

Safety Data Sheet

Effective Date: January 1, 2013

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name : Kerosine
 Recommended Use : Its major uses are found in kerosine stoves, kerosine heaters for bathtubs, fuel burners (kerosine powered), and other machineries that use kerosine.
 Manufacturer/Supplier : Showa Shell Sekiyu K.K.
 3-2, Daiba 2-chome, Minato-ku, Tokyo, 135-8074, Japan
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 Number : Quality Management Section, Research & Development Division
 SDS Code : 151100

2. HAZARDS IDENTIFICATION

Characteristics of hazardous material.

Flammable products (Industrial Safety and Health Law, Enforcement Order, Dangerous Materials, Flammable Liquid).

Flammable liquid:	Category 3 (symbol: "Flame", signal word: "Danger").
Acute toxicity (oral):	Not classified (no symbol, no signal word).
Acute toxicity (skin):	Not classified (no symbol, no signal word).
Acute toxicity (Inhalation-gas):	Outside of classification (no symbol, no signal word).
Acute toxicity (Inhalation-vapour);	Classification not possible (no symbol, no signal word).
Acute toxicity (Inhalation-dust/mist):	Not classified (no symbol, no signal word).
Skin corrosion/Irritation:	Category 2 (symbol: "Exclamation Mark", signal word: "Warning").
Serious eye damage/eye irritation:	Not classified (no symbol, no signal word).
Respiratory sensitization:	Classification not possible (no symbol, no signal word).
Skin sensitization:	Classification not possible (no symbol, no signal word).
Germ cell mutagenicity:	Not classified (no symbol, no signal word).
Carcinogenicity:	Category 2 (symbol: "Health Hazard", signal word: "Warning").
Reproductive toxicity:	Classification not possible (no symbol, no signal word).
Specific target organ toxicity, single exposure:	Category 3 (airways irritation/anaesthetic); (symbol: "Exclamation Mark", signal word: "Warning").
Specific target organ toxicity, repeated exposure:	Classification not possible (no symbol, no signal word).
Aspiration hazard:	Category 1 (symbol: "Health Hazard", signal word: "Danger").
Hazardous to the aquatic environment, acute hazard:	Classification not possible (no symbol, no signal word).
Hazardous to the aquatic environment, long-term hazard:	Classification not possible (no symbol, no signal word).
Hazardous to ozone layer:	Classification not possible (no symbol, no signal word).

GHS Label element

Pictogram



Signal word:

Danger.

Hazard statements:

Flammable liquid and vapour.
 Causes skin Irritation.
 Suspected of causing cancer.
 May cause respiratory Irritation, drowsiness or dizziness.
 May be fatal if swallowed and enters airways.

Precautionary Statements**"Preventive Measures"**

Use only for kerosine burning appliance
 Do not use mixture with other petroleum products (may cause accidents and engine failure).
 Do not handle until all safety precautions (i.e. SDS) have been read and understood.
 Keep container tightly closed.
 Keep away from heat/sparks/open flames/hot objects. Do not heat up. No smoking.
 Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools.
 Take precautionary measures against static discharge. Earth when shiffling into other containers.
 Never siphon by mouth.
 Wear protective gloves/protective clothing/eye protection/face protection.

Use only outdoors or in a well-ventilated area. Avoid breathing mist/vapours.
 Wash hands thoroughly after handling.
 Do not pressurize empty containers (may cause rupture).
 Do not weld, heat up, drill or cut containers (may cause explosion or ignition by residue). Do not handle containers in violent manners such as, falling, dropping or jolting.
 Avoid release to the environment.

"Response"

IN CASE OF FIRE: Use powder extinguishers to extinguish a fire.

IF SPILLED: Wipe out spillage immediately.

IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Wash skin with large amount of water using soap. Contaminated clothing must be laundered before reuse.

IF SKIN IRRITATION OCCURS: Get medical advice/attention.

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, WHEN FEEL UNWELL: Get medical advice/attention.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF SWALLOWED: Immediately call a poison center doctor. Do not induce vomiting.

"Storage"

Store locked up in a cool and well-ventilated place away from direct sunlight.

"Disposal"

Dispose preferably to a recognized collector. The competence of the collector should be established beforehand.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Mixture:	Substance.
Chemical or common name:	Petroleum hydrocarbon
Synonym:	Kerosine (Petroleum hydrocarbons)
Constituent and contents:	Petroleum hydrocarbons of mostly C8-C16 and additives.
Chemical characteristic: (chemical formulae)	Not possible to define.
Official gazette notification reference numbers:	(9)-1702 (+1), 12-140 (+2) (+1): The Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substance. (+2): The Industrial Safety and Health Law.
CAS No.	8008-20-6, 64741-77-1, 64742-81-0
UN No.	1223
Hazard Constituents:	
Pollutant Release and Transfer Register (PRTR) Law:	
Class I, Designated Chemical Substances;	Xylene (1.3%)
Class I, Designated Chemical Substances;	1,2,4-Trimethylbenzene (1.5%)
The Industrial Safety and Health Law:	
Article 57 (Labeling), Regulated Components; Toluene, xylene and ethyl benzene.	
Article 57-2 (Deliver of Documents), Regulated Components; Kerosine 100 mass%	
Poisonous and Deleterious Substance Control Law:	
Not subject to control under this law.	

4. FIRST AID MEASURES

Inhalation	1 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. 2 If breathing has stopped or breathing is weak, loosen clothing, secure airways, and apply artificial respiration.
Skin (or hair) Contact	: Remove immediately all contaminated clothing. Wash skin with large amount of water using soap. Contaminated clothing must be laundered before reuse.
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	: Without inducing vomiting, call a doctor for treatment. If mouth has been dirtied, clean with water.
Most Important Indication of Immediate and delayed symptoms	: If swallowed, may irritate mucous membrane of stomach, induce vomiting, cause stomach pain, diarrhea, and etc. In doing so, vomit may enter into lungs, cause internal bleeding within lung tissues, and induce pulmonary edema and chemical pneumonia.
Protection of individuals who partake in emergency	: Useful information not available at time of this issue.
Special notes to doctor	: Useful information not available at time of this issue.

6. FIRE FIGHTING MEASURES

Appropriate extinguishing media	<ul style="list-style-type: none"> 1 Effective to use concentrated strong liquid in mist and powder forms, carbon dioxide and foam. 2 Use powder and carbon dioxide extinguishers at initial stages of fire. 3 Effective to use foam to shutdown the air in a large-scale fire.
Inappropriate extinguishing media	: May endanger and enlarge fire in event of use of column of water (such as, projection of water from fire-fighting hose).
Specific hazards with regard to fire-fighting	<ul style="list-style-type: none"> 1 Upon contact with hot metal plate or a leak from fuel pipe, vapour so released is susceptible to catch fire and may result in combustion or explosion. 2 Generates smoke, carbon monoxide, sulfurous acid gas and etc. during combustion.
Fire fighting instructions	<ul style="list-style-type: none"> 1 Water the surrounding equipment to cool them down. 2 Cordon off the affected place and its vicinity to all, except the concerned parties.
Protection of Individuals who extinguish fire	: Ensure to wear protective equipment and approach from windward. If contact with skin is expected, ensure to wear impervious protective equipment and gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Prepare fire-fighting equipment and materials. Wear protective clothing before engaging in fire fighting.
Environmental precautions	<ul style="list-style-type: none"> 1 Prevent spillage into sewage, river and etc., and take measures to prevent a secondary disaster and environmental pollution. 2 In event of spillage in the sea, extend oil fences to prevent diffusion, and sop up with absorbent materials. In event of using chemicals and/or detergents, they must satisfy the technical standards as set by the Ministry of Land, Infrastructure and Transport.
Methods and materials for recovery, neutralization, containment and cleaning	<ul style="list-style-type: none"> 1 Promptly remove all ignition sources and stop leakages. 2 Remove people from danger zone. Cordon off the danger zone and its vicinity by running a caution rope, and prevent entry of people. 3 In a small leakage, absorb and recover by use of soil, sand, sawdust and waste clothes. 4 In a large leakage, enclose it with sand bank and stop outflow. Cover liquid surface with foam, and recover liquid into containers. 5 In event of a leakage inside a building, open windows and doors to sufficiently ventilate the area.
Preventive measures against secondary disaster	<ul style="list-style-type: none"> 1 Promptly notify concerned authorities with objective to plan preventive measures and diffusion after the leakage. 2 Promptly remove potential ignition sources nearby, and prepare fire extinguishers. 3 Prevent leakage into sewers, rivers and etc., and take measures to prevent secondary disaster and environmental pollution.

7. HANDLING AND STORAGE

Handling	
Technical measures	<ul style="list-style-type: none"> 1 In event of a need to handle this material over the allocated volume, ensure to execute the process in refineries, storage points and warehouses that are approved to have met requisite standards as set by the laws. 2 Keep away from heat, sparks, open flames, hot objects and etc., and avoid, whenever possible, a generation of vapour. No smoking. 3 Take measures against static discharge. Ensure to wear clothing and shoes made of conductive materials. 4 NEVER suck up (siphoning) this material by mouth. 5 Wear personal protective equipment if there exists a chance of getting contact with skin or enter into eye. 6 Do not handle containers in violent manners; such as, falling, dropping, or jolting.
Precautions	: In event a work has to be processed in a building, make sure to apply sufficient ventilation. : Install explosion-proof type ventilation equipment.
Safe handling precautions	: Avoid contact with halogens, strong acids, alkali and oxidizing materials.
Storage	
Safe storage conditions	<ul style="list-style-type: none"> 1 Store in a cool and well ventilated place away from direct sunlight. 2 Keep containers tightly closed and lock up storage area. 3 Label and display as dangerous material and store. 4 Avoid heat, sparks, open flame and static accumulation.
Appropriate technical precautions	: All electrical appliances used in storage area shall be explosion-proof types, and they all must be earthed.

- Precautions** : Avoid contact and storage in same place with halogens, strong acids, alkali and oxidizing materials.
- Safe container packaging materials** 1 Do not pressurize empty containers. May cause rupture.
2 Do not weld, heat up, drill or cut containers. May ignite the residue and cause explosion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Equipment** : Install explosion-proof type ventilations for any work that has to be carried out in a building.
: Install eye shower and body shower near the work site.
- Standard concentration control** : Not specified for kerosine.
- Allowable concentration** : Japan Society for Occupational Health ^{a)} (2011 version) 3 mg/m³ (mineral oil mist)
: ACGIH ^{b)} (2012 version) (Kerosene/Jet Fuels, as total hydrocarbon vapour)
Time weighted average(TWA); 200 mg/m³
- Protective equipment**
- Respiratory protection** : Use respiratory equipment appropriately in response to the circumstances.
- Hand protection** : Use oil-proof protective hand gloves appropriately in response to the circumstances.
- Eye protection** : Use safety glasses with side protection appropriately in response to the circumstances.
- Skin and body protection** : Use protective clothing appropriately in response to the circumstances.
- Special precautions** : Useful information not available at time of this issue.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state and shape** Liquid
- Colour** Colourless and transparent
- Odour** Subly oily smell.
- pH** No data available.
- Melting point/freezing point** - 40°C or less.
- Boiling point, initial boiling point and range** 140 to 310 °C.
- Flash point** 40 to 75 °C (TAG)
- Upper/lower flammability or explosive limits** Lower limit: 1 vol. % (estimate). Upper limit: 7 vol. % (estimate).
- Vapour pressure** Below 0.35 kPa (37.8 °C).
- Vapour Density** 4 to 5 (air =1).
- Density** 0.78 to 0.83 g/cm³ (15 °C).
- Solubility** Not soluble in water.
- Partition coefficient n-octanol/water** No data available.
- Spontaneous Ignition temp** About 240 °C.
- Decomposition temperature** No data available.
- Other data**
- Volatility** No data available
- Initial boiling point** 140 to 195 °C.

10. STABILITY AND REACTIVITY

- Chemical Stability** : Stable if stored and kept in dark place at normal temperature.
- Hazard reactivity** : Avoid contact with strong oxidizing agent.
- Conditions to avoid** : Avoid static discharge, jolting and vibration.
- Materials to avoid** : Useful information not available at time of this issue.
- Dangerous substances to mix or contact with** : Care should be taken to avoid contact with halogens, strong acids, alkalis, and oxidizing materials.
- Hazardous decomposition Products** : Generates smoke, carbon monoxide, sulfurous acid gas, and etc, during combustion.
- Others** : Useful information not available at time of this issue.

11. TOXICOLOGICAL INFORMATION

- Acute toxicity** : Oral: LD50 test on rats exposed to jet propulsion fuel (JP-5) indicated a value >48000mg/kg ^{a)}, GLP test on rats could not prove death under oral administration of a straight run kerosine at 5000 mg/kg. ^{a)}
: Skin: GLP test on rabbit could not prove death under oral administration of straight run kerosine at 2000mg/kg. ^{a)}
: Inhalation (vapour): No data available.
- Skin corrosion/irritation** : Recognized irritation effect by skin (humans) contact. ^{c,e,f,g)}
- Serious eye damage/eye Irritation** : Does not irritate the eye. ^{g)}
: Draize test (GLP test) on rabbit could not recognize irritation effect. ^{d)}
- Respiratory or skin sensitization** : Respiratory: No data available.
: Skin: Buehler test (GLP test) on guinea pig could not recognize sensitization effect. ^{d)}
- Germ cell mutagenicity** : A positive result ^{c)} exists on jet fuel A in a chromosome aberration test using rats

	bone marrow cells, under the somatic in vivo mutagen test conditions, but negative results exist on kerosine. ^{c,d,e)} Negative results are found on diesel No.1 fuel in a micronucleus test using mouse bone marrow ^{e)} , and, further, on kerosine and jet fuel in a rodent dominant lethal mutation test. ^{e)}
Carcinogenicity	: IARC 45 (1989) classified Jet fuel (kerosine, 8008-20-6) and Distillate (light) fuel oils into Group 3 ^{e)} , but ACGIH (2001) classified Kerosine/Jet fuels into A3. ^{e)}
Reproductive toxicity	: Data ^{c,e,h)} exist that do not recognize reproductive toxicity on pregnant rats administered with subject material, but its effect on mother beasts being unknown, a question remains open as to whether or not administered volume (below saturation concentration that can be calculated from vapour pressure) was appropriate.
Specific target organ toxicity, single exposure	: Recognized restraint in central nervous system and dizziness in human under the exposure. ^{c,e,g)}
Specific target organ toxicity, repeated exposure	: Recognized respiratory tract irritation in mouse under the exposure. ^{e)}
Aspiration toxicity	: No data available.
	: Causes chemical pneumonia to human by accidental inhalation. ^{c,e)}

12. ECOLOGICAL INFORMATION

Toxicity	: Unknown
Persistence and degradability	: Unknown
Bioaccumulability	: Unknown
Mobility in soil	: Unknown
Hazardous to ozone layer	: No information

13. DISPOSAL CONSIDERATIONS

- 1 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. Or, follow the advice of the local municipal bodies.
- 2 In event of disposing this material, it shall be classified as a "special management industrial waste (waste oil)". As such, disposal process must follow related governing laws and regulations (Waste Disposal and Public Cleaning Law and Fire Service Law). Consign work to the special industrial-waste disposal collector for disposal.
- 3 Abide by other laws and regulations that are applicable.

14. TRANSPORT INFORMATION

International restriction	
UN number	: 1223
Name of articles	: Kerosine (Kerosene or paraffin oil)
UN classification	: Class 3 (Flammable Liquid)
Container grade	: III
Ocean pollution material	: Subject to governing restrictions.
Domestic restriction	: Since domestic laws and regulations shown below are applicable, containers and transportation method shall be required to follow each and every regulation.
Land	: Fire Service Law; Group 4 Dangerous Goods, Class 2 Petroleum Products. : Industrial Safety and Health Law; Dangerous materials (Flammable Liquid), subject to Labeling and Delivery of Documents. : Over-the-road Hauling Vehicle Law; Dangerous Materials, Explosive Liquids.
Sea	: Ship Safety Law, Notice on transportation standards and related obligatory items pertaining to dangerous cargoes via shipping vessels, Flammable Liquids.
Air	: Civil Aeronautics Law, Notice on transportation standards and related obligatory items pertaining to explosive substances via aircraft, Flammable Liquid.
Specific safety measures for transport	1 Name of goods, quantity, designated dangerous grade, and "Flammable" shall be displayed on the outer surfaces of the containers and packaging. 2 "Danger" sign shall be displayed at front and rear of the vehicle and provided with fire fighting equipment, if and when required to transport more than the specified quantity for the vehicle. 3 Total piled height of vehicle shall be less than 3 meters for land transportation. 4 Consolidation of this material with dangerous goods belonging to the 1 st and 6 th Classification is prohibited. 5 Containers (other than tanker, tank car and tank truck) for transportation usage, shall meet the Clause 2, Notice Attachment 3, concerning dangerous materials. 6 Abide by other laws and regulations that are applicable.

15. REGULATORY INFORMATION

Fire Service Law	: Dangerous Goods – Group 4 (Flammable Liquid) – Class 2 Petroleum.
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Industrial Safety and Health Law	: Dangerous Materials (Flammable Liquid), subject to Labeling and Delivery of Documents.
Mariners Law	: Mariners Labour Safety and Health Regulation.
Ship Safety Law	: Notice on transportation standards and related obligatory items pertaining to dangerous cargoes via shipping vessels, Flammable Liquids.
Civil Aeronautical Law	: Notice on transportation standards and related obligatory items pertaining to explosive substances via aircraft, Flammable Liquid.
Marine Pollution Prevention Law	: Waste Oil Regulation.
Pollutant Release and Transfer Register (PRTR) Law	: Class-1, Designated Chemical Substance.
Japan Port Regulation Law	: Flammable Liquids.
Over-the-road Hauling Vehicle Law	: Dangerous Materials and Explosive Liquids.
Sewage Control Law	: Mineral Oil Disposal Regulation.
Water Pollution Prevention Law	: Oil Disposal Regulation.
Wastes Disposal and Public Cleaning Law	: Industrial Waste Regulation.

16. OTHER INFORMATION

[Quotation]

- a) Exposure limits, Japan Society for Occupational Health (2011)
- b) ACGIH Threshold limit values and biological exposure indices. (2012)
- c) IARC Monographs on the evaluation of carcinogenic risks to humans. Vol.45 (1989)
- d) IUCLID(2000)
- e) ACGIH Documentation 7th (2001)
- f) EHC 20 (1982)
- g) Patty 4th (1994)
- h) NTP TR310 (1986)

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