

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: VARSOL 3139 SOLVENT
Product Description: Petroleum Hydrocarbons
MSDS Number: 9074
Intended Use: Solvent

COMPANY IDENTIFICATION

Supplier: Imperial Oil Chemicals Division
 240 4th Avenue S.W.
 Calgary, ALBERTA. T2P 3M9 Canada
24 Hour Environmental / Health Emergency Telephone 519-339-2145
Transportation Emergency Phone Number 519-339-2145
Product Technical Information 1-800-663-4109

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*	Acute Toxicity
Stoddard solvent	8052-41-3	100%	Dermal Lethality: LD50 > 2.0 g/kg (Rabbit); Oral Lethality: LD50 > 5.0 g/kg (Rat)

Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*	Acute Toxicity
ETHYL BENZENE	100-41-4	0.1 - 0.5%	Dermal Lethality: LD50 15 g/kg (Rabbit); Inhalation Lethality: LC50 4000 ppm (Rat); Oral Lethality: LD50 3.5 g/kg (Rat)
Naphthalene	91-20-3	0.1 - 0.5%	Dermal Lethality: LD50 > 20 g/kg (Rabbit); Oral Lethality: LD50 0.49 g/kg (Rat)
Nonane	111-84-2	1.0 - 5.0%	None
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)	95-63-6	1.0 - 5.0%	Inhalation Lethality: LC50 3662 ppm (Rat); Oral Lethality: LD50 5.0 g/kg (Rat)
XYLENES	1330-20-7	0.1 - 0.9%	Dermal Lethality: LD50 4.5 g/kg (Rabbit); Inhalation Lethality: LC50 5000 ppm (Rat); Oral Lethality: LD50 4.3 g/kg (Rat)

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

PHYSICAL/CHEMICAL EFFECTS

Combustible. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited. Material can accumulate static charges which may cause an incendiary electrical discharge.

HEALTH EFFECTS

Irritating to skin. May cause cancer. Danger of serious damage to health by prolonged exposure. May cause harm to the unborn child. If swallowed, may be aspirated and cause lung damage. May be irritating to the eyes, nose, throat, and lungs.

Target Organs: Reproductive system | Skin |

NFPA Hazard ID:	Health: 1	Flammability: 2	Reactivity: 0
HMIS Hazard ID:	Health: 1*	Flammability: 2	Reactivity: 0

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

Eye Contact

Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams,

sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Smoke, Fume, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: 43C (109F) [ASTM D-56]

Flammable Limits (Approximate volume % in air): LEL: 0.8 UEL: 5.6

Autoignition Temperature: 260°C (500°F)

SECTION 6

ACCIDENTAL RELEASE MEASURES

Notification Procedures

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Protective Measures

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn other shipping. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with skin. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Use only with adequate ventilation. Use proper bonding and/or earthing procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source).

Loading/Unloading Temperature: [Ambient]

Transport Temperature: [Ambient]

Transport Pressure: [Ambient]

Static Accumulator: This material is a static accumulator.

STORAGE

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be earthed and bonded. Drums must be earthed and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters.

Storage Temperature: [Ambient]

Storage Pressure: [Ambient]

Suitable Containers/Packing: Drums; Barges; Tank Cars; Tank Trucks

Suitable Materials and Coatings: Carbon steel; Polyethylene; Polypropylene; Teflon; Stainless steel; Polyester

Unsuitable Materials and Coatings: Polystyrene; Natural rubber; Butyl rubber; Ethylene-propylene-diene monomer (EPDM)

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Substance Name	Form	Limit/Standard			Note	Source
ETHYL BENZENE		STEL	125 ppm			ACGIH
ETHYL BENZENE		TWA	100 ppm			ACGIH
Naphthalene		STEL	15 ppm		Skin	ACGIH
Naphthalene		TWA	10 ppm		Skin	ACGIH
Nonane		TWA	200 ppm			ACGIH
PRODUCT	Vapour.	TWA	73 ppm	400 mg/m3	Total Hydrocarbons	Supplier
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)		TWA	25 ppm			ACGIH
Stoddard solvent		TWA	100 ppm			ACGIH
XYLENES		STEL	150 ppm			ACGIH
XYLENES		TWA	100 ppm			ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions.

Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

Personal Protection

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9	PHYSICAL AND CHEMICAL PROPERTIES
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Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Form: clear

Colour: Colourless

Odour: Petroleum/solvent

Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 C): 0.788
Flash Point [Method]: 43C (109F) [ASTM D-56]
Flammable Limits (Approximate volume % in air): LEL: 0.8 UEL: 5.6
Autoignition Temperature: 260°C (500°F)
Boiling Point / Range: 159C (318F) - 195C (383F)
Vapour Density (Air = 1): 4.9 at 101 kPa
Vapour Pressure: 0.285 kPa (2.14 mm Hg) at 20°C | 0.9 kPa (6.75 mm Hg) at 38C
Evaporation Rate (N-Butyl Acetate = 1): 0.14
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: [N/D at 40°C] | 1.21 cSt (1.21 mm²/sec) at 25C
Oxidizing properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: -76°C (-105°F)
Melting Point: N/D
Pour Point: < -51°C (-60°F)
Molecular Weight: 140
Coefficient of Thermal Expansion: 0.00074 V/V/DEG C

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

Materials To Avoid: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Route of Exposure	Conclusion / Remarks
INHALATION	
Toxicity: Data available.	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible hazard at ambient/normal handling temperatures. Based on test data for structurally similar materials.
Ingestion	
Toxicity: LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity: LD50 > 3160 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Irritating to the skin. Based on test data for structurally similar materials.

Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Vapour/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anaesthesia, drowsiness, unconsciousness and other central nervous system effects including death. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Contains:

NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

XYLENES: High exposures to xylenes in some animal studies have been reported to cause health effects on the developing embryo/fetus. These effects were often at levels toxic to the mother. The significance of these findings to humans has not been determined.

Additional information is available by request.

CMR Status:

Chemical Name	CAS Number	List Citations
ETHYL BENZENE	100-41-4	3, 4
Naphthalene	91-20-3	3, 4
Nonane	111-84-2	4
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)	95-63-6	4
Stoddard solvent	8052-41-3	4
XYLENES	1330-20-7	4

--REGULATORY LISTS SEARCHED--

- | | | |
|-------------|---------------|--------------|
| 1 = IARC 1 | 3 = IARC 2B | 5 = ACGIH A1 |
| 2 = IARC 2A | 4 = ACGIH ALL | 6 = ACGIH A2 |

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be inherently biodegradable

Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis:

Material -- Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation:

Material -- Expected to degrade rapidly in air

OTHER ECOLOGICAL INFORMATION

VOC (EPA Method 24): 6.593 lbs/gal

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

Regulatory Disposal Information

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14	TRANSPORT INFORMATION
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LAND (TDG)

Proper Shipping Name: PETROLEUM DISTILLATES, N.O.S

Hazard Class & Division: 3

UN Number: 1268

Packing Group: III

LAND (DOT)

Proper Shipping Name: PETROLEUM DISTILLATES, N.O.S

Hazard Class & Division: COMBUSTIBLE LIQUID

ID Number: 1268

Packing Group: III

ERG Number: 128

Label(s): NONE

Transport Document Name: UN1268, PETROLEUM DISTILLATES, N.O.S., COMBUSTIBLE LIQUID, PG III

Footnote: The flash point of this material is greater than 38°C/100°F. Regulatory classification of this material varies. DOT: Flammable liquid or combustible liquid. OSHA: Combustible liquid. IATA/IMO: Flammable liquid. This material is not regulated under 49 CFR in a container of 450 litre/119 gallon capacity or less when

transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

SEA (IMDG)

Proper Shipping Name: PETROLEUM DISTILLATES, N.O.S
Hazard Class & Division: 3
EMS Number: F-E, S-E
UN Number: 1268
Packing Group: III
Label(s): 3
Transport Document Name: UN1268, PETROLEUM DISTILLATES, N.O.S., 3, PG III, (43°C c.c.)

AIR (IATA)

Proper Shipping Name: PETROLEUM DISTILLATES, N.O.S
Hazard Class & Division: 3
UN Number: 1268
Packing Group: III
Label(s): 3
Transport Document Name: UN1268, PETROLEUM DISTILLATES, N.O.S., 3, PG III

SECTION 15	REGULATORY INFORMATION
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WHMIS Classification: Class B, Division 3: Combustible Liquids Class D, Division 2, Subdivision B: Toxic Material

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

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

National Chemical Inventory Listing: AICS, IECSC, DSL, EINECS, ENCS, KECI, PICCS, TSCA

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
ETHYL BENZENE	100-41-4	6
Naphthalene	91-20-3	1, 5, 6
Nonane	111-84-2	1, 5
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)	95-63-6	6
XYLENES	1330-20-7	1, 6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

- Section 04: First Aid Eye - Header was modified.
- Section 04: First Aid Ingestion - Header was modified.
- Section 06: Notification Procedures - Header was modified.
- Section 10: Materials To Avoid - Header was modified.
- Section 06: Accidental Release - Protective Measures - Header was modified.
- Section 11: Ingestion Acute Lethality - Header was modified.
- Section 08: Personal Protection - Header was modified.
- Section 05: Hazardous Combustion Products was modified.
- Section 06: Accidental Release- Spill Management- Water was modified.
- Section 14: Sea (IMDG) - Header was modified.
- Section 15: National Chemical Inventory Listing - Header was modified.
- Section 15: National Chemical Inventory Listing was modified.
- Section 16: Health Hazards - Header was modified.
- Section 16: Physical Hazards - Header was modified.
- Composition: Component Table was modified.
- Section 16: Water Spill was modified.
- Section 15: Canadian List Citations Table was modified.
- Section 11: Chronic Tox - Component - WHMIS was modified.
- Section 16: CA Contains was added.
- Section 16: CA Contains - Header was added.
- Section 13: Regulatory Disposal Information - Header was added.
- Section 13: Regulatory Disposal Information - Header was deleted.

Precautionary Label Text:

Contains: ETHYL BENZENE, XYLENES, Naphthalene

WHMIS Classification: Class B, Division 3: Combustible Liquids Class D, Division 2, Subdivision B: Toxic Material

Health Hazards

Irritating to skin. May cause cancer. Danger of serious damage to health by prolonged exposure. May cause harm to the unborn child. If swallowed, may be aspirated and cause lung damage.

Target Organs: Reproductive system | Skin |

Physical Hazards

Combustible. Material can accumulate static charges which may cause an incendiary electrical discharge.

PRECAUTIONS

Avoid contact with skin. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Use only with adequate ventilation. Use proper bonding and/or earthing procedures.

FIRST AID

INHALATION: Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Eye: Flush thoroughly with water. If irritation occurs, get medical assistance.

Oral: Seek immediate medical attention. Do not induce vomiting.

Skin: Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

FIRE FIGHTING MEDIA

Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

SPILL/LEAK

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn other shipping. If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

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