

# Material Safety Data Sheet

MSDS No : AA00462-0000000177

## Section 1. Product & Company Identification

- A. Product Name IRM 903
- B. Recommended use of the chemical and restriction on use  
Testing oil
- C. Information of manufacturer, Supplier
- Company MICHANG OIL IND. CO., LTD.
  - Address 241, HAEYANG-RO, YEONGDO-GU, BUSAN, KOREA  
589, SINHANG-RO, NAM-GU, ULSAN, KOREA
  - Emergency Telephone No +82-51-409-5049 / +82-52-256-7857  
Quality Innovation Team

## Section 2. Hazards Identification

- A. Classification
- Physical-Chemical Hazards Not classified
- Health and Environmental Hazards  
Aspiration Category 1
- B. Label element, including precautionary statements
- Hazard Pictogram (Symbols)
 


  - Signal word(s)  
Danger
  - Hazard statements(s)  
Not applicable
  - Precautionary statements(s)
    - Prevention  
Not applicable
    - Response  
P301+P310 : IF SWALLOWED : Immediately call a POISON CENTER or doctor/physician.  
P331 : Do NOT induce vomiting.
  - Store statements(s)  
P405 : Store locked up.
  - Abandon statements(s)  
P501 : Dispose of contents/container to (in accordance with local/regional/national/international regulation).
- C. Other hazard which do not result in classification
- | NFPA Hazard ID  | Health | Flammability | Reactivity |
|---|--------|--------------|------------|
| Distillates (petroleum)                               | 0      | 1            | 0          |
| Hydrotreated heavy naphthenic Distillates (petroleum) | 1      | 1            | 0          |
| hydrotreated light naphthenic                         |        |              |            |

## Section 3. Composition / Information on Ingredients

<u>Chemical identity</u>	<u>Common name, synonym</u>	<u>CAS No.</u>	<u>Percentages(%)</u>	<u>EINECS No</u>	<u>ECL serial No</u>
Distillates (Petroleum)	Distillates (Petroleum)	64742-52-5	60	265-155-0	KE-12543
Hydrotreated heavy naphthenic	Hydrotreated heavy naphthenic				

Distillates (Petroleum) Hydrotreated light naphthenic	Distillates (Petroleum) Hydrotreated light naphthenic	64742-53-6	40	265-156-6	KE-12552
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**Section 4. First Aid Measures**


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## A. Eye contact

Symptoms: slight irritation (unspecific). May cause burn in case of contact with product at high temperature.  
 Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.  
 If irritation, blurred vision or swelling occurs and persists, obtain medical attention.  
 If hot product is splashed into the eye, it should be cooled immediately and medical assessment and treatment for the casualty.

## B. Skin contact

Symptoms: dry skin, irritation may arise in case of repeated or prolonged exposure.  
 May cause burn in case of contact with product at high temperature.  
 Remove contaminated clothing and footwear, and dispose of safely.  
 Wash affected area with soap and water.  
 Seek medical attention if skin irritation, swelling or redness develops and persists.  
 (if applicable) When using high-pressure equipment, injection of product can occur.  
 If high-pressure injuries occur, immediately seek professional medical attention.  
 Do not wait for symptoms to develop.  
 For minor thermal burns: Cool the burn. Hold the burned area under cold running water for at least five minutes, or until the pain subsides.  
 However, body hypothermia must be avoided.  
 Do not put ice on the burn: Remove non-sticking garments carefully.  
 DO NOT attempt to remove portions of clothing glued to burnt skin but cut round them.  
 Seek medical attention in all cases of serious burns.

## C. Inhalation

Inhalation at ambient temperature is unlikely because of the low vapour pressure of the substance.  
 Symptoms: irritation of the respiratory tract due to excess fume, mists or vapour exposure.  
 In case of symptoms arising from inhalation of fumes, mists or vapour: Remove casualty to a quiet and well ventilated place if safe to do so if the casualty is unconscious and:  
 - Not breathing - ensure that there is no obstruction to breathing and give artificial respiration by trained personnel.  
 If necessary, give external cardiac massage and obtain medical assistance.  
 - Breathing: place in recovery position. Administer oxygen if necessary.  
 Obtain medical assistance if breathing remains difficult.

## D. Ingestion

Symptoms: few or no symptoms expected. If any, nausea and diarrhea might occur.  
 (if applicable) Always assume that aspiration has occurred. Seek professional medical attention or send the casualty to a hospital. Do not wait for symptoms to develop. Do not induce vomiting as there is a risk of aspiration.  
 Do not give anything by mouth to an unconscious person.

## E. Most important symptoms/effect, acute and delayed

May cause slight eye and skin irritation. Not expected to be a sensitizer.

## F. Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

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**Section 5. Fire-Fighting Measures**


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## A. Extinguishing media

Foam (Specifically trained personnel only.)  
 Water fog (Specifically trained personnel only.)  
 Dry chemical powder.  
 Carbon dioxide.  
 Other inert gases (subject to regulations.)  
 Sand or earth.

## B. Unsuitable extinguishing media

Do not use direct water jets on the burning product: they could cause splattering and spread the fire.  
 Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

## C. Combustion products

Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates and gases,

including carbon monoxide and unidentified organic and inorganic compounds.

D. Protective equipment for firefighters

In case of a large fire or in confined or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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**Section 6. Accidental Release Measured**

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A. General information

Stop or contain leak at the source if safe to do so. Avoid direct contact with released material. Stay upwind. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. It is recommended to eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). If required, notify relevant authorities according to all applicable regulation.

B. Personal protection equipment for emergency responders

Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note: gloves made of PVA are not water-resistant, and are not suitable for emergency use. Work helmet. Antistatic non-skid safety shoes or boots. Goggles or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection will be necessary only in special case (e.g. formation of mists). A half or full-face respirator with combined dust/organic vapour filter(s), or a Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

C. Land spillage

Prevent product from entering sewers, rivers, waterways or other bodies of water. If necessary dike the product with dry earth, sand or similar non-combustible materials. Large spillages may be cautiously covered with foam, if available, to limit fire risk. Do not use direct jets. When inside buildings or confined space, ensure adequate ventilation. Absorb spilled product with suitable non-combustible materials. Collect free product with suitable means. Transfer collected product and other contaminated materials to suitable tanks or containers for recycle, recovery or safe disposal. In case of soil contamination, remove contaminated soil for remediation or disposal according to local regulations.

D. Spillages in water or at sea

In case of small spillages in closed water (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open water should be contained with floating barriers or other mechanical means. If this not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. Collect recovered product and other contaminated materials in suitable tanks or containers for recovery or safe disposal.

E. Additional information

Recommended measures are based on the most likely spillage scenarios for this material: however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also proscribe or limit actions to be taken.

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**Section 7. Handling and Storage**

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A. General information

Ensure that all relevant regulations regarding handling and storage facilities of combustible products are followed. It is recommended to keep away from sparks/open flames/hot surface. No smoking. Use and store only outdoors or in a well-ventilated area. Avoid contact with the product. Avoid release to the environment.

B. Handling

Take precautionary measures against static electricity. Avoid splash filling of bulk volumes when handling hot liquid product. Avoid contact with skin. Avoid breathing fume/mist. Prevent the risk of slipping. Use personal protective equipment as required. For more information regarding protective equipment and operational conditions for a substance which is classified according to classification notes, see exposure scenarios. These risk management measures represent a worst case. For a non-classified substance proportionate information may be found in the Safety Data Sheet.

B. Storage

Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Storage in stallations should be designed with adequate bunds so as to prevent ground and water pollution an case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Store separately from oxidizing agents.

C. Recommended and unsuitable materials for storage

Recommended materials: For containers, or container linings use mild steel, stainless steel.

Unsuitable materials: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

D. Container advice

If the product is supplied in containers:

Keep only in the original container or in a suitable container for this kind of product.

Keep containers tightly closed and properly labeled.

Empty containers may contain combustible product residues.

Do not weld, solder, drill, cut or perform similar operations unless they have been properly cleaned.

E. Hygiene measures

Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Keep away from food and beverages.

Do not eat, drink or smoke when using this product. Wash the hands thoroughly after handling.

Change contaminated clothes at the end of working shift.

F. Load/ Unload temperature

°C Ambient

G. Storage temperature

°C Ambient

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## Section 8. Exposure Controls / Personal Protection

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A. Exposure limit

TLV/TWA	TLV/STEL
5 mg/m <sup>3</sup> mist	10 mg/m <sup>3</sup> mist

B. Engineering controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present.

Ensure compliance with applicable exposure limits.

Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

C. Respiratory protection

No special respiratory protection is normally required.

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Eye protection

Normal industrial eye protection practices should be employed.

Skin protection

Wear suitable gloves to avoid direct skin contact.

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## Section 9. Physical and Chemical Properties

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A. Appearance (physical state, color etc)	Clear Yellow liquid
B. Odor	Mild petroleum odor
C. Odor threshold	Not established
D. pH	Not applicable
E. Melting point / freezing point	-30.0°C (ASTM D 97)
F. Initial boiling point and boiling range	300~580°C
G. Flash point	168°C (COC)
H. Evaporation rate	Not established
I. Flammability (solid, gas)	Not applicable
J. Upper/Lower flammability or explosive limits	0.9 – 7 Vol%
K. Vapor pressure	< 0.1 kPa at 20°C
L. Solubility	Negligible (in Water)
M. Vapor density	> 5 (Air=1)
N. Specific gravity	0.9226at 15/4°C
O. Partition coefficient : n-octanol / water	log Pow = 3.9~6
P. Auto-ignition temperature	> 260°C

Q. Decomposition temperature	Not established
R. Viscosity	29.82 mm <sup>2</sup> /s (cSt) at 40°C
S. Molecular weight	330

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**Section 10. Stability and Reactivity**


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- A. Stability (Thermal, Light, etc)  
Stable under normal temperature & pressure
- B. Condition to avoid  
Extreme heat
- C. Incompatibility (Materials to avoid)  
Strong oxidizers
- D. Hazardous decomposition products  
Carbon monoxide
- E. Hazardous polymerization  
Will not occur.

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**Section 11. Toxicological Information**


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- A. Information on the likely routes of exposures
- Inhalation exposure  
May cause slight irritation.
  - Ingestion exposure  
May cause diarrhea.
  - Skin / Eye exposure  
May cause slight skin irritation.
- B. Delayed and immediate effects and also chronic effects from short and long term exposure
- Acute oral toxicity  
Not classified                      LD<sub>50</sub> > 5,000 mg/kg Practically non-toxic.
  - Acute dermal toxicity  
Not classified                      LD<sub>50</sub> > 5,000 mg/kg Practically non-toxic.
  - Acute inhalation toxicity  
Not classified                      LC<sub>50</sub> > 5.0 mg/l Practically non-toxic.
  - Skin Corrosion/ irritation  
Not classified                      Either only weakly irritating or not irritating to the skin of rabbits and humans.
  - Serious eye damage / eye irritation  
Not classified                      Practically non-irritating.
  - Respiratory sensitization  
Not classified                      This substance is not expected to cause respiratory sensitization.
  - Skin sensitization  
Not classified                      This substance is not considered to be dermal sensitizer.
  - Germ Cell Mutagenicity  
Not classified                      This substance was found to be non-mutagenic.
  - Carcinogenicity  
Not classified                      The DMSO extract by IP346 of this substance is less than 3%. (Typical <1%)  
Consequently it is not classified as a carcinogen.
  - Toxic to reproduction  
Not classified                      Reproductive toxicity dermal NOAEL (development) > 2,000 mg/kg.  
This substance showed no effects on reproductive parameters.
  - Specific target organ systemic toxicity (Single exposure)  
Not classified                      No data available.
  - Specific target organ systemic toxicity (Repeated exposure)  
Not classified                      Sub-chronic repeat dose dermal : NOAEL 1,000 mg/kg  
Sub-chronic repeat dose inhalation : NOAEL (local effects) > 220 mg/kg  
and NOAEL (systemic effects) > 980 mg/m<sup>3</sup>  
This substance is not classified for repeat-dose toxicity.
  - Aspiration hazard :  
Category 1                      As the hydrocarbon the case where the dynamic viscosity is below  
20.5mm<sup>2</sup>/s from 40 degrees.
- C. Numerical measures of toxicity (such as acute toxicity estimate)

No data available.

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**Section 12. Ecological Information**


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A. Ecotoxicity	Acute aquatic invertebrate EL <sub>50</sub> > 10,000 mg/ℓ Acute aquatic algae NOEL > 100 mg/ℓ Acute fish LL <sub>50</sub> > 100 mg/ℓ Long-term invertebrate NOEL > 10 mg/ℓ Long-term fish NOEL > 10 mg/ℓ
B. Persistence and degradability	Biodegradability No data is available on the product itself.
C. Bioaccumulative potential	No data is available on the product itself.
D. Mobility in soil	No data is available on the product itself.
E. Environmental fates	No data is available on the product itself. This material is not expected to present any environmental problems other than those associated with oil spills.

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**Section 13. Disposal Considerations**


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This product is a controlled waste. Collect and dispose of waste product at an authorized facility, in conformance with national and local regulations, and in accordance with EEC Directives on the disposal of waste oil.

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**Section 14. Transport Information**


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A. UN number	Not applicable. Not classified as dangerous for transport.
B. Proper shipping name	Not applicable. Not classified as dangerous for transport.
C. Proper shipping name and description	Not applicable. Not classified as dangerous for transport.
D. Chemical name	Not applicable. Not classified as dangerous for transport.
E. Class	Not applicable. Not classified as dangerous for transport.
F. Classification code	Not applicable. Not classified as dangerous for transport.
G. Packaging group	Not applicable. Not classified as dangerous for transport.
H. EmS number	Not applicable. Not classified as dangerous for transport.
I. Labels	Not applicable. Not classified as dangerous for transport.
J. Marine pollutant	No
K. IATA	Not applicable. Not classified as dangerous for transport.
L. ICAO	Not applicable. Not classified as dangerous for transport.
M. IMDG	Not applicable. Not classified as dangerous for transport.
N. Remark	None

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**Section 15. Regulatory Information**


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A. Governmental inventory status	All the components of this material are listed is listed on the following inventories: EINECS (European Inventory of Existing Commercial Chemical Substances), June 15, 1991 TSCA (US, Toxic Substances Control Act), December, 2006 AICS (Australian Inventory of Chemical Substances), June, 1996 DSL (Canadian Domestic Substances List), January 26, 1991 IECSC (Chinese Chemical Inventory) ENCS (Japanese Existing and New Chemical Substances) ECL (Korea Existing Chemical Number), January, 1997 PICCS (Philippine Inventory of chemicals and Chemical Substances), 2000 NZIoC (New Zealand Inventory of Chemicals), 2006 SWISS (Swiss Giftliste 1 and Inventory of Notified New Substances)	
B. US INFORMATION		
	OSHA (29 CFR1910.119)	Not regulated
	CERCLA 103(40 CFR302.4)	Not regulated
	EPCRA302(40 CFR355.30)	Not regulated
	EPCRA304(40 CFR355.40)	Not regulated

EPCRA313(40 CFR372.65)	Not regulated
C. Rotterdam agreement substances(PIC)	Not regulated
D. Stockholm agreement substances(POPs)	Not regulated
E. Montreal protocol substances	Not regulated

## F. EU INFORMATION

Directive 67/548/EEC, REGULATION(EC)No 1272/2008

Classification

Hazard Class and Category Code Carc.1B

Hazard statement H350

Note L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3 % DMSO extract as measured by IP 346.

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**Section 16. Other Information**

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## A. Sources of key data

The recommendations presented in this Material Safety Data Sheet were compiled from actual test data when available, comparison with similar products, component information from suppliers and from recognized codes of good practice.

The data and recommendation presented herein are based on our research and the research of others, and are believed to be accurate. No guarantee of their accuracy is made: however, and the products discussed are distributed without warranty, express or implied, and the person receiving them shall make his own determination of the suitability thereof for his particular purpose.

B. Originated date 2008/3/10

C. Revision number and date

6<sup>rd</sup> revision 2023/6/26

D. Remark