

MATERIAL SAFETY DATA SHEET

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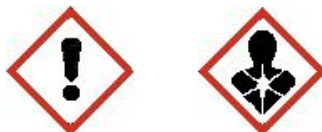
1.SUPPLIER

PRODUCT NAME MAKINO SPINDLE LUBRICANT
 Machine tool oil
 PRODUCT CODE 50270
 NAME/Corporate name JX Nippon Oil & Energy Corporation
 Lubricants & Specialties Business Division
 Lubricants & Specialties Coordination Dep't
 Address 6-3, Otemachi 2-chome, Chiyoda-ku, Tokyo 100-8162, Japan
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2.HAZARDS IDENTIFICATION

GHS Classification
 Flammable liquid Not applicable
 Acute toxicity (Oral) Not applicable
 Acute toxicity (Skin) Not applicable
 Acute toxicity (Inhalation - dust, mist) Category 4
 (Symbol : Exclamation mark, Signal word : Warning)
 Skin corrosion / Skin irritation Category 3
 (Symbol : -, Signal word : Warning)
 Serious eye damage / Eye irritation Category 2B (Symbol : -, Signal word : Warning)
 Breathing sensitization Not classified
 Skin sensitization Not applicable
 Germ cell mutagenicity Category 2
 (Symbol : Health hazard, Signal word : Warning)
 Carcinogenicity Not applicable
 Reproductive toxicity Not applicable
 Specific target organ systemic toxicity (Single exposure) Category 2
 (Lung, Symbol : Health hazard, Signal word : Warning)
 Specific target organ systemic toxicity (Repeated exposure) Category 1
 (Lung, Symbol : Health hazard, Signal word : Danger)
 Hazardous to respiratory organs Category 1
 (Lung, Symbol : Health hazard, Signal word : Danger)
 Hazardous to aquatic environment (Acute) Not applicable
 Hazardous to aquatic environment (Chronic) Not applicable

GHS Label Element
 Symbol



Signal word Danger
 Hazardous information 1.Slight skin irritation, Eye irritation.
 2.Harmful if inhaled (by mist).
 3.Risk of the hereditary disease.
 4.Risk of the lung's disorder.
 5.Lung's disorder / skin disorder by long term or repeated exposure.
 6.Risk of peril of life if swallowed and intruded into the respiratory tract.
 Instructions: [Prevention] 1.Unless referring to this Material Safety Data Sheet (MSDS) and
 understanding all instructions and cautions for safety handling, never
 use this product.
 2.Do not eat, drink or smoke, when using this product.
 3.On using this product, wear personal protective gears or use
 ventilation systems. And keep away from exposure of this product.
 4.Outdoors or area utilized preferable ventilation systems are only
 applicable place on using this product.
 5.Avoid breathing fume, mist, steam or spray.
 6.Wash hands thoroughly after handling.

- [Response] 1.IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical advice and treatment by a physician, if feeling unwell.
 2.IF ON SKIN: Wash immediately with soap and water. Get medical advice and treatment by a physician, if skin irritation occurs or feeling unwell.
 3.IF IN EYES: Rinse cautiously with water for several minutes. Then, remove contact lenses, if present and easy to do. And moreover keep washing eyes. Get medical advice and treatment by a physician, if eye irritation persists or feeling unwell.
 4.IF SWALLOWED: Rinse mouth. Do not induce to vomit. Get medical advice and treatment by a physician.
 5.IF EXPOSED: Get medical advice and treatment by a physician.
 6.Remove polluted clothing. If reuse them, wash before reuse.
 7.Wash hands after handling.
- [Storage] 1.Storage in lockable or entry controlled facilities, which have to be well-ventilated and blocked sunshine insertion. Keep away from direct rays of sunshine.
 2.Storage at cool and well-ventilated place.
- [Disposal] 1.Waste product and packages have to be disposed properly by authorized facilities, in conformance with national and local regulations.

3.COMPOSITION/INFORMATION ON INGREDIENTS

Single composition / Mixture	Mixture
Substance name or common name	Lubricating oil (Petroleum hydrocarbons and additive)
INGREDIENTS	Lubricating base oil >98mass% Lubricating oil additive <2mass%
Chemical structure (chemical formula)	Unspecified
CAS No.	Not disclosed
Hazardous ingredient information	This product is not formulated to contain ingredients which have exposure limits established by regulatory agencies.

4.FIRST AID MEASURES

- Inhalation : Remove a victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice and treatment by a physician, if feeling unwell.
- Skin contact : Wash immediately with soap and water. Get medical advice and treatment by a physician, if skin irritation occurs or feeling unwell.
- Eye contact : Rinse cautiously with water for several minutes. Then, remove contact lenses, if present and easy to do. And moreover keep washing eyes. Get medical advice and treatment by a physician, if eye irritation persists or feeling unwell.
- Ingestion : Rinse mouth. Do not induce to vomit. Get medical advice and treatment by a physician.
- Protection for person giving first aid No useful data
- Precautions for a physician No useful data

5.FIRE FIGHTING MEASURES

- Extinguishing media Powder, foam, carbon dioxide (CO₂), sand, mist water.
- Media which should be avoided Do not use water jets (stick jets) for extinguishing fire, as this may help the spread of flame.
- Specific hazards Possibly container explosion occurs, when exposed to heat. Risk of generating irritative, toxic or corrosive gases.
- Specific fire extinguishing method Block flammable items to the fire. Sprinkle neighboring facilities and cool off. Remove containers from firing area if not dangerous. If impossible to do, sprinkle the containers and circumference to cool off. After extinguished, keep cooling containers enough with a plenty of water.
- Protection for firefighters Select appropriate extinguishant depending on the type of fire. Wear chemical protection clothes and appropriate air-inhaler. Do the fire fighting from windward.

6. ACCIDENTAL RELEASE MEASURES

Precaution for the human body	Wear the protection clothes, glasses or other protective gears, while working.
Environmental precautions	<ol style="list-style-type: none"> 1. Prevent spills from entering sewers or drains and contact with soils. 2. When released on the sea and use chemicals for the purpose of counter measures, use only chemicals complied with regulations.
Removing method	<ol style="list-style-type: none"> 1. Eliminate all source of ignition, flammables. 2. If small amount of spills, absorb it by sand or rags, or scrape up with rags. 3. If released a large amount, keep out people entering by setting ropes around the place polluted. Then stop flow by putting dirt and lead to safety place for recovery to empty vessels. 4. When released on the sea, use oil fence to prevent spreading, then absorb the oil to blotter mat. When use chemicals for the purpose of counter measure, use only chemicals complied with regulations.
The preventive measures against secondary disaster	<ol style="list-style-type: none"> 1. Report immediately to the authorities concerned for preventing secondary disasters. 2. Eliminate all source of ignition and flammables.

7. HANDLING AND STORAGE

Handling:

Technical measures	<ol style="list-style-type: none"> 1. Avoid contact with flame, spark or high temperature source, and keep attention not to vaporize in vain. 2. Take counter measures to static electricity, and use clothes, shoes and other gears with conductive characteristics. 3. When repairing or making some change to machines including oil in it, remove to safety place and drain the remaining oil completely, before it. 4. When taking out oil from a container, use a pump suitable for oil. Do not use a narrow tube to suck oil with mouth. Never drink it. 5. Use protective gears if possibly contact to skin or eyes. 6. When mist generated, use appropriate air-inhaler not to inhale mist. 7. Keep container closed tightly, when out of use.
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(Note) In case of engine oil: According to some animal tests, there is a possibility to result in cancer, when contact with engine oil for a long term.

Note	<ol style="list-style-type: none"> 1. Keep attention to enough ventilating and also avoid flame or sparks, because vapor or mist of product is heavier than air, so that it tends to remain on the floor.
For safety handling	<ol style="list-style-type: none"> 1. Handle it at ambient temperature. Keep away from water and other contaminants. 2. Avoid contact with halogens, strong acids, alkali compounds, or oxidizers.

Storage:

Preferable conditions	<ol style="list-style-type: none"> 1. Keep containers in a cool, well-ventilated area. Avoid the direct rays of for storage sunshine. 2. Display and storage must comply with national and local regulations as dangerous materials. 3. Avoid heat, spark, and flame. Do not let accumulate static electricity.
Technical measures	<ol style="list-style-type: none"> 1. When using electrical instruments at storage area, the instruments have to be explosion-proof and have to be grounded.
Note	<ol style="list-style-type: none"> 1. Avoid contact with halogens, strong acids, alkali compounds, or oxidizers. And never keep at same place with those materials.
For keeping packages safety	<ol style="list-style-type: none"> 1. Do not pressurize empty containers, because it has the risk of explosion. 2. Do not make welding, heating, punching, and cutting to packages. Possibly, sparks from those processes result in ignition or explosion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Technical measures	Use this product at well-ventilated rooms or areas. When working at enclosed place, such as tanks, reservoirs, and so on, keep attention not to result in suffocation, accordingly, use air-inhaler or appropriate equipments.
Exposure limit	·oil mist : 10mg/m ³ , for 15 minutes ·oil mist : 5mg/m ³ , for 8 hours
Hand protection	Use gloves applied to handling hydrocarbon fluid. Nitrile or neoprene is recommended.
Eye protection	Use glasses or goggles, in case of splashing risk.
Skin and body protection	Use facemasks, boots, and cloths applied to hydrocarbon fluid, if needs. Use safety shoes, when drum handling. Avoid wearing a watch, rings, or similar items, which possibly cause some skin diseases, when this product is held between such items and skin.
Hygienic attentions	Avoid contact to the skin for long term or repeatedly, especially used or wasted oil. When contact to the skin, wash immediately with soap and water, again and again. Do not use abrasives, solvents or fuels. Do not use polluted cloths with this product to naked hands. Do not put polluted rags into the pockets of working clothes. Do not eat, drink or smoke while handling this product. Remove clothing immediately, when polluted. If reuse them, wash thoroughly.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state / Color / Appearance	Light yellow, clear fluid	
Odor	Not determined	
pH	Not determined	
Melting / Freezing point	<-7.5°C	
Pour point	Not determined	
Boiling point or initial distillation point	>250°C	
Flash point	>95°C (COC)	
Explosion range	LEL 1.0% (estimated)	UEL 7.0% (estimated)
Vapor pressure	Not determined	
Vapor density (Air=1)	Not determined	
Density	0.78g/cm ³ (15°C)	
Solubility in water	Insoluble in water	
Octanol / water distributed coefficient	Not determined	
Auto ignition temperature	Not determined	
Decomposition temperature	Not determined	

10. STABILITY AND REACTIVITY

Stability	Stable at the normal condition
Dangerous reaction (possible)	Avoid contact with strong oxidizer
Materials to avoid contact	Halogens, strong acids, alkali compounds and oxidizers
Materials to avoid mixing with	Currently, no useful data
Dangerous or harmful constituent, when decomposition occurs	Currently, no useful data

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Pass; skin (rat)	LD50	>5000mg/L
	Pass; oral (rat)	LD50	>5000mg/kg
	Inhalation (mist, rat)		LD50=2.18>2000mg/L (Category 4)
Skin corrosion / Skin irritation			Possibly cause irritation, when contact to skin.(Category 3)
Serious eye damage / Eye irritation			Possibly cause irritation, when contact to eye.(Category 2B)
Breathing sensitization			Currently, no useful data
Skin sensitization			Currently, no useful data
Germ cell mutagenicity			Currently, no useful data

Carcinogenicity Lubricating base oil:
 Evaluation by OSHA: Base oil is highly refined and classified as group 3 in IARC.
 (Not classified as carcinogenicity for human beings)
 (Article 6)
 Evaluation by EU: It is not necessary to be indicated as carcinogenicity.(Article 7)
Additives: Currently, no useful data
 (Note) In case of engine oil: According to some animal tests, there is
 a possibility to result in cancer, when contact with engine oil for
 a long term.

Reproductive toxicity Currently, no useful data
Specific target organ systemic toxicity (Single exposure) Possibly cause disease of lung
 (Category 2)
Specific target organ systemic toxicity (Repeated exposure) Possibly cause disease of lung
 (Category 1)
Hazardous to respiratory organs Currently, no useful data

12.ECOLOGICAL INFORMATION

Ecological toxicity / acute toxicity Fish (Lepomis macrochirus) LL50/96h 10000mg/L (Article 8)
 Fish (Rainbow trout) LC50/96h >5000mg/L (Article 9)
 Crustacean (water flea) EC50/48h >1000mg/L (Article 10)

Residual property / biodegradation Currently, no useful data

Bioaccumulation potential Though it may accumulate in the living body, its bioaccumulation may
 be controlled through the metabolism process, actually.

Mobility in soil Currently, no useful data

13.DISPOSAL CONSIDERATIONS

Waste disposal Waste product must be disposed properly in accordance with federal,
 state and local environmental control regulations.

Waste classification Not classified

European waste catalogue (EWC) Not available

Hazardous of waste Currently, this product is not regarded as hazardous waste, which is
 defined by EU Directive 91/689/EC.

14.TRANSPORT INFORMATION

International transport regulations

Regulatory Information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
ADR/RID Class	Not regulated.					-
AND Class	Not regulated.					-
IMDG Class	Not regulated.					-
IATA-DGR Class	Not regulated.					-

Specific safety measures and conditions of transportation

Prevent the packages containing this product from receiving remarkable friction or shaking.

15.REGULATORY INFORMATION

USA (TSCA) Registered
 EU (EINECS) Registered
 Japan Registered
 Australia Registered
 Canada Registered
 Korea Registered
 China Registered

16. OTHER INFORMATION

References

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4. Kane, M. L. et al., Am. J. Ind. Med., vol 15 183(1984)
5. Classification and labeling of petroleum substances according to the EU dangerous substances directive(CONCAWE recommendation-July 2005)
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Evaluation of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42:
SUPPLEMENT 7; International Agency for Research on Cancer(Lyon)
7. EU Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.
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9. Blackman, R.A.A., et al., Fishers Research Technical Report NO.39(1980)
10. Shell, unpublished data.
11. CONCAWE report No.01/54 environmental classification of petroleum substances-summary data and rationale.

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