



# Shell Canada Limited Material Safety Data Sheet

Effective Date: 2011-08-22

Supersedes: 2008-08-01



Class B3 Combustible Liquid



Class D2A Embryo/Fetotoxicity  
Class D2B Skin Irritation

## 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **SHELL\* JET A-1**  
SYNONYMS: Aviation Turbine Fuel (Kerosene Type)  
May contain anti-icing additive (Diethylene Glycol Monomethyl Ether)  
PRODUCT USE: Fuel Solvent  
PRODUCT CODE: **142-011**

### SUPPLIER

Shell Canada Limited (SCL)  
P.O. Box 100, Station M  
400-4th Ave. S.W.  
Calgary, AB Canada  
T2P 2H5

### TELEPHONE NUMBERS

Shell Emergency Number  
**CANUTEC 24 HOUR EMERGENCY NUMBER**  
For general information:

1-800-661-7378  
1-613-996-6666  
1-800-661-1600  
[www.shell.ca](http://www.shell.ca)

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

\*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

## 2. HAZARDS IDENTIFICATION

**Physical Description:** Liquid Bright Clear Hydrocarbon Odour  
**Routes of Exposure:** Exposure will most likely occur through skin contact or inhalation.  
**Hazards:**

Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

Combustible Liquid.

Irritating to skin.

Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonia.

### Handling:

Eliminate all ignition sources.

Wear suitable gloves and eye protection.

Bond and ground transfer containers and equipment to avoid static accumulation.

Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

Avoid prolonged exposure to vapours.

For further information on health effects, see Section 11.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component Name                             | CAS Number | % Range  | WHMIS Controlled |
|--|------------|----------|------------------|
| Kerosene (Petroleum),<br>Hydrodesulfurized | 64742-81-0 | 60 - 100 | Yes              |
| Ethanol, 2-(2-methoxyethoxy)-              | 111-77-3   | 0 - 0.15 | Yes              |

See Section 8 for Occupational Exposure Guidelines.

### 4. FIRST AID MEASURES

- Eyes:** Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.
- Skin:** Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.
- Ingestion:** Do not induce vomiting; get medical help immediately. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person.
- Inhalation:** Remove victim from further exposure and restore breathing, if required. Obtain medical attention.
- Notes to Physician:** The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis.

### 5. FIRE FIGHTING MEASURES

- Extinguishing Media:** Carbon Dioxide  
Foam  
Dry Chemical  
Water Fog
- Firefighting Instructions:** Caution - Combustible. Do not use a direct stream of water as it may spread fire. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Avoid inhalation of smoke. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Delayed lung damage can be experienced after exposure to combustion products, sometimes hours after the exposure.
- Hazardous Combustion Products:** A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

### 6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Wear

appropriate breathing apparatus (if applicable) and protective clothing. Handling equipment must be grounded. Work upwind of spill if it is safe to do so. Avoid direct contact with material. Stop leak only if safe to do so. Dike and contain land spills; contain spills to water by booming. Use water fog to knock down vapours; contain runoff. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

## 7. HANDLING AND STORAGE

- Handling:** Combustible. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.
- Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

### OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.

Kerosene/Jet fuels, as total hydrocarbon vapour (skin) : 200 mg/m<sup>3</sup> ( Application restricted to conditions in which there are negligible aerosol exposures.)

Skin Notation: Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.

- Mechanical Ventilation:** Concentrations in air should be maintained below the occupational exposure limit if unprotected personnel are involved. Use explosion-proof ventilation as required to control vapour concentrations. Local ventilation recommended where general ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

### PERSONAL PROTECTIVE EQUIPMENT:

- Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

- Skin Protection:** Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.
- Respiratory Protection:** If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |                                     |
|--|-------------------------------------|
| <b>Physical State:</b>                             | Liquid                              |
| <b>Appearance:</b>                                 | Bright Clear                        |
| <b>Odour:</b>                                      | Hydrocarbon Odour                   |
| <b>Odour Threshold:</b>                            | Not available                       |
| <b>Freezing/Pour Point:</b>                        | < -47 °C                            |
| <b>Boiling Point:</b>                              | 145 - 300 °C                        |
| <b>Density:</b>                                    | 775 - 840 kg/m <sup>3</sup> @ 15 °C |
| <b>Vapour Density (Air = 1):</b>                   | Not available                       |
| <b>Vapour Pressure (absolute):</b>                 | 1 - 1.4 kPa @ 37.8 °C               |
| <b>pH:</b>   | Not available                       |
| <b>Flash Point:</b>                                | TCC > 43 °C                         |
| <b>Lower Flammable Limit:</b>                      | 0.7 % (vol.)                        |
| <b>Upper Flammable Limit:</b>                      | 5 % (vol.)                          |
| <b>Autoignition Temperature:</b>                   | 210 °C                              |
| <b>Viscosity:</b>                                  | < 8 mm <sup>2</sup> /s @ -20 °C     |
| <b>Evaporation Rate (n-BuAc = 1):</b>              | Not available                       |
| <b>Partition Coefficient (log K<sub>OW</sub>):</b> | 3.3 - 6                             |
| <b>Water Solubility:</b>                           | Insoluble                           |
| <b>Other Solvents:</b>                             | Hydrocarbon Solvents                |

## 10. STABILITY AND REACTIVITY

|  |   |
|--|---|
| <b>Chemically Stable:</b>                | Yes   |
| <b>Hazardous Polymerization:</b>         | No  |
| <b>Sensitive to Mechanical Impact:</b>   | No  |
| <b>Sensitive to Static Discharge:</b>    | Yes   |
| <b>Hazardous Decomposition Products:</b> | Thermal decomposition products are highly dependent on combustion conditions. |
| <b>Incompatible Materials:</b>           | Avoid strong oxidizing agents.  |
| <b>Conditions of Reactivity:</b>         | Avoid excessive heat, open flames and all ignition sources.                   |

## 11. TOXICOLOGICAL INFORMATION

| Ingredient (or Product if not specified) | Toxicological Data  |
|--|---|
| Kerosene (Petroleum), Hydrodesulfurized  | LD50 Oral Rat > 5000 mg/kg<br>LD50 Dermal Rabbit > 2000 mg/kg |
| Ethanol, 2-(2-methoxyethoxy)-            | LD50 Oral Rat 4140 - 5180 mg/kg                               |

LD50 Dermal Rabbit &gt; 2000 mg/kg

|  |   |
|--|---|
| <b>Routes of Exposure:</b>               | Exposure will most likely occur through skin contact or inhalation.   |
| <b>Irritancy:</b>                        | This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.   |
| <b>Acute Toxicity:</b>                   | Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.   |
| <b>Chronic Effects:</b>                  | Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.   |
| <b>Feto/Teratogenicity:</b>              | A component of this product has shown adverse effects on the growth and development of the fetus in some animal studies.  |
| <b>Pre-existing Conditions:</b>          | Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.   |
| <b>Carcinogenicity and Mutagenicity:</b> | The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this product as A3 - confirmed animal carcinogen with unknown relevance to humans. |

## 12. ECOLOGICAL INFORMATION

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. May cause physical fouling of aquatic and avian organisms. The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Prolonged exposure may result in the partitioning of light-end hydrocarbon fractions into the water and gas phases of the subsurface soil environment with potential to adversely affect soil and groundwater quality.

|  |   |
|--|---|
| <b>Biodegradability:</b>                           | Not readily biodegradable.  |
| <b>Bioaccumulation:</b>                            | Potential for bioaccumulation.<br>Potential for bioconcentration. |
| <b>Partition Coefficient (log K<sub>OW</sub>):</b> | 3.3 - 6   |
| <b>Aquatic Toxicity:</b>                           | Product is expected to be toxic to aquatic organisms.             |

| Ingredient:                                    | Toxicological Data  |
|--|---|
| <b>Kerosene (Petroleum), Hydrodesulfurized</b> | LL50 (WAF method) Rainbow Trout (96hr) 1 - 10 mg/L.<br>EL50 (WAF method) Daphnia Magna (48hr) 1 - 10 mg/L.<br>EL50 - growth rate (WAF method) Algae (72hr) 1 - 10 mg/L. |
| <b>Ethanol, 2-(2-methoxyethoxy)-</b>           |   |

**Definition(s):** LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances.

WAF is the water accommodated fraction. A slightly soluble hydrocarbon is stirred into water and the insoluble portions are removed. The remaining solution is the water accommodated fraction.

### 13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

### 14. TRANSPORT INFORMATION

#### Canadian Road and Rail Shipping Classification:

|                        |   |
|------------------------|---|
| UN Number              | UN1863  |
| Proper Shipping Name   | FUEL, AVIATION, TURBINE ENGINE  |
| Hazard Class           | Class 3 Flammable Liquids   |
| Packing Group          | PG III  |
| Additional Information | Not Regulated in Containers Less Than or Equal to 450 Litres.   |
| Shipping Description   | FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG III<br>Not Regulated in Containers Less Than or Equal to 450 Litres. |

### 15. REGULATORY INFORMATION

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

|                                 |   |
|---------------------------------|---|
| <b>WHMIS Class:</b>             | Class B3 Combustible Liquid<br>Class D2A Embryo/Fetotoxicity<br>Class D2B Skin Irritation   |
| <b>DSL/NDSL Status:</b>         | This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. |
| <b>Other Regulatory Status:</b> | The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.                             |

### 16. OTHER INFORMATION

#### LABEL STATEMENTS

|                              |  |
|------------------------------|--|
| <b>Hazard Statement :</b>    | Combustible Liquid.<br>Irritating to skin.   |
| <b>Handling Statement:</b>   | Eliminate all ignition sources.<br>Wear suitable gloves and eye protection.<br>Bond and ground transfer containers and equipment to avoid static accumulation.<br>Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.<br>Avoid prolonged exposure to vapours. |
| <b>First Aid Statement :</b> | Wash contaminated skin with soap and water.<br>Flush eyes with water.  |

SHELL\* JET A-1

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If overcome by vapours remove to fresh air.  
Do not induce vomiting.  
Obtain medical attention.

**Revisions:**

This MSDS has been reviewed and updated. Changes have been made to: Section 4 Section 8 Section 15