

Material Safety Data Sheet



1. Chemical product and company identification

Product name	Jet Fuel JP-8
MSDS#	0000001879
Historic MSDS#:	None.
Code	0000001879 (NAP)
Product use	Fuel.
Supplier	BP Oil Company 1325 Bond Street Naperville, IL 60563 USA
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735 Outside the US: +1 703-527-3887 (CHEMTREC)
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Composition/information on ingredients

Ingredient name	CAS #	% by weight	Exposure limits
KEROSENE	8008-20-6	0 - 100	ACGIH TLV (United States, 2/2003). Skin TWA: 200 mg/m ³ 8 hour(s).
KEROSENE (Distillates (petroleum) hydrodesulfurized middle)	64742-81-0	0 - 100	ACGIH TLV (United States, 2/2003). TWA: 200 mg/m ³ 8 hour(s).
Contains: NAPHTHALENE	91-20-3	.5 - 1	ACGIH TLV (United States, 2001). STEL: 79 mg/m ³ 15 minute(s). STEL: 79 mg/m ³ 15 minute(s). Form: All forms STEL: 15 ppm 15 minute(s). Form: All forms TWA: 52 mg/m ³ 8 hour(s). Form: All forms TWA: 10 ppm 8 hour(s). Form: All forms OSHA PEL (United States, 6/1993). TWA: 50 mg/m ³ 8 hour(s). Form: All forms TWA: 10 ppm 8 hour(s). Form: All forms OSHA PEL 1989 (United States, 3/1989). STEL: 75 mg/m ³ 15 minute(s). Form: All forms STEL: 15 ppm 15 minute(s). Form: All forms TWA: 50 mg/m ³ 8 hour(s). Form: All forms TWA: 10 ppm 8 hour(s). Form: All forms
Ethylbenzene	100-41-4	0.1 - 1	ACGIH TLV (United States, 2003). STEL: 543 mg/m ³ 15 minute(s). STEL: 125 ppm 15 minute(s).

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TWA: 434 mg/m³ 8 hour(s).
TWA: 100 ppm 8 hour(s).
STEL: 125 ppm 15 minute(s). Form: All forms
TWA: 100 ppm 8 hour(s). Form: All forms
OSHA PEL (United States, 6/1993).
TWA: 435 mg/m³ 8 hour(s). Form: All forms
TWA: 100 ppm 8 hour(s). Form: All forms
OSHA PEL 1989 (United States, 3/1989).
STEL: 545 mg/m³ 15 minute(s). Form: All forms
STEL: 125 ppm 15 minute(s). Form: All forms
TWA: 435 mg/m³ 8 hour(s). Form: All forms
TWA: 100 ppm 8 hour(s). Form: All forms

3. Hazards identification

Physical state	Liquid.
Color	Colorless to light yellow.
Emergency overview	<p>WARNING!</p> <p>COMBUSTIBLE LIQUID AND VAPOR. VAPOR MAY CAUSE FIRE. MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS. ASPIRATION HAZARD. Harmful or fatal if liquid is aspirated into lungs.</p> <p>Avoid contact with skin and clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use with adequate ventilation. Use only with adequate ventilation. Wash thoroughly after handling.</p>
Routes of entry	Skin Contact. Eye contact. Inhalation. Ingestion.
Potential Health Effects	
Eyes	Slightly irritating to the eyes.
Skin	May cause skin irritation.
Inhalation	May cause respiratory tract irritation. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness.
Ingestion	Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.
Medical conditions aggravated by overexposure:	Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
See toxicological Information (section 11)	

4. First aid measures

Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact	Immediately wash exposed skin with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

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Ingestion

If swallowed, do NOT induce vomiting. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Get medical attention immediately.

5. Fire-fighting measures

Flammability of the product COMBUSTIBLE.

Auto-ignition temperature 210 °C

Flash point 37.778 to 60 °C (Open cup)

Explosion limits
Lower: 0.7 %
Upper: 5 %

Products of combustion carbon oxides (CO, CO₂), sulfur oxides (SO₂, SO₃...), nitrogen oxides (NO, NO₂...), and other hazardous substances.

Unusual fire/explosion hazards Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

This material is not explosive as defined by established regulatory criteria. This material is combustible/flammable and is sensitive to fire, heat, and static discharge. Vapors can travel to a source of ignition and flashback.

Fire fighting media and instructions In case of fire, use water fog, foam, dry chemicals, or carbon dioxide. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows.

Protective clothing (fire) Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

6. Accidental release measures

Personal Precautions Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 5). Do not touch or walk through spilled material.

Environmental precautions and clean-up methods If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways. See Section 13 for Waste Disposal Information.

Personal protection in case of a large spill Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

7. Handling and storage

Handling Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Aspiration hazard if swallowed- can enter lungs and cause damage. Do not ingest. If ingested do not induce vomiting. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapors or spray mists. Avoid contact with eyes. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.

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Storage

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name

KEROSENE

KEROSENE

(Distillates (petroleum) hydrodesulfurized middle)

Contains:

NAPHTHALENE

Ethylbenzene

Occupational exposure limits

ACGIH TLV (United States, 2/2003). Skin

TWA: 200 mg/m³ 8 hour(s).

ACGIH TLV (United States, 2/2003).

TWA: 200 mg/m³ 8 hour(s).

ACGIH TLV (United States, 2001).

STEL: 79 mg/m³ 15 minute(s).

STEL: 79 mg/m³ 15 minute(s). Form: All forms

STEL: 15 ppm 15 minute(s). Form: All forms

TWA: 52 mg/m³ 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

OSHA PEL (United States, 6/1993).

TWA: 50 mg/m³ 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

OSHA PEL 1989 (United States, 3/1989).

STEL: 75 mg/m³ 15 minute(s). Form: All forms

STEL: 15 ppm 15 minute(s). Form: All forms

TWA: 50 mg/m³ 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

ACGIH TLV (United States, 2003).

STEL: 543 mg/m³ 15 minute(s).

STEL: 125 ppm 15 minute(s).

TWA: 434 mg/m³ 8 hour(s).

TWA: 100 ppm 8 hour(s).

STEL: 125 ppm 15 minute(s). Form: All forms

TWA: 100 ppm 8 hour(s). Form: All forms

OSHA PEL (United States, 6/1993).

TWA: 435 mg/m³ 8 hour(s). Form: All forms

TWA: 100 ppm 8 hour(s). Form: All forms

OSHA PEL 1989 (United States, 3/1989).

STEL: 545 mg/m³ 15 minute(s). Form: All forms

STEL: 125 ppm 15 minute(s). Form: All forms

TWA: 435 mg/m³ 8 hour(s). Form: All forms

TWA: 100 ppm 8 hour(s). Form: All forms

Control Measures

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Hygiene measures

Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

Personal protection

Eyes

Avoid contact with eyes. Chemical splash goggles.

Skin and Body

Avoid contact with skin and clothing. Wear clothing and footwear that cannot be penetrated by chemicals or oil.

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Respiratory

Use with adequate ventilation. If ventilation is inadequate, use a NIOSH certified respirator with an organic vapor cartridge and P95 particulate filter.

CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator.

Hands

Wear gloves that cannot be penetrated by chemicals or oil.

Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

Physical state	Liquid.
Odor	Hydrocarbon.
Color	Colorless to light yellow.
Boiling point / Range	143.89 to 300 °C
Melting point / Range	-51.111 to -40 °C
Pour Point	-34 °C
Specific Gravity	0.81
Vapor pressure	<0.133 kPa (<1 mm Hg)
Volatility	100% v/v
Solubility	negligible
Viscosity	Kinematic: 2 mm ² /s (2 cSt)

10. Stability and reactivity

Stability and Reactivity	The product is stable.
Conditions to avoid	Keep away from heat, sparks and flame. Keep away from sources of ignition.
Incompatibility with various substances	Strong oxidizing materials, strong acids, strong alkalis.
Hazardous Decomposition Products	Products of combustion: carbon oxides (CO, CO ₂), sulfur oxides (SO ₂ , SO ₃ ...), nitrogen oxides (NO, NO ₂ ...).
Hazardous polymerization	Will not occur.

11. Toxicological information

Ingredient name	Test	Result	Route	Species
KEROSENE	LD50	>5000 mg/kg	Oral	Rat
	LD50	>2 mg/kg	Dermal	Rabbit
	LC50	>4 mg/l (4 hour(s))	Inhalation	Rat

Chronic toxicity**Carcinogenic effects**

Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

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Mutagenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

Reproductive effects

No component of this product at levels greater than or equal to 0.1% is classified by established regulatory criteria as a reproductive toxin.

Teratogenic effects

No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

Other chronic toxicity data

From skin-painting studies of petroleum distillates of similar composition and distillate range, it has been shown that these types of materials often possess weak carcinogenic activity in laboratory animals. In these tests, the material is painted on the shaved backs of mice twice a week for their lifetime. The material is not washed off between applications. Therefore, there may be a potential risk of skin cancer from prolonged or repeated skin contact with this product in the absence of good personal hygiene. This particular product has not been tested for carcinogenic activity, but we have chosen to be cautious in light of the findings with other distillate streams.

Occasional skin contact with this product is not expected to have serious effects, but good personal hygiene should be practiced and repeated skin contact avoided. Animal studies with this material have resulted in moderate skin irritation following short-term exposure or prolonged/repeated exposure. Skin irritation and body weight loss were observed in 28 day dermal studies on this material in rats, but there were no systemic tissue changes characteristic of disease. Personal hygiene measures taken to prevent skin irritation are expected to be adequate to prevent risk of skin cancer.

This product has a sufficiently low vapor pressure to prevent a hazardous buildup of vapors unless the product is heated, used in a confined space with inadequate ventilation or misted. Inhalation of mist or high concentrations of vapors can produce dizziness, headache, and nausea and possibly irritation of the eye, nose and throat. In acute inhalation toxicity tests in rats, during exposure the material caused labored breathing, reduced activity and nasal discharge.

Materials of this type have been shown to produce kidney damage in male rats following prolonged inhalation exposures. Following extensive research, this effect appears to be unique to the male rat and is considered to be of little or no relevance in terms of human health risk.

Dermal and inhalation exposure to some jet fuel mixtures has been shown to reduce or inhibit certain indicators of immune function in mice. The relevance of these findings for humans is under investigation.

Naphthalene has been evaluated for carcinogenicity in laboratory rodents in studies sponsored by the National Toxicology Program (NTP). Results of these studies show some evidence of carcinogenic activity in female mice, and clear evidence of carcinogenic activity in male and female rats. Tumors were observed in the lung of female mice and in the nose of rats. Nonneoplastic lesions of the nose and respiratory tract were also observed in these studies. The International Agency for Research on Cancer has designated naphthalene as "possibly carcinogenic to humans" (Group 2B). Naphthalene has been reported to cause developmental toxicity in mice after oral exposure to relatively high dose levels, but developmental toxicity was not observed in NTP sponsored studies in rats and rabbits. Ingestion or inhalation of naphthalene can result in hemolysis and other blood abnormalities, and individuals (and infants) deficient in glucose-6-phosphatase dehydrogenase may be especially susceptible to these effects. Inhalation of naphthalene may cause headache and nausea. Airborne exposure can result in eye irritation. Naphthalene exposure has been associated with cataracts in animals and humans.

The National Toxicology Program (NTP) conducted a 13-week inhalation study with male and female rats and mice at exposure concentrations ranging from 100 to 1000 ppm ethylbenzene. No rats or mice died during the study. Kidney, liver, and lung weights were increased in the exposed rats, while weight increases were observed only in the livers of exposed mice. Treatment-related histopathologic changes were not observed in any tissues of rats and mice. NTP also exposed male and female rats and mice by inhalation to 0, 75, 250, or 750 ppm ethylbenzene for 2 years. There was a statistically significant increase in the number of kidney tumors in male and female

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rats at 750 ppm. There were also increased incidences of lung tumors in male mice and liver tumors in female mice that were statistically significant at 750 ppm. Except for the male rat kidney tumors, the incidence of the tumors were within the range observed for non-exposed animals from other studies conducted by NTP. The significance of these findings to humans is unknown. Ethylbenzene produced mixed results in in vitro genotoxicity studies, which were not confirmed when tested in vivo. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and found it to be possibly carcinogenic to humans (Group 2B). Ethylbenzene is not genotoxic.

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Do not siphon by mouth.

12. Ecological information

Ecotoxicity	No testing has been performed by the manufacturer.
Persistence/degradability	Inherently biodegradable
Mobility	Spillages may penetrate the soil causing ground water contamination.
Soil/water partition coefficient (K_{oc})	>3.5
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.
Other ecological information	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. Disposal considerations

Waste information	Avoid contact of spilled material and runoff with soil and surface waterways. Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Consult your local or regional authorities.	

14. Transport information

International transport regulations

Regulatory Information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE (naphthalene)	Combustib liquid.	III	Not determined.	Reportable quantity 100 lbs. (45.36 kg)
TDG Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	III	Not determined.	Not available.
IMDG Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	III	Not determined.	Not available.
IATA Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	III	Not determined.	Not available.

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15. Regulatory information

U.S. Federal regulations

US INVENTORY (TSCA): In compliance.

TSCA 12(b) one-time export notification:: NAPHTHALENE

This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	NAPHTHALENE	91-20-3	0.5 - 1
	Ethylbenzene	100-41-4	0 - 0.5
Supplier notification	NAPHTHALENE	91-20-3	0.5 - 1
	Ethylbenzene	100-41-4	0 - 0.5

CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):: NAPHTHALENE: 100 lbs. (45.36 kg); Ethylbenzene: 1000 lbs. (453.6 kg);

State regulations

Massachusetts RTK: KEROSENE; NAPHTHALENE; Ethylbenzene

New Jersey: KEROSENE; NAPHTHALENE; Ethylbenzene

Pennsylvania RTK: KEROSENE (generic environmental hazard); NAPHTHALENE (environmental hazard, generic environmental hazard); Ethylbenzene (environmental hazard, generic environmental hazard)

WARNING: This product contains chemical(s) known to the state of California to cause cancer, birth defects or other reproductive harm: NAPHTHALENE; Ethylbenzene

Inventories

AUSTRALIAN INVENTORY (AICS): In compliance.

CANADA INVENTORY (DSL): In compliance.

CHINA INVENTORY (IECS): In compliance.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (ENCS): In compliance.

KOREA INVENTORY (ECL): In compliance.

PHILIPPINE INVENTORY (PICCS): In compliance.

16. Other information

Label Requirements

WARNING!

COMBUSTIBLE LIQUID AND VAPOR.

VAPOR MAY CAUSE FIRE.

MAY CAUSE EYE AND SKIN IRRITATION.

MAY CAUSE RESPIRATORY TRACT IRRITATION.

INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS.

ASPIRATION HAZARD. Harmful or fatal if liquid is aspirated into lungs.

HMIS® Rating :

Health 1 *
Flammability 2
Physical Hazard 0

National Fire
Protection
Association
(U.S.A.)



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History

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Prepared by Product Stewardship

Notice to reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.