# Safety Data Sheet (SDS)

Preparation Date 2013/09/17
Revision Date 2018/10/01

## Section 1 - CHEMICALS AND COMPANY IDENTIFICATION

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| Chemical Identifier | SHINLUBE MULTI SUPER SIGMA 0,1,2 |
| Product Code | E-10-B-00315006 |
| Reference Number | E-10-B-00315006 |
| Company Name | NIPPON STEEL Chemical & Material CO.,Ltd. |
| Address | Akihabara UDX 13th floor, 14-1, Sotokanda 4-Chome, Chiyoda-ku, Tokyo, Japan |
| Company Contact | Lubricants Department, Chemicals Division |
| Phone Number | 03-5207-7622 |
| Fax Number | 03-5207-7652 |
| Recommended Use and Restriction on Use | Lubricating grease |

## Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Environmental Hazards: Hazardous to the aquatic environment (acute) Category 3
Hazardous to the aquatic environment (long-term) Category 3
Other hazards than mentioned above are Not applicable or Classification not possible.

GHS Label Elements

Hazard Statements: H402 Harmful to aquatic life
H412 Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention Precautionary Statements: Avoid release to the environment.(P273)

Disposal Precautionary Statements: P501: Dispose of contents/container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other Hazards which do not result in Classification

Please see Section 4 - 8 before use for Prevention/Response/Storage/Disposal.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Distinction of Substance or Mixture: Mixture

Chemical name or generic name: Lubricating grease

| Chemical Name or Generic Name | Concentration or Its Ranges | Formula | ENCS No./ISHL No. | | CAS RN |
|---|---|---|---|---|---|
| | | | ENCS No. | ISHL No. | |
| Lubricant base oil | 85～95% | Unknown | confidential | confidential | confidential |
| Grease thickner (Poly urea) | 5～15% | Unknown | confidential | confidential | confidential |
| Additives | ≦5% | Unknown | confidential | confidential | confidential |

Impurities and/or Stabilizing Additives which Contribute to the Classification: [Chemical Identity/Hazard Class (category)/Hazard Statement/Conc.]

Hydrocarbon waxes, petroleum, barium salts/Acute Tox. 4, Acute Tox. 4/H302,H332/<2%

Diphenylamine/Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1/H301,H311,H331,H373,H400,H410/<1%

The highly refined mineral oil contains <3% DMSO-extract, according to IP346.

Japanese Act of Industrial Safety and Health

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| Notifiable substance (Article 57-2 of the Act, appended Table 9 of article 18-2 of Order) | Mineral oil(Ordinance Number:168)(85～95%) |
| | Diphenylamine(Ordinance Number:277)(< 1%) |

Section 4 - FIRST AID MEASURES

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| Inhalation | Remove casualty to fresh air and keep at rest in a position comfortable for breathing. Cover with blanket to keep warm and rest in a quiet surrounding. Seek immediate medical advice and attention. |
| Skin Contact | Wash with soap and water. |
| Eye Contact | Rinse cautiously with clean water for several minutes. Remove contact lenses, if present and easy to do, and continue rinsing. After rinsing for a minimum of 15 minutes, seek medical advice and attention. |
| Ingestion | Immediately call a doctor.<br>Do not induce vomiting.<br>If mouth has been dirtied, clean with water. |
| Most Important Symptoms/Effects | If swallowed, may irritate mucous membrane of stomach and induce vomiting.<br>Skin contact and eye contact may cause irritation.<br>Inhalation if mist may cause feeling ill. |
| Personal Protection in First Aid and Measures | No information available |
| Specific Notes to Physician | No information available |

Section 5 - FIRE FIGHTING MEASURES

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| Extinguishing Media | Concentrated strong liquid in mist and powder forms, carbon dioxide and foam.<br>Use powder and carbon dioxide may be used small fires only.<br>Effective to use foam to shutdown the air in a large fires. |
| Unsuitable Extinguishing | Use of jet water may spread a fire. |
| Specific Hazards | No information available |
| Specific Fire Fighting | Remove a combustion source.<br>Water the surrounding equipment to cool them down.<br>Cordon off the affected place and its vicinity to all, except the concerned parties. |
| Protection of Fire Figther | Ensure to wear protective equipment and approach from windward. |

Section 6 - ACCIDENTAL RELEASE MEASURES

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| Personal Precautions, Protective Equipment and Emergency Procedures | Prepare fire extinguishing instrument.<br>Prepare suitable equipment and materials. |
| Environmental Precautions | Use appropriate containment to avoid environmental contamination.<br>In event of entering in the sea, extend oil fences to prevent from spreading, and sop up with absorbent materials. |
| Methods and Equipment for Containment and Cleaning up | Promptly remove all ignition sources and stop leakages.<br>In a small leakage, absorb and recover by use of soil, sand, sawdust and waste clothes.<br>In a large leakage, cordon off the danger zone, prevent from entering and enclose it with sand bank and stop outflow.<br>In event of entering in the sea, extend oil fences to prevent from spreading, and sop up with absorbent materials. Use chemicals and/or detergents, they must satisfy technical standards as set by the Ministry of Land, Infrastructure and Transport / Ministry of the Environment. |

Prevention Measures for Secondary Accidents: Report to the organization concerned immediately as to prevent accident and extension.

## Section 7 – HANDLING AND STORAGE

### Handling

**Technical Measures**

In handling this material over the allocated volume, ensure approval to meet requires of the laws.

Keep away from heat, sparks, open flames, hot objects.
Prevent the emission of vapor as possible as Thoroughly perform antistatic protection and wear electroconductive working clothes or safety boots.

When fixing or processing machine, it carries out after removing dangerous objects completely.

NEVER suck up (siphoning) this material by mouth.
Wear suitable protect equipment if skin or eye contact may cause.
Use breathing appliances not to inhale the mist if mist occur.
Seal containers hermetically without handling in violent such as falling, dropping, or jolting.
see Section 8.
Pay attention to ventilation and fire sources because the mist generated from oil products heavier than air is a property to retain.

**Precautions for Safe Handling**

Use under normal temperature. Prevent from mixing water and impurity.

Avoid contact with halogens, strong acids, alkali and oxidizing materials.

### Storage Precautionary Statements

**Technical Measures**

Keep containers tightly closed and in a cool, well-ventilated place away from direct sunlight.

It is recommended to lock up storage area.
Use properly labelled and closeable containers. Avoid heat, sparks, open flame and static accumulation.

Do not use high temperature equipment, sparks, and flames around.
All electrical appliances shall be explosion-proof types, and they all must be earthed.

Avoid contact and storage in same place with halogens, strong acids, alkali and oxidizing materials.

**Material Used in Packaging/Containers**

Storage in original containers.

Do not pressurize empty containers. May cause rupture.
Do not weld, heat up, drill or cut containers. May ignite the residue and cause explosion.

## Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

### Japan Administration Level/Exposure Limits

| | Japan Administration | Exposure Limits (Japan Society for Occupational | Exposure Limits (ACGIH) |
|---|---|---|---|
| Highly refined mineral oils | Not established | 3mg/m3 (Oil mist, mineral) | TWA 5mg/m3 (Oil mist, mineral) |

**Engineering Controls**

Seal or install ventilations for mist occurs.
Install eye shower and body shower near working site.

### Personal Protective Equipment

**Respiratory Protection**: No respiratory protection is ordinarily required under normal conditions of use. Use appropriate equipment in response to the circumstances.

**Hand Protection**: Use oil-proof protective hand gloves under prolonged or repeated skin contact.

**Eye Protection**: Wear safety glasses or full face shield if splashes are likely to occur.

**Skin and Body Protection**: Use oil-proof/long sleeved clothing under prolonged usage.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance | |
| Physical State | the others |
| Form | Paste |
| Colour | Pale yellow |
| Odour | Slight odor |
| Odour threshold | No data available |
| pH | No data available |
| Melting Point/Freezing Point | No data available |
| Initial Boiling Point and Boiling Ranges | Expected >250° C |
| Flash Point | 200℃ above over (SETA) |
| Evaporation Rate | No data available |
| Flammability (solid, gas) | No information available |
| Flammability or Explosive Limits | |
| Lower Limit | Typical 1%(V) |
| Upper Limit | Typical 7%(V) |
| Vapour Pressure | No data available |
| Vapour Density | No data available |
| Specific Gravity (Density) | Approx. 0.9g/cm3 (15℃) |
| Solubility | Soluble in water: Negligible |
| Partition Coefficient : n-Octanol/Water | No data available |
| Auto-Ignition Temperature | No data available |
| Decomposition Temperature | No data available |
| Viscosity | No information available |
| Kinematic viscosity | No data available |
| Other Property | Evaporation rate:none Pour point:No data available |

## Section 10 - STABILITY AND REACTIVITY

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| Reactivity | Do not contact with strong oxidizer. |
| Chemical stability | Stable under normal condition. |
| Possibility of Hazardous Reaction | No data available |
| Conditions to Avoid | Avoid contact with halogens, strong acids, alkalis, and oxidizing materials. |
| Imcompatible Substances or Mixtures | No information available |
| Hazardous Decomposition Products | Generates smoke, carbon monoxide, sulfurous acid gas etc. during combustion. |
| Other Property | No information available |

## Section 11 - TOXICOLOGICAL INFORMATION

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| Acute Toxicity | Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the main component of a whole product, rather than for individual component(s). Individual components contained above cut-off value is described on Section 3. |
| Oral | Expected to be of low toxicity : Rat LD50 > 5000 mg/kg |
| Dermal | Expected to be of low toxicity : Rabbit LD50 > 5000 mg/kg |
| Inhalation | Vapour : No data available<br>Mist : Low toxicity : Rat(4h) LC50 > 5 mg/l |
| Skin Corrosion/Irritation | Not classified as a skin irritation (rabbit test). Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. |
| Serious eye damage/eye irritation | Not classified as an eye irritation (rabbit test). |
| Respiratory or Skin Sensitization | No data available concerning respiratory sensitisation.<br>Not classified as a skin sensitisation (Buehler test; guinea pig). |

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| Germ Cell Mutagenicity | The mutagenic potential of the product category ‘other lubricant base oils’ has been extensively studied in a range of ″in vivo″ and ″in vitro″ assays. The majority of the studies showed no evidence of mutagenic activity. |
| Carcinogenicity | Product contains mineral oils of types shown to be noncarcinogenic in animal skinpainting studies.<br>Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC monographs: Group 3), ACGIH and EU Directives. |
| Reproductive Toxicity | Results of developmental and reproductive toxicity studies showed no evidence of developmental or reproductive toxicity in rats. |
| Specific target organ toxicity (single exposure) | Acute studies do not indicate any specific organ toxicity following single exposure. |
| Specific target organ toxicity (repeated exposure) | The repeat dose toxicity has been investigated by dermal and inhalation routes for periods between 4 weeks and up to 2 years. No systemic effects showed. |
| Aspiration Hazard | Not classified as a hydrocarbon with kinetic viscosity ≤ 20.5mm2/s measured at 40℃. |
| Other Health Hazard | Not considered an aspiration hazard. |

Section 12 – ECOLOGICAL INFORMATION

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| Hazardous to the aquatic environment (acute) | Not expected to be a hazard. |
| Hazardous to the aquatic Ecotoxicity | Not expected to be a hazard.<br>Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the main component of a whole product, rather than for individual component(s). Individual components contained above cut-off value is described on Section 3. |
| Persistence | Another lubricant base oil was determined to be inherently biodegradable but not readily biodegradable, with a mean degradation of 31% by day 28. |
| Bioaccumulative Potential | Not available as highly refined base oil. |
| Mobility in Soil | Lubricating oil components have estimated log Koc >3, indicating these components are likely to be adsorbed onto soil and sediment and are not likely to leach to ground water. |
| Hazardous to the ozone layer | Not classified because this product not contained substances listed on Montreal Protocol and Ozone Layer Protection Law. |
| Environmental and Other Adverse Effects | Fish(Fathead minnow, 96h) LL50 >100mg/L<br>Fish(Fathead minnow, 14d) NOEL >100mg/L<br>Crustacea (Daphnia magna, 48h) EL50/NOEL >10,000mg/L<br>Crustacea (Daphnia magna, 21d) NOEL >10mg/L<br>Algae(Pseudokirchneriella subcapitata) NOEL >100mg/L<br>In a static 4-day microorganism luminescence inhibition study, no significant luminescence inhibition was observed.<br>The Water Accommodated Fraction (WAF) is applied above tests.<br>The above information is partial information and the similar material. Complete information of base oil is not acquired. |

Section 13 – DISPOSAL CONSIDERATIONS

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| Residual Waste | Waste disposal yourself or entrust the industrial waste treatment company who obtained the prefectural governor’s permission or municipal corporation. Disposal should be in accordance with applicable regional, national, and local laws and regulations.<br>Do not dispose into the environment, in drains or in water courses. |

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| | For landfill disposal, destroy by fire and confirm cinders agreed to Waste Disposal Law.<br>In event of burning this material, ensure to carryout work in safe place with guards in position, and select a method that would not cause any harm or damage to others during combustion or explosion. |
| Contaminated Container and Packaging | Recycle containers after cleansing, or carry out the disposal under the related laws and regulations and the standards of the local governments.<br>In case of disposal of empty containers, remove the content thoroughly. |

## Section 14 - TRANSPORT INFORMATION

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| International Regulations | |
| Regulatory Information by Sea | Conform to the provisions of IMO. |
| UN No. | Not applicable |
| Transport in bulk according to MARPOL 73/78,Annex Ⅱ,and the | Not applicable |
| Regulatory Information by Air | Conform to the provisions of ICAO/IATA. |
| UN No. | Not applicable |
| Regulations in Japan | Sea : Ship Safety Law: Not Dangerous Goods.<br>Air : Civil Aeronautics Act: Not Dangerous Goods.<br>Land : Fire Service Law: Not considered as dangerous goods.<br>Container : If product classified as dangerous goods, use containers (other than tanker, tank car and tank truck) for transportation usage, shall meet the Clause 2, Notice Attachment 3, concerning dangerous materials. |
| Regulatory Information by Road or Rail | Follow transportation method designated in Fire Service Law (Japan), Industrial Safety and Health Law (Japan), etc. |
| Regulatory Information by Sea | Conform to the provisions of the Ship Safety Law. |
| UN No. | Not applicable |
| Transport in bulk according to MARPOL 73/78,Annex Ⅱ,and the | Not applicable |
| Regulatory Information by Air | Conform to the provisions of the Civil Aeronautics Law. |
| UN No. | Not applicable |
| Specific Safety Measures | Caution: Flammable.<br>Transport remarkably with containers may not cause friction or agitation.<br>Display signage on vehicle and provide with fire fighting equipment, if and when required to transport more than the specified quantity. Total piled height of vehicle shall be less than 3 meters.<br>Consolidation of this material with dangerous goods belonging to the 1st and 6th Classification is prohibited.<br>Abide by other laws and regulations that are applicable. |

## Section 15 - REGULATORY INFORMATION

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| Japanese Act of Industrial Safety and Health | Labeling(Delivery of Documents)<br><br>Delivery of Documents |
| Japanese Act of Fire Service | Not considered as dangerous goods. |
| Pollutant Release and Transfer Register (PRTR) | Not applicable |
| Poisonous and Deleterious Substance Control Law | Not applicable |
| Japanese Act on Prevention of Marine Pollution and Maritime Disaster | Waste Oil Regulation. |

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| Sewerage Service Act | Mineral Oil Disposal Regulation. (5mg/L) |
| Japanese Act of Water Pollution Control | Oil Disposal Regulation. (5mg/L) |
| Waste Management and Pubric Cleaning Law | Industrial Waste Regulation. |

Section 16 - OTHER INFORMATION

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|---|---|
| Literature References | Recommendation of Occupational Exposure Limits (2012), Japanese Society of Occupational Health |
| | Thresholds limit values for chemical substances and physical agents and biological exposure indices, ACGIH(2012)<br>ECHA(European Chemicals Agency), website "ECHA CHEM", Information on Registered Substances(2011). SDS of EU suppliers(2011)<br>IARC Monographs Programme on the Evaluation of Carcinogenic Risk to Humans(2006)<br>ACGIH documentation(2006)<br>EC Directive 67/548/EEC Annex I, EU CLP Regulation(EC) No.1272/2008 Annex VI Table3.1,Table3.2 |
| | Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 4th revised edition, UNITED NATIONS(2011) |
| | Japanese Standards Association (JSA), JIS Z 7253:2012, JIS Z 7252:2014<br>National Institute of Technology and Evaluation (nite), "GHS Information"<br>Ministry of Economy, Trade and Industry, Chemical Management site.<br>Ministry of Health, Labour and Welfare, "Label and MSDS information for GHS model"<br>Raw materials maker's SDS |
| Other Property | The descriptions herein are based on the currently available sources and information but no guarantee is given to the data and evaluation.The precautions herein are for normal handling. If you use this product under the special conditions,take safety measures appropriate for the special use and usage. |