charge build-up could become an ignition source. Use proper relaxation and grounding procedures.
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.
Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.
Vapours or dust may be harmful or fatal. Warn occupants of downwind areas.
Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.
Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Eliminate all sources of ignition. Vapours or dust may be harmful or fatal. Warn occupants and shipping in downwind areas.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

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7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: -40 deg C COC D92 less than/moins de

Autoignition: NA Flammable Limits: LEL: 1.4% UEL: 7.6%

GENERAL HAZARDS:

Extremely flammable; material will readily ignite at normal temperatures.
Flammable Liquid; may release vapours that form flammable mixtures at or above the flash point.
Toxic gases will form upon combustion.
Static Discharge; material may accumulate static charges which may cause a fire.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire if possible to do so without hazard. If a leak or spill has not ignited use water spray to disperse the vapours.
Either allow fire to burn out under controlled conditions or extinguish

with foam or dry chemical. Try to cover liquid spills with foam.
Respiratory and eye protection required for fire fighting personnel.
Avoid spraying water directly into storage containers due to danger of boilover.
A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide under thermal decomposition.

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8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

none

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9. NOTES

All components of this product are listed on the U.S. TSCA inventory.

REVISION SUMMARY:
Since 6 November 2002, this MSDS has been revised in Section(s):
3

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10. PREPARATION

Date Prepared: March 19, 2003
Prepared by: Lubricants & Specialties
IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(800) 268-3183

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with the supplier. The information contained herein is based on the information available at the indicated date of preparation. This MSDS is for the use of Imperial Oil customers and their employees and agents only. Any further distribution of this MSDS by Imperial Oil customers is prohibited without the written consent of Imperial Oil."

December, 2003 Issue

For Diesel & Distillate Fuel
Winter Formulation

Technol® 450

Material Safety Data I

Section 1. General Information

NAME: Technol® 450 Diesel
CAS#: Mixture
Chem Name: Blend of petroleum distillates
Formula: Proprietary
Molecular Wt: N/A
Emergency: (800) 424-9300 (Chemtrec)

Address: Technol Fuel Conditioners, Inc.
1 Main St , Eatontown NJ 07724
Contact: Technol Fuel Conditioners, Inc.
Telephone: (800) 645-4033
Issue Date: January, 1993
Revised Date: March, 1997

Section 2. Personal Protective Equipment

Rubber gloves and splashproof goggles are recommended as a standard operation procedure.

Section 3. Hazards Information

INHALATION: Overexposure will cause dizziness, headaches, CNS disturbances and lack of coordination. Unlikely to occur under normal usage conditions.
INGESTION: Irritation of gastrointestinal tract. May cause CNS depression.
SKIN: Irritation of exposed skin expected * EYES: May cause burns. Severe eye irritant.
PERMISSIBLE CONCENTRATION: OSHA PEL 22ppm, ACGIH 7LV 435mg/m^3
BIOLOGICAL: N/A
UNUSUAL CHRONIC TOXICITY: Prolonged or repeated exposure to Xylene, Napthalene and 2-Ethyl Hexanol causes liver, kidney, lung and CNS damage * FLASH POINT: 135°F Open Cup
FLAMMABLE LIMITS IN AIR (% by Vol.): Not Established
UNUSUAL FIRE & EXPLOSIVE HAZARDS: None Known

Section 4. Precautions & Procedures

FIRE EXTINGUISHING AGENT RECOMMENDED: Dry Chemical, CO_2, Chemical Foam.
FIRE EXTINGUISHING TO AVOID: Water
SPECIAL FIRE FIGHTING PRECAUTIONS: Firefighters should wear self-contained breathing apparatus in the positive mode with full facepiece due to likelihood of fumes, smoke and hazardous decomposition products.
VENTILATION: Standard room ventilation should be sufficient in large area; local exhaust recommended for confined areas and at vapor source.
NORMAL HANDLING: Wear rubber gloves and splashproof goggles, particularly if handling large quantities.
STORAGE: Keep container tightly closed during transport and storage. Store in cool dry place.
SPILL OR LEAK: Ventilate area. Remove sources of ignition. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Take up small spills with dry chemical absorbent. Large spills may be taken up with pump or vacuum and finished off with dry chemical absorbent. May require excavation of contaminated soil.
SPECIAL INSTRUCTIONS: Handle as combustible petroleum product.

For Diesel & Distillate Fuel
Winter Formulation

Technol® 450

Material Safety Data II

Section 5. Physical Characteristics

MATERIAL IS:	Thin Liquid	pH:	N/A
BOILING POINT:	350°F	VAPOR PRESSURE:	N/D (mm Hg@20°C)
VAPOR DENSITY:	5.2 (Estimated)	SOLUBILITY IN WATER:	Negligible
APPEARANCE:	Amber Liquid	EVAPORATION RATE:	< 1 (Butyl Acetate=1)
SPECIFIC GRAVITY:	0.90	VOLATILES BY VOL:	N/D (@20°C)

Section 6. Reactivity Data

STABILITY:	Product is stable
CONDITIONS TO AVOID:	Excessive heat and fire.
INCOMPATIBILITY:	Strong oxidizing agents.
HAZARDOUS DECOMPOSITION:	Incomplete combustion will generate Carbon Monoxide, Carbon Dioxide, water and toxic smoke.
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID:	N/A

Section 7. First Aid Measures

INGESTION: Get medical attention immediately - **DO NOT INDUCE VOMITING.** Give artificial respiration if breathing stops.
INHALATION: Remove to fresh air - get medical attention. Give artificial respiration if not breathing.
EYE CONTACT: Rinse in cool, flowing water for 15 minutes; get medical attention.
SKIN CONTACT: Wash with soap and water - get medical attention if skin irritation persists.

Section 8. Environmental Concerns

DEGRADABILITY/AQUATIC TOXICITY: Not Known
EPA HAZARDOUS SUBSTANCE: Yes - Reportable Quantity = 700 gals due to Napthalene content.
WASTE DISPOSAL METHODS: Incinerate as a waste oil at a registered site; disposer must comply with Federal, State, County and Local disposal or discharge statutes.
RCRA STATUS OF UNUSED MATERIAL: Dispose in permitted hazardous waste site.

Section 9. References

PERMISSIBLE CONCENTRATION REFERENCES: ACGIH, NIOSH, OSHA; See ***Registry of Toxic Effects of Chemical Substances*** for specific animal test results and the latest regulatory standards.
DOT CLASSIFICATION: Combustible Liquid NOS; Contains Xylene, N-Butanol.
GENERAL: Merck Index, Tenth Edition; Supplied Material Safety Data Sheets.

For Diesel & Distillate Fuel
Winter Formulation

Technol® 450

Material Safety Data III

Section 10. Hazardous Ingredients

NAME:	Naphthalene
CAS#:	91-20-3
PERCENT BY WEIGHT:	1% to 5%
HAZARD DATE:	SARA 313

Section 11. Transportation Information

Description: Proprietary mixture of petroleum derivatives.
Handle, mark, label and transport as Combustible Liquid, NOS; Contains Aromatic Naphtha
UN/NA Number: UN1993; Store in cool, dry place between 45°F and 85°F
Class 65; Packing Group III; Emergency #: (800) 424-9300 (Chemtrec)
Keep Container upright; do not roll; do not store in plastic– or rubber-lined containers

Section 12. Additional Information: Disclaimer

The information contained in the Material Safety Data has been derived from analysis of published data, publicly available, regarding the components of this mixture. While this information is considered accurate, Technol Fuel Conditioners, Inc. makes no warranty, expressed or implied, regarding this data or the results to be obtained from the use thereof.

Distribution of the Material Safety Data is only one component of your workplace hazard communication program. It is the employer's responsibility to ensure that all employees are properly trained to recognize, evaluate and protect themselves from the risks associated with the storage, use and disposal of this and any other chemical material.

These Material Safety Data Sheets are offered solely for your information, consideration and investigation.
They may be obtained from us directly, are supplied with each order shipped and may be downloaded from our web site.
For more information, please visit us at http://www.technol.com .

Technol Fuel Conditioners, Inc.
1 Main Street * Executive Center, Suite 405 * Eatontown, NJ 07724 * Tel: (732) 542-0111 * Fax: (732) 542-0109

Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-08-14
Supersedes: 2001-11-07

Class B3 Combustible Liquid

Class D2B Other Toxic Effects - Skin Irritant

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**SHELL JET A-1 WITH AIA**
SYNONYMS:	Aviation Turbine Fuel (Kerosene Type) Contains anti-icing additive (Diethylene Glycol Monomethyl Ether)
PRODUCT USE:	Fuel
MSDS Number:	142-017

MANUFACTURER	**TELEPHONE NUMBERS**	
Shell Canada Limited	**Shell Emergency Number**	1-800-661-7378
P.O. Box 100, Station M	**CANUTEC 24 HOUR EMERGENCY NUMBER**	613-996-6666
400-4th Ave. S.W.		
Calgary, AB Canada	For general information:	1-800-661-1600
T2P 2H5	For MSDS information:	403-691-3982
	(From 7:30 to 4:30 Mountain Time)	403-691-2220

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(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Kerosene (Petroleum), Hydrodesulfurized	64742-81-0	60 - 100	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Bright Clear Hydrocarbon Odour

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Hazards:

Combustible Liquid.
Irritating to skin.
Vapours are moderately irritating to the eyes.
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause a severe inflammation of the lung.

Handling: Eliminate all ignition sources.
Avoid prolonged exposure to vapours.
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.

For further information on health effects, see Section 11.

4. FIRST AID

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 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION 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.

Inhalation: Remove victim from further exposure. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Carbon Dioxide
Foam
Dry Chemical
Water Fog

Firefighting Instructions: Caution - Combustible. 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. Flashback may occur along vapour trail. Do not use water except as a fog. Use water to cool fire exposed containers. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

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. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling: 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):

North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values.
Recommend SHELL guideline of 125 mg/m3 for vapours (8 hour shift).

Mechanical Ventilation: Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. 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 DATA

Physical State:	Liquid
Appearance:	Bright Clear
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Freeze Point <-47 degrees C
Boiling Point:	145 - 300 degrees C
Density:	775 - 840 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
pH:	Not available
Flash Point:	Method Tag Closed Cup >38 degrees C
Lower Explosion Limit:	0.7 % (vol.)
Upper Explosion Limit:	5 % (vol.)
Autoignition Temperature:	210 degrees C
Viscosity:	<8 cSt @ -20 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	Not available
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	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 LD50 Dermal Rabbit >2000 mg/kg

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	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.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	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.

12. ECOLOGICAL INFORMATION

Environmental Effects:	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. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May cause physical fouling of aquatic organisms.
Biodegradability:	Rapid volatilization. Not readily biodegradable. Potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 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. TRANSPORTATION 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
Shipping Description	FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG III

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.

WHMIS Class:	Class B3 Combustible Liquid Class D2B Other Toxic Effects - Skin Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Avoid prolonged exposure to vapours. 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.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. 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 14