24-HOUR EMERGENCY TELEPHONE

SPRAGUE: 603-431-1000 CHEMTREC: 800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: KEROSENE K1 and K2
Synonyms: K-1 and K-2 Kerosene; Kero; Kerosene Motor Fuel; Tax Exempt Kerosene; #1 Diesel; #1 Fuel Oil; #1 Distillate; Dyed Kerosene
Formula: Not applicable to mixtures
Recommended Use of the Chemical and Restrictions On Use: Industrial Fuel Oil
Manufacturer / Supplier: Sprague Operating Resources LLC **Phone:** 603-431-1000
185 International Drive, Suite 200, Portsmouth, NH 03801
Emergency Phone Number: SPRAGUE: 603-431-1000; CHEMTREC: 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:
Flammable Liquid – Category 3
Skin Irritation – Category 2
Eye Irritation – Category 2B
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1

Label Elements:

Signal Word: Danger

Hazard Statements:
H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H320: Causes eye irritation.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H351: Suspected of causing cancer.

Precautionary Statements:

Prevention
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat / sparks / open flames / hot surfaces. No smoking.
P233: Keep container tightly closed.

P240: Ground / bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting/equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P260: Do not breathe dust / fume / gas / mist / vapors / spray.
P264: Wash hands and forearms thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves / protective clothing / eye protection / face protection.

Response
P370: In case of fire: use water spray or foam.
P303+361+353: IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.
P332+313: If skin irritation occurs: Get medical advice / attention.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P337+313: If eye irritation persists get medical advice / attention.
P308+313: IF exposed or concerned: Get medical advice / attention.
P304+312: IF INHALED: Call a POISON CENTER or doctor / physician if you feel unwell.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P301+310+331: IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician. Do not induce vomiting.

Storage
P401: Store in a well-ventilated place.
P401: Store locked up.
P403: Store in a well ventilated place. Keep cool

Disposal
P501: Dispose of contents in accordance with local / regional / national / international regulations.

3. Composition / Information on Ingredients

Ingredient	CAS Number	EC Number	Index Number	Percent	Hazardous
Kerosene	8008-20-6	232-366-4	649-404-00-4	100	Yes
Naphthalene	91-20-3	202-049-5	601-052-00-2	.04	Yes

4. First-aid Measures

First Aid: Inhalation: Remove from vapor to fresh air. If breathing has stopped, give artificial respiration. Maintain airway and blood pressure, and administer oxygen, if available. Keep affected person warm and at rest. Qualified personnel should perform administration of oxygen. Get medical attention immediately.

First Aid: Ingestion: DO NOT INDUCE VOMITING. Do not give liquids. Do not give anything by mouth to an unconscious person. If spontaneous vomiting occurs, keep person's head lower than hips to prevent pulmonary aspiration. Monitor for breathing difficulties. Get medical attention immediately. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Skin Contact: Remove contaminated clothing. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 - 20 minutes.) If irritation develops, seek medical aid. Thermal burns require immediate medical attention, depending on the severity and the area of the body burned.

First Aid: Eye Contact: Check for and remove any contact lenses. Flush eyes immediately with large amounts of water, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes.) Seek medical attention.

5. Fire-fighting Measures

Fire: Flammable Liquid and Vapor! See Section 9 for Flammability Properties. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Explosion: See above.

Fire Extinguishing Media*:*
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire-fighting foam, and other gaseous agents.
LARGE FIRES: Water spray, fog or fire-fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media*:* None

Fire Fighting Equipment / Instructions: Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire-fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA-approved pressure-demand self-contained breathing apparatus with full face-piece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire-fighting foam.

6. Accidental Release Measures

Recovery and Neutralization: Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up: Take up with sand or other oil-absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors ma accumulate in closed containers.

Emergency Measures: Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions, Protective Equipment and Emergency Procedures: Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8.)

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Protect bodies of water by diking, absorbents. Or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire-fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas / equipment that require protection.

Prevention of Secondary Hazards: None

7. Handling and Storage

Handling Procedures: Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use, or handling areas. Containers should be bonded and grounded for transfers to avoid static sparks.

Use non-sparking type tools and equipment. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product. Do not

pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures: Store in a well-ventilated location, away from any area where the fire hazard may be acute that complies with NFPA 30 "Flammable and Combustible Liquid Code." Separate from incompatibles, including strong oxidizers. Storage and use areas should be No Smoking areas.

The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibles: Keep away from strong oxidizers.

8. Exposure Controls / Personal Protection

Component Exposure Limits:

For Kerosene (8008-20-6):

ACGIH Threshold Limit Value (TLV): 200 mg/m3 TWA (application restricted to conditions in which there are negligible aerosol exposures, total hydrocarbon vapor) / Skin – potential significant contribution to overall exposure by the cutaneous route.

For Naphthalene (91-20-3):

OSHA Permissible Exposure Limit (PEL): 10 ppm TWA; 50 mg/m3 TWA

NIOSH: 10 PPM TWA; 50 mg/m3 TWA / 15 ppm STEL; 75 mg/m3 STEL

ACGIH Threshold Limit Value (TLV): 10 ppm TWA / 15 ppm STEL / Skin – potential significant contribution to overall exposure by the cutaneous route.

Engineering Measures: Indoors: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment. / Outdoors: Work upwind.

Personal Protective Equipment: Respiratory: A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentration are or may be expected to exceed exposure limits for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands: Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Skin and Body: Chemical protective clothing such as E.I DuPont TyChem®, Saranex®, or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

Personal Protective Equipment: Eyes: Use chemical safety goggles and / or a full face shield where splashing is possible.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and Chemical Properties

Appearance: Pale yellow to water-white. May be dyed red.
Odor: Characteristic petroleum distillate odor
Odor Threshold: Not determined
pH: No information found
Melting Point: Not determined
Boiling Point / Boiling Range: 300 - 580F (149 - 304C)
Flash Point: >100F (38C)
Evaporation Rate (BuAC=1): Slow; varies with conditions
Percent Volatile: 100%
Flammability: Flammable Liquid and Vapor!
Upper / Lower Flammability or Explosive Limits: Upper – 5.0 / Lower – 0.7
Vapor Pressure (mm Hg): 1
Vapor Density (Air=1): AP 4.5
Relative Density: 0.78 – 0.83 g/cm3
Solubility: Negligible
Partition Coefficient: n-octanol / water: Not determined
Auto-ignition Temperature: 410F **(**210C)
Decomposition Temperature: Will evaporate or boil and possibly ignite before decomposition occurs
Viscosity: 1.6 mm^2/s at 40C

10. Stability and Reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage at normal temperatures and pressures.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, flames, ignition sources and incompatibles.

Incompatible Materials: May explode or react violently when exposed to oxidizing materials.

Hazardous Decomposition Products: Carbon monoxide, oxides of nitrogen, and non-combusted hydrocarbons (smoke.)

11. Toxicological Information

Acute Toxicity:

General Product Information: Harmful if swallowed.

Component Analysis – LD50 / LC50
Kerosene (8008-20-6):
Inhalation LC50 Rat > 5.28 mg/L 4 h
Oral LD50 Rat > 5000 mg/kg
Dermal LD50 Rabbit >2000 mg/kg
Naphthalene (91-20-3):
Inhalation LC50 Rat > 340 mg/m3 1 h
Oral LD50 Rat = 490 mg/k;
Dermal LD50 Rat >2500 mg/kg
Dermal LD50 Rabbit > 20 g/kg

Potential Health Effects: Inhalation: Central nervous system depressant. May cause irritation to the nose, throat, lungs, and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: The burning of hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Potential Health Effects: Ingestion: May cause irritation and burning of the gastrointestinal tract (mouth, throat, and stomach.) May cause nausea, vomiting, diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Skin Sensitization: May cause irritation, drying, and cracking of the skin. May cause dermatitis.

Potential Health Effects: Eye: Mild to moderate irritation of the eye.

Chronic Exposure: The most common health affect associated with chronic kerosene exposure is dermatitis.

Generative Cell Mutagenicity: This product is not reported to have any mutagenic effects.

Carcinogenicity: Possible human carcinogen. Kerosene generally contains benzene which has been designated a carcinogen by the National Toxicology Program (NTP), the International agency for Research on Cancer and the Occupational Safety and Health Administration.

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

Kerosene (8008-20-6): ACGIH: A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans
Naphthalene (91-20-3): ACGIH: A4 – Not Classifiable as a Human Carcinogen / NTP: Reasonably Anticipated to be a Human Carcinogen (Possible Select Carcinogen) / IARC: Monograph B2 (2002) Group 2B: Possibly Carcinogenic to Humans.

Reproductive Toxicity: Exposure of pregnant rats during gestation to toluene at levels of 250 ppm and higher produces some maternal toxicity and feto toxicity.

Specific Target Organ Toxicity - Single Exposure: This product is not reported to have any specific target general toxicity single exposure effects.

Specific Target Organ Toxicity - Repeated Exposure: This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard: The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs,) severe lung damage, respiratory failure, and even death.

12. Ecological Information

Ecotoxicity: The American Petroleum Institute (API) * concludes that adequate data regarding the ecotoxicity of kerosenes and jet fuels are available to demonstrate moderate acute toxicity to aquatic organisms.

Persistence and Degradability: According to API *, generally, kerosene / jet fuel components biodegrade significantly under aerobic conditions provided sufficient nutrients are present for conversion of the hydrocarbons to microbial biomass.

Bioaccumulative Potential: No information available.

Mobility in Soil: No information available.

Other adverse effects: No information available.

* Kerosene / Jet Fuel Category Assessment Document submitted to the US EPA: September 21, 2010

13. Disposal Considerations

Waste Disposal Instructions:
Under EPA RCRA (40 CFR 261.21):

1. If this product becomes a waste material intended for disposal and has a flash point below 140 F, it would be ignitable hazardous waste (waste code number D001.)
2. If this product becomes a waste material intended for disposal and has a TCLP benzene concentration Greater than 0.5 PPM, it would be considered a toxic waste (waste code number D018.)

Refer to latest EPA or state regulations regarding proper disposal.

Disposal of Contaminated Containers or Packaging:
Dispose of contents / container in accordance with international / national / state / regional / local regulations.

14. Transport Information

UN Number: UN1223
UN Proper Shipping Name: KEROSENE

Packing Group: III

DOT **IMDG** **IATA**

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)
Transport Hazard Class(es): 3

Maritime Transport IMDG/GGVSea
Transport Hazard Class(es): 3
Marine Pollutant: Yes

Air Transport ICAO-TI and IATA-DGR
Transport Hazard Class(es): 3

Transport in Bulk (according to Annex II of MARPOL 73/78 and the IBC Code:) Not applicable

Special Precautions for User: This product may be re-classed as a combustible liquid when shipped domestically, by land only. If re-classed as a combustible liquid, this product is unregulated by DOT when shipped in non-bulk quantities.

15. Regulatory Information

Chemical Inventory Status

Ingredient	TSCA	EC	Canada - DSL
Kerosene (8008-20-6)	Yes	Yes	Yes
Naphthalene (91-20-3)	Yes	Yes	Yes

Federal, State & International Regulations

	SARA 302		SARA 313		CERCLA	RCRA
Ingredient	RQ	TPQ	List Chemical	Catg.		
Kerosene (8008-20-6)	No	No	No	No	No	No
Naphthalene (91-20-3)	No	No	Yes	Yes	100 *	U165

SARA 311/312	Acute: Yes	Chronic: Yes	Fire: Yes	Pressure: No	Reactivity: No

State Regulations

Ingredient	CA	MA	MN	NJ	PA	RI
Kerosene (8008-20-6)	No	Yes	No	Yes	Yes	No
Naphthalene (91-20-3)	Yes	Yes	Yes	Yes	Yes	No

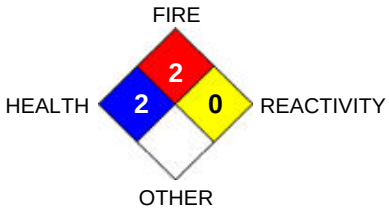
The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement of 1986 (Proposition 65): WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis – WHMIS IDL: No components are listed in the WHMIS IDL.

16. Other Information

HMIS / NFPA Hazard Rating:

4=EXTREME
3= SERIOUS
2= MODERATE
1=SLIGHT
0=MINIMAL



Effective Date: 04/0416 – modified most sections of the SDS to more closely match industry message
Previous Revisions:
11/01/13 – modified aspiration instructions
05/01/13 – Standardized for GHS and REACH
11/98, 10/12/00, 07/19/02, 06/05, Reformatted 4/99

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