering Controls

Ventilation/Exhaust : Explosion-proof ventilation equipment should be installed in the indoor workshop. Install equipment to wash eyes and body near the handling area.

Safety Control/ : -

Gas Detection

Storage Precaution : Ventilate along floor surface. Seal.

Personal Protective equipment

Respiratory protection : Chemical cartridge respirator for organic gas.

Hands : Oil proof protective gloves (Impervious protective gloves)

Eyes : Eye protector (Goggle type as necessary)

Skin and body protection : Long-sleeve, oil-proof work clothes, etc.

Hygiene measure

Take off wet clothes and completely wash before reuse.

9. Physical and Chemical Properties

- Appearance, etc. : Liquid
- Color : Blackish brown
- Odor : Petroleum odor
- pH : No-data
- Melting Point : No-data (Pour point : 0 °C or less)
- Boiling Point : 150 °C or above
- Flash Point : 60~120 °C
- Specific Gravity or Bulk Specific : About 0.86 g/mL (20 °C)

Gravity

- Solubility : Insoluble
- n-octanol/water partition coefficient : No-data

log Po/w

10. Stability and Reactivity

◇Stability

- Stable in normal conditions

◇Reactivity

- It may react with strong oxidizing materials.

◇Conditions to Avoid

- Do not contact with halogens, strong acids, alkalis, and oxidizing substances

◇Hazardous Decomposition Products

- In the case of ignition, it produces smoke, carbon monoxide, sulfurous acid gas, etc.

11. Toxicological Information

※Heavy oil contains large amount of light oil fraction. Therefore descriptions about light oil are also included.

Acute Toxicity

LD50 (rat, oral) = 7.4 g/kg

LD50 (rabbit, skin) = 4.1 g/kg

Skin Corrosion/
Irritation

Based on Draize tests, light oil has moderate irritancy.

Long-term or repeated contact may cause skin defatting, drying, and cracking, as well as dermatitis.

Serious Eye Damage/
Eye Irritation

Mild eye irritancy.

Carcinogenicity

- It was reported that transdermal application of light oil from cracking unit, etc. to rats caused skin tumor.
- In the animal experiments conducted by American Petroleum Institute (API) and American petroleum companies, mild tumor and cancer with long incubation periods were observed on rat skin for fuel oils with boiling points between 175 to 370 °C. However, the relationship with the effects on the human body is unknown.

Reproductive cell
mutagenicity

In a test with Salmonella typhimurium, it was reported that mutagenicity was observed in suspension method both with and without metabolic activity, and mutagenicity was not observed in plate method. In a test with mouse lymphocyte, mutagenicity was not observed either with or without metabolic activity. In a test by intraperitoneal injection, an increase in chromosomal abnormality was observed on bone-marrow cells of rats.

Aspiration hazards

In case of accidental ingestion, it irritates the gastric mucosa, and may cause vomiting, stomach pain, diarrhea, etc. If ingested heavy oil gets inhaled into lungs, it may cause intrapulmonary bleeding, pulmonary edema, chemical pneumonia, etc.

12. Ecological Information

Ecotoxicity

- Acute toxic

Fish (*Oncorhynchus mykiss*)のLL50 : 21~230mg/L/96H

Fish (*Jordanella floridae* and *Pimephales promelas*)のLL50 : 31mg/L/96H

Crustacea (*Daphnia*)のEL50 : 6.2~210mg/L/48H

Algae (*Raphidocelis subcapitata*)のIrL50 : > 10~78mg/L/72H

- Chronic toxicity

log Kow 3.9~6

Degradability, bioaccumulation properties

- When light oil is released in the water or on the water surface, it forms a layer of hydrocarbons. Relatively toxic light components evaporate, so harmful effects on water environment become less. In the air, the vapor of hydrocarbons from light oil reacts with hydroxyl radicals, and their half-lives are less than one day. Particularly, polycyclic aromatic hydrocarbons decompose by photo-oxidation reaction of liquid hydrocarbons on the water surface. In the water, the majority of light oil adsorbs on the bottom sediment. When light oil is released in the soil, hydrocarbons adsorbed on the soil decompose slowly.

- Almost no useful information is available regarding biodegradability of light oil (OECD method, 28-day test). In a 28-day test with modified Sturn method by Buttersby, biodegradability was 40 %. In an OECD test with an acid-treated middle distillate, biodegradability was 61 %. Overall, hydrocarbons in light oil are degradable by microorganisms, therefore light oil is considered to be biodegradable in essence.

Bioaccumulation property

- logKow of light oil fraction is in the range of 3.9-6.0, and there is a chance of bioaccumulation. However, in reality, bioaccumulation can be mitigated due to the metabolism process.

13. Disposal Considerations

- Dispose in accordance with applicable regional, national and local laws and regulations.
 - Dispose of containers after thoroughly removing their contents.
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14. Transport Information

UN Number : 1202

UN Classification : Class 3 (flammable liquid)

Shipping Name : Polychlorinated Biphenyls in Insulation Oil

Packing Group : III

ICAO/IATA : -

Marine Pollutant : Not specified

Precautions : Transport this reference material carefully while keeping it away from

direct sunlight and preventing accidental release due to falling, overturning, etc.

15. Applicable Legislation

◇Fire Service Act

- Type 4 Hazardous Substance, Class 3 Petroleum (Water-insoluble)

◇Industrial Safety and Health Act

- Article 57-2 (Enforcement Order: Article 18-2) Hazardous substance whose name, etc. must be notified

◇Water Pollution Control Act

- Oil emission regulations (Permissible Concentration : 5 mg/L)
- Hazardous substance (Article 2, Enforcement Order: Article 2, Article 1 Ordinance defining the waste water standards) (Emission less than 0.003 mg/L)

16. Other Information

References

- Complete Substances Data subject to MSDS (Revised 2nd Edition), *The Chemical Daily* (2007)
- THRESHOLDS LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS AND BIOLOGICAL EXPOSURE INDICES, ACGIH(2004)
- IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO HUMANS : VOLUME 33
- IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO HUMANS : VOLUME 45
- CONCAWE product dossier no. 95/107 "gas oils (diesel fuels/ heating oils)
- ANSI Z 129.1-1994 American National Standards Institute.

Others

The information in this Safety Data Sheet is not intended to be exhaustive and is based on currently-available information and data. The precautions given in this data sheet are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety precautions appropriate to each specific application and context of use. This Safety Data Sheet (SDS) is intended to provide information and not intended to guarantee anything in handling the reference material. This Safety Data Sheet (SDS) is prepared based on JIS Z7253:2012, and presents identical information to Material Safety Data Sheet (MSDS) prepared based on JIS Z7250:2010.
