

# 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

Prepared on : August 29, 2007  
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 ID Number : 7903001

Identity of Substance/Mixture : Certified reference material: NMIJ CRM 7903-a Polychlorinated Biphenyls in Insulation Oil (Low Concentrations)  
 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 : Acute Toxicity (inhaled, dust or mist.) : Hazard Category 4  
 Skin corrosion/irritation : Hazard Category 3  
 Serious Eye Damage/ Eye Irritation : Hazard Category 2B  
 Germ cell mutagenicity : Hazard Category 2  
 Specific Target Organ Toxicity/Systemic Toxicity (Single Exposure) (Lung) : Hazard Category 2  
 Specific Target Organ Toxicity/Systemic Toxicity (Repeated exposure) (Lung) : Hazard Category 1  
 Respiratory system toxicity, if inhaled : Hazard Category 1

GHS Label Element :



Signal Word : Danger  
 Hazards Statement : Toxic, if inhaled.  
 Mild dermal irritation  
 Eye irritation  
 Suspect of causing genetic defects  
 Suspect of causing lung defects



Other Hazards	Causes damage to organ (lung) through prolonged or repeated exposure.
Statement :	May be fatal if swallowed and enters airways.
Precautionary Statement :	It is flammable and watch out for fire.
	[Safety Precaution]
	Do not handle until all safety precautions have been read and understood.
	Get the instruction manual before use.
	Do not eat, drink or smoke when using this product.
	Wash hands thoroughly after handling.
	Avoid breathing dust/fume/gas/mist/vapors/spray.
	Wear protective gloves.
	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
	Use only outdoors or in a well-ventilated area.
	[Action]
	If swallowed: Rinse mouth. Do not induce vomiting. Immediately get medical advice/attention.
	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.
	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	If eye irritation persists: Get medical advice/attention.
	If exposed or concerned: Get medical advice/attention.
	Get medical advice/attention if you feel unwell.
	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.
	[Storage]
	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. Once the container of this CRM was opened, transfer it to another container, and store at as much as possible a closed state.
	[Disposal]
	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.
	The other hazards than the above do not result in classification or are not covered by the GHS.

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### 3. Composition/Component Information

Single substance/Mixture	: Mixture
Chemical name	: Electrical insulation oil
Alias	: Mineral oil



※This CRM contains components shown below;

Component name	: Polychlorinated biphenyls (Class I specified chemical substances)
Amount	: About 6 µg/kg
ID Number in Official Act on the Evaluation of Chemical Substances and Gazette	Regulation of Their Manufacture, etc.: (1) -306
CAS Number	: 1336-36-3
TSCA	: Specified
EINECS	: 2156481

#### 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	: Do not induce vomiting; get a prompt diagnosis from a physician. Fully wash inside of the mouse if it is contaminated.
Expected acute symptoms and delayed symptoms, most important signs and symptoms	: Eyes and skin irritation. 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	: Do not make direct contact with skin. Also, use appropriate protective equipment to avoid inhalation.

#### 5. Fire-Fighting Measures

Extinguishing Media	: Powder, foam, carbon dioxide, and strengthening solution spray (rod-like water injection prohibited).
Specific hazards with regard to fire-fighting	: 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, breathing apparatus, and circulating oxygen respirator.



## 6. Accidental Release Measures

- Personal precautions : Wear appropriate protective equipment to avoid contact of airborne droplets and the like on skin and inhalation of powder and gas.
- Protective equipment and emergency measures : 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.
- 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 secondary disaster : 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.

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## 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. Avoid contact with fire, spark, or high-temperature objects. Avoid contamination with water and dirt. If the pumping port is hot, wait until it gets cold before pumping.
- Local and General Ventilation Precautions for Safe Handling : Use local ventilation system in indoor handling areas.
- : Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers. Wash hands, face etc. thoroughly and gargle after handling this reference material. Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing. Avoid the contact with halogens, strong acids, alkalis, and



oxidizing substances.

#### Storage

- Appropriate Storage : Store this reference material in a light-shielded clean environment at room temperature less than 30 °C.
- Conditions : Keep away from heat sources, flame, spark, and static electricity. Avoid the contact and storage with halogens, strong acids, alkalis, and oxidizing substances.
- Safe materials for container : Use containers conform to “Hazardous materials control rules, appendix 3.2”.

※Please refer CRM certificate about storage conditions as reference material.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Threshold Limit Value

Not specified.

### Permissible Concentration(Mineral oil mist)

- ACGIH TWA(2004) : 5 mg/m<sup>3</sup>
- Value recommended by Japan Society for Occupational Health (2004) : 3 mg/m<sup>3</sup>

### Permissible Concentration (Polychlorinated biphenyl)

- ACGIH TLV-TWA (2006) : 0.5 mg/m<sup>3</sup>
- Value recommended by Japan Society for Occupational Health (2006) : 0.01 mg/m<sup>3</sup>

### Engineering controls

Ventilation : If mist or vapor comes off, seal up the source of origin or install ventilation facility. Install eye and body washing equipment near the handling area.

Safety Control/ : -

Gas Detection

Storing 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)
- Protective equipment for skin and body : Long-sleeved, oil-proof work clothes, etc.

### Hygiene measure

Take off wet clothes, and reuse after washing completely.

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## 9. Physical and Chemical Properties

- Appearance, etc. : Viscous liquid



• Color	:	Yellow
• Odor	:	Stinking
• pH	:	No-data
• Melting Point	:	No-data
• Boiling Point	:	No-data
• Flash Point	:	130 °C or above
• Specific Gravity or Bulk Specific Gravity	:	About 0.88 g/mL (20 °C)
• n-octanol/water partition coefficient	:	No-data
log Po/w		

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## 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

- Carbon monoxide
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## 11. Toxicological Information

<Insulation oil>

Acute toxicity

LD50 (oral, rat) > 5 g/kg (insulation oil)

LD50 (inhalation (mist), rat) = 2.18 mg/L (insulation oil)

Skin corrosivity /  
irritancy

- It has been reported mild irritancy was observed in tests with rabbits.

Serious eye damage /  
irritancy

- The number of abnormal cells increased in cytogenetic tests (chromosomal disorder test, somatic cell in vivo mutagenicity test) with rats.

Reproductive cell  
mutagenicity

It was reported mild irritancy was observed in tests with rabbits.

- The number of abnormal cells increased in cytogenetic tests (chromosomal disorder test, somatic cell in vivo mutagenicity test) with rats.

Specific target organs  
(single exposure) /  
systematic toxicity  
(single exposure)

- Increase in chromosomal disorder of human peripheral blood lymphocytes with work exposure was observed.

It was reported that acute, visible, histopathological changes were observed on lungs depending on the amount (1.51~5.05mg/L) in inhalation exposure experiments with rats.

Specific target organs /  
systematic toxicity  
(repeated exposure) /  
systematic toxicity  
(repeated exposure)

It was reported that long-term exposures of mineral oil or the mist caused pulmonary fibrosis, fat pneumonia, and lipid granuloma in lungs.



Damage of respiratory system <Polychlorobiphenyl>	It was reported that ingestion of mineral oil by human causes inhalation into lungs, and it results in oil or chemical pneumonia.
Acute toxicity	Oral Rat LC50 1.9 g/kg (Polychlorinated biphenyl)
Carcinogenicity	LARC group 2A Japan Society for Occupational Health group 2A

## 12. Ecological Information

### Degradability, bioaccumulation properties

- (Insulation oil) It can move to the atmosphere, water system, and soil.
- (Polychlorobiphenyl) It has no degradability by microorganisms. In the body of fish and shellfish, (1) it has high tendencies for concentration and accumulation, and (2) degradability is not good and it has a high tendency for concentration.

Degree of decomposition: 13% (BY BOD)

Degree of concentration (multiplying factor): 1,120-10,300 (carp, 6.6µg/L),  
600-160,000 (carp, 2.2µg/L)

### Bioaccumulation

- No data available

### Ecotoxicity

- No data available

## 13. Disposal Considerations

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

## 14. Transport Information

UN Number	: Not specified
UN Classification	: Not specified
Shipping Name	: Polychlorinated Biphenyls in Insulation Oil
Packing Group	: -
ICAO/IATA	: -
Marine pollutant	: Oil discharge regulation (prohibited in principle)
Cautions	: Transport with care avoiding direct sunlight, leakage due to accidents such as drop and fall, as well as fire.

## 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

- ◇ Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
  - Class 1 Specified Chemical Substance
- ◇ 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)
- ANSI Z 129.1-1994 American National Standards Institute.
- 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
- International Uniform Chemical Information Database(INCLID)(2000)

### Others

Understand that Class 1 specific chemical substances have low degradability and a high tendency for concentration, long-term toxicity for human, and ecological toxicity for higher-level predators among flora and fauna in the human living environment. Therefore, seek improvements in sealing of the equipment, recovery measures, etc. Check for leakage from storage tank etc. regularly. Avoid scattering and spill while handling. Standard grade of this item contains substances classified as Class 1 specific chemical substance, therefore handle in accordance with Chemical Substances Control Law, as well as store and dispose according to Waste Management and Public Cleansing Law.

### 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.