









# Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
 	<b>B-2, D-2A, D-2B</b>	  	

## Section 1. Chemical Product and Company Identification

<b>Product Name</b>	<b>JET B AVIATION TURBINE FUEL</b>	<b>Code</b>	W219 SAP: 150, 151, 152
<b>Synonym</b>	Jet B; Jet B DI; JP-4; Jet F-40; NATO F-40; Turbine Fuel, Aviation, Wide Cut Type (CAN/CGSB-3.22).	<b>Validated on</b>	2/8/2005.
<b>Manufacturer</b>	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	<b>In case of Emergency</b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
<b>Material Uses</b>	Used as aviation turbine fuel. May contain a fuel system icing inhibitor.		

## Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	CAS #	% (W/W)	TLV-TWA(8 h)	STEL	CEILING
Complex mixture of petroleum hydrocarbons (C6-C14).	64741-41-9	>99	Not established	Not established	Not established
Benzene	71-43-2	<0.5	0.5 ppm	2.5 ppm	Not established
Fuel System Icing Inhibitor (FSII) (if added*): Diethylene Glycol Monomethyl Ether	111-77-3	≤0.15	Not established	Not established	Not established
Anti-static, antioxidant, corrosion inhibitor and metal deactivator additives. * Please note that Jet B DI, JP-4, Jet F-40 and NATO F-40 all contain Fuel System Icing Inhibitor (FSII).corrosion inhibitor	Not applicable	<0.1	Not applicable	Not applicable	Not applicable
<b>Manufacturer Recommendation</b>	Not applicable				
<b>Other Exposure Limits</b>	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

## Section 3. Hazards Identification.

<b>Potential Health Effects</b>	Flammable liquid. Exercise caution when handling this material. Skin and eye contact can cause irritation. Inhalation of vapours can cause irritation of the respiratory tract and CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconsciousness and possibly death. Aspiration into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure. May cause cancer. May cause teratogenicity/embryotoxicity. For more information refer to Section 11 of this MSDS.
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## Section 4. First Aid Measures

<b>Eye Contact</b>	Quickly and gently blot or brush away chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately.
<b>Skin Contact</b>	Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with warm water and non-abrasive soap for 5 minutes or until chemical is removed.
<b>Inhalation</b>	Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Immediately transport victim to an emergency care facility.

<b>Ingestion</b>	NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz) of water to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water.
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**Note to Physician** Not available

### Section 5. Fire-fighting Measures

<b>Flammability</b>	Flammable liquid (NFPA).	<b>Flammable Limits</b>	LOWER: 1.3% UPPER: 8% (NFPA)
<b>Flash Points</b>	CLOSED CUP: -31°C (-24°F) (NFPA)	<b>Auto-Ignition Temperature</b>	240°C (464°F) (NFPA)
<b>Fire Hazards in Presence of Various Substances</b>	Flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite. May accumulate in confined spaces.	<b>Explosion Hazards in Presence of Various Substances</b>	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.
<b>Products of Combustion</b>	Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.		
<b>Fire Fighting Media and Instructions</b>	<p>NAERG96, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a very low flash point: Use of water spray when fighting fire may be inefficient.</p> <p>If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions.</p> <p>SMALL FIRES: Dry chemical, CO<sub>2</sub>, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.</p> <p>Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.</p>		

### Section 6. Accidental Release Measures

<b>Material Release or Spill</b>	IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Evacuate non-essential personnel. Extinguish all ignition sources. Ventilate area. Stop leak if safe to do so. Avoid contact with spilled material. Do not allow spilled material to enter sewer systems as vapours may accumulate and may cause an explosion/fire hazard. If spilled in a confined space, ensure appropriate confined space entry protocols are followed. Ensure clean-up personnel wear appropriate personal protective equipment. Use appropriate inert absorbent material to absorb spilled product. Do not use paper or other flammable materials to absorb product. Collect used absorbent for later disposal. Avoid breathing vapours or mists of material. Notify appropriate authorities immediately.
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### Section 7. Handling and Storage

<b>Handling</b>	FLAMMABLE MATERIAL. Handle with care. Avoid contact with any sources of ignition, flames, heat, and sparks. Wear proper personal protective equipment (See Section 8). Ensure all equipment is grounded/bonded. Avoid confined spaces and areas with poor ventilation. Avoid inhalation of product vapours or mists. Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product.
<b>Storage</b>	Store away from heat and sources of ignition. Store away from incompatible and reactive materials (See section 5 and 10). Ensure the storage containers are grounded/bonded. Keep container tightly closed. Store in dry, cool, well-ventilated area.

**Section 8. Exposure Controls/Personal Protection**

<b>Engineering Controls</b>	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
<b>Personal Protection - <i>The selection of personal protective equipment varies, depending upon conditions of use.</i></b>	
<b>Eyes</b>	As a minimum, safety glasses with side shields should be worn when handling this material.
<b>Body</b>	If this material may come into contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information).
<b>Respiratory</b>	A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister with a dust, fume of mist filter (R, or P series) may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.
<b>Hands</b>	If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): neoprene, polyvinyl alcohol (PVA), and fluoro-elastomer. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns.
<b>Feet</b>	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

**Section 9. Physical and Chemical Properties**

<b>Physical State and Appearance</b>	Clear liquid.	<b>Viscosity</b>	Not available (similar to gasoline)
<b>Colour</b>	Clear and colourless.	<b>Pour Point</b>	Freezing Point: <-51°C (<-60°F) for Jet B/Jet B DI; <-58°C (<-72°F) for Jet Fuel F-40.
<b>Odour</b>	Gasoline like.	<b>Softening Point</b>	Not applicable.
<b>Odour Threshold</b>	Not available	<b>Dropping Point</b>	Not applicable.
<b>Boiling Point</b>	50 to 270°C (122 to 518°F)	<b>Penetration</b>	Not applicable.
<b>Density</b>	0.75 to 0.80 kg/L @ 15°C (59°F).	<b>Oil / Water Dist. Coefficient</b>	Not available
<b>Vapour Density</b>	3.5 (Air = 1)	<b>Ionicity (in water)</b>	Not available
<b>Vapour Pressure</b>	21 kPa (158 mmHg) @ 37.8°C (100°F).	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Volatile.	<b>Solubility</b>	Insoluble in water. Partially miscible in some alcohols. Miscible in other petroleum solvents.

**Section 10. Stability and Reactivity**

<b>Corrosivity</b>	Not available		
<b>Stability</b>	The product is stable under normal handling and storage conditions.	<b>Hazardous Polymerization</b>	Will not occur under normal working conditions.
<b>Incompatible Substances / Conditions to Avoid</b>	Can react with strong oxidizing agents, uranium hexafluoride, diborane. Incompatible with halogens and halogen compounds.	<b>Decomposition Products</b>	May release COx, NOx, SOx, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

**Section 11. Toxicological Information**

<b>Routes of Entry</b>	Skin contact, eye contact, inhalation and ingestion.
<b>Acute Lethality</b>	Acute toxicity information is not available for the product as a whole, therefore, data for some of the ingredients is provided below:  <b>Based on toxicity of similar product.</b> Acute oral toxicity (LD50): >5000 mg/kg (rat). Acute dermal toxicity (LD50): >5000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >5000 mg/m³/4h (rat).

**Benzene**

Acute oral toxicity (LD50): 930 mg/kg (rat).  
 Acute dermal toxicity (LD50): >9400 mg/kg (rabbit).  
 Acute inhalation toxicity (LC50): 13200 ppm/4h (rat).

**Diethylene Glycol Monomethyl Ether**

Acute oral toxicity (LD50): 4140-5180 mg/kg (rat).  
 Acute dermal toxicity (LD50): >2000 mg/kg (rabbit).  
 Acute inhalation toxicity (LC50): >50000 mg/m<sup>3</sup>/4h (rat).

**Chronic or Other Toxic Effects**

Dermal Route:	Skin contact can cause irritation. Prolonged or repeated contact may defat and dry skin, and cause dermatitis.
Inhalation Route:	Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.
Oral Route:	Ingestion of this product may lead to aspiration of the liquid, especially if vomiting occurs. This may result in chemical pneumonitis (inflammation of the lungs) and/or pulmonary edema (an accumulation of fluid in the lungs).
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	Benzene is tumorigenic by RTECS criteria.
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product contains a component(s) at >= 0.1% that has been shown to cause teratogenicity and/or embryotoxicity in laboratory tests. Therefore, this product is considered to be a teratogen/embryotoxin [Diethylene Glycol Monomethyl Ether].
Carcinogenicity (ACGIH):	ACGIH A1: confirmed human carcinogen. [Benzene]
Carcinogenicity (IARC):	IARC Group 1: carcinogenic to Humans. [Benzene]
Carcinogenicity (NTP):	NTP Group 1: known to be a carcinogen. [Benzene]
Carcinogenicity (IRIS):	EPA/IRIS Class A: human carcinogen.
Carcinogenicity (OSHA):	Benzene is an OSHA known carcinogen.

**Other Considerations** No additional remark.

**Section 12. Ecological Information**

<b>Environmental Fate</b>	Not available	<b>Persistence/Bioaccumulation Potential</b>	Not available
<b>BOD5 and COD</b>	Not available	<b>Products of Biodegradation</b>	Not available
<b>Additional Remarks</b>	No additional remark.		

**Section 13. Disposal Considerations**

<b>Waste Disposal</b>	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.
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**Section 14. Transport Information**

<b>TDG Classification</b>	FUEL, AVIATION, TURBINE ENGINE, 3, UN1863, PGII (CL-TDG)	<b>Special Provisions for Transport</b>	See Transportation of Dangerous Goods Regulations.
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**Section 15. Regulatory Information****Other Regulations**

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Please contact Product Safety for more information.

**DSD/DPD (Europe)** Not evaluated.

**HCS (U.S.A.)**

CLASS: Contains material which may cause cancer.  
CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F).  
CLASS: Toxic.  
CLASS: Irritating substance.  
CLASS: Target organ effects.

**ADR (Europe) (Pictograms)**

NOT EVALUATED FOR EUROPEAN TRANSPORT

NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.

**DOT (U.S.A) (Pictograms)**



**HMIS (U.S.A.)**

<b>Health Hazard</b>	(2*)
<b>Fire Hazard</b>	(3)
<b>Reactivity</b>	(0)
<b>Personal Protection</b>	(H)

**NFPA (U.S.A.)**

Health



**Fire Hazard**

**Reactivity**

**Specific hazard**

<b>Rating</b>	0 Insignificant
	1 Slight
	2 Moderate
	3 High
	4 Extreme

**Section 16. Other Information****References**

Available upon request.

\* Marque de commerce de Petro-Canada - Trademark

**Glossary**

ACGIH - American Conference of Governmental Industrial Hygienists  
ADR - Agreement on Dangerous goods by Road (Europe)  
ASTM - American Society for Testing and Materials  
BOD5 - Biological Oxygen Demand in 5 days  
CAN/CGA B149.2 Propane Installation Code  
CAS - Chemical Abstract Services  
CEPA - Canadian Environmental Protection Act  
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act  
CFR - Code of Federal Regulations  
CHIP - Chemicals Hazard Information and Packaging Approved Supply List  
CNS - Central Nervous System  
COD5 - Chemical Oxygen Demand in 5 days  
CPR - Controlled Products Regulations  
DOT - Department of Transport  
DSCL - Dangerous Substances Classification and Labeling (Europe)  
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)  
DSL - Domestic Substance List  
EEC/EU - European Economic Community/European Union  
EINECS - European Inventory of Existing Commercial Chemical Substances  
EPA - Environmental Protection Agency  
EPCRA - Emergency Planning and Community Right to Know Act  
FDA - Food and Drug Administration  
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act  
HCS - Hazard Communication Standard  
HMIS - Hazardous Material Information System  
IARC - International Agency for Research on Cancer

IRIS - Integrated Risk Information System  
LD50/LC50 - Lethal Dose/Concentration kill 50%  
LDLo/LCLo - Lowest Published Lethal Dose/Concentration  
NAERG'96 - North American Emergency Response Guide Book (1996)  
NFPA - National Fire Prevention Association  
NIOSH - National Institute for Occupational Safety & Health  
NPRI - National Pollutant Release Inventory  
NSNR - New Substances Notification Regulations (Canada)  
NTP - National Toxicology Program  
OSHA - Occupational Safety & Health Administration  
PEL - Permissible Exposure Limit  
RCRA - Resource Conservation and Recovery Act  
RTECS - Registry of Toxic Effects of Chemical Substances  
SARA - Superfund Amendments and Reorganization Act  
SD - Single Dose  
STEL - Short Term Exposure Limit (15 minutes)  
TDG - Transportation Dangerous Goods (Canada)  
TDLo/TCLo - Lowest Published Toxic Dose/Concentration  
TLm - Median Tolerance Limit  
TLV-TWA - Threshold Limit Value-Time Weighted Average  
TSCA - Toxic Substances Control Act  
USEPA - United States Environmental Protection Agency  
USP - United States Pharmacopoeia  
WHMIS - Workplace Hazardous Material Information System

**For Copy of MSDS**

**Prepared by Product Safety - JDW on 2/8/2005.**

Internet: [www.petro-canada.ca/msds](http://www.petro-canada.ca/msds)

**Fuels & Solvents:**

Western Canada, Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228

Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385

For Product Safety Information: (905) 804-4752

Data entry by Product Safety - JDW.

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