


# Material Safety Data Sheet

Section 1. Chemical Product and Company Identification		
<b>Product Name:</b>	<b>Tetrahydrofuran</b>	<b>Version: 4</b> <b>Effective Date: June 27, 2014</b>
<b>Supplier/ Manufacturer:</b>	Chemfax Products Ltd. 11444 – 42 Street SE Calgary, AB T2C 5C4 Tel: 403-287-2055	
<b>Material Uses</b>	Solvent	
<b>24 Hour Emergency</b>	Canutec (613) 996-6666	
<b>WHMIS</b>		
		
This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR		
<b>HMIS Ratings</b> for this product are: <b>Health 2, Flammability 3, Reactivity 1</b>		

Section 2. Composition and Information on Ingredients		
Name	CAS#	% by weight
Tetrahydrofuran	109-99-9	>99
See Section 8 for information on permissible exposure limits and threshold limit values		

Section 3. Hazards Identification	
<b>Physical State and Appearance</b>	Clear , colourless liquid with strong ether odour
<b>Hazard Summary</b>	Irritant, mildly toxic
<b>Routes of Exposure</b>	Skin and eye contact, inhalation, ingestion
<b>Potential Acute Health Effects</b>	<p><b>Skin:</b> May cause defatting, drying, cracking and eventually dermatitis with prolonged use.</p> <p><b>Eyes:</b> Causes moderate eye irritation</p> <p><b>Inhalation:</b> May cause irritation of the respiratory tract, headache, weakness, temporary nervous system depression with</p>

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	anaesthetic effects such as dizziness, confusion, in-coordination and loss of consciousness. <b>Ingestion:</b> May be harmful if swallowed.
<b>Medical Conditions Aggravated by Exposure</b>	Breathing and skin conditions such as asthma and eczema
See Toxicological Information – Section 11	
<b>Additional Hazard Identification Remarks</b>	None

Section 4. First Aid Measures	
<b>Eye Contact</b>	Flush eyes with water for 15 minutes. Seek medical attention.
<b>Skin Contact</b>	Flush area with water. If irritation persists seek medical attention. Launder clothing before reuse.
<b>Inhalation</b>	Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention.
<b>Ingestion</b>	Rinse mouth with water if conscious. Do not induce vomiting. Lay victim on left side to prevent aspiration of any vomit. Seek immediate medical attention.
<b>Notes to Physician</b>	None
<b>Additional First Aid Remarks</b>	Artificial respiration should be administered if breathing has ceased. Seek immediate medical attention.

Section 5. Fire Fighting Measures	
<b>Flammability of the Product</b>	Flammable
<b>Flash Point</b>	-17 °C (TAG Closed Cup)
<b>Explosive Limits</b>	LEL: 1.8 % UEL: 11.8 %
<b>Auto Ignition Temperature</b>	321 °C
<b>Static Discharge</b>	Yes
<b>Suitable Extinguishing Media</b>	Use dry chemical, CO <sub>2</sub> , alcohol foam or water spray
<b>Hazardous Combustion Products</b>	Irritating vapours, carbon monoxide, nitrogen oxides, smoke and partially oxidised hydrocarbon fragments.
<b>Precautions for Fire Fighting</b>	Fire fighters should wear self contained breathing apparatus and full protective clothing. Use water spray to cool containers and structures exposed to fire.

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<b>Section 6. Accidental Release Measures</b>	
<b>Personal Precautions</b>	Gloves (nitrile), coveralls (chemical resistant), chemical resistant footwear
<b>Environmental Precautions</b>	Do not allow product to enter surface drains and watercourses
<b>Methods for Clean Up</b>	Isolate area and restrict access. Remove all sources of ignition. Use non sparking tools. Soak up small spills with absorbent material, place in a suitable container for disposal. Large spills should be diked, pump up, and placed in a container for disposal. Wash area with detergent and water to remove residues.

<b>Section 7. Handling and Storage</b>	
<b>Handling</b>	Handle with care – Flammable liquid. All containers should be grounded when in use. Empty containers can contain hazardous and flammable residues. Do not cut, weld or puncture drums.
<b>Storage</b>	Store in a cool dry place away from all sources of ignition. Keep containers closed when not in use. Check drums for inhibitor (Butylated hydroxyl toluene) content, if below 200 ppm add additional inhibitor and mix well. Part drums should be blanketed with nitrogen.

<b>Section 8. Exposure Controls and Personal Protection</b>				
<b>Exposure Guidelines</b>	<b>TWA: 8 Hr</b>	<b>STEL: 15 min</b>	<b>Ceiling</b>	<b>IDLH *</b>
<b>Tetrahydrofuran</b>	100 ppm ACGIH	50 ppm ACGIH		2000 ppm
* Immediately Dangerous to Life and Health				
<b>Exposure Controls</b>	Local exhaust ventilation			
<b>Personal Protection</b>				
<b>Respiratory</b>	Air purifying respirator fitted with organic vapour cartridges must be worn if exposure limits are exceeded			
<b>Skin</b>	Gloves (nitrile), coveralls, chemical resistant footwear			
<b>Eyes</b>	Safety glasses			
<b>Other</b>	None			

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Section 9. Physical and Chemical Properties	
<b>Physical State and Appearance</b>	Clear , colourless liquid with strong ether odour
<b>Odour Threshold</b>	No data
<b>pH</b>	7
<b>Boiling Point</b>	66 °C
<b>Melting Point / Freezing point</b>	-108 °C
<b>Evaporation Rate</b>	8
<b>Vapour Density</b>	2.5
<b>Vapour Pressure</b>	>132 mmHg @ 20 °C
<b>Specific Gravity</b>	0.89 @ 25 °C
<b>Solubility in Water</b>	Completely soluble
<b>% Volatile</b>	No data
<b>Other Data</b>	None

Section 10. Stability and Reactivity	
<b>Chemical Stability</b>	This product is stable with an appropriate level of butylated hydroxyl toluene inhibitor (200 ppm), but reactive (unstable) without
<b>Hazardous Polymerisation</b>	May occur
<b>Conditions to Avoid</b>	Avoid excessive heat, open flames and all sources of ignition
<b>Materials to Avoid</b>	Strong oxidising agents. Strong acids
<b>Hazardous Decomposition Products</b>	Irritating vapours NOTE: May form peroxides in the presence of air. May react with oxygen to form unstable peroxides. Peroxides are thermally unstable and shock sensitive.

Section 11. Toxicological Information	
<b>Principle Routes of Exposure</b>	
<b>Skin:</b>	May cause defatting, drying, cracking and eventually dermatitis with prolonged use.
<b>Eyes:</b>	Causes moderate eye irritation
<b>Inhalation:</b>	May cause irritation of the respiratory tract, headache, weakness, temporary nervous system depression with anaesthetic effects such as dizziness, confusion, in-coordination and loss of consciousness.
<b>Ingestion:</b>	<b>Ingestion:</b> May be harmful if swallowed.
<b>Additional Information</b>	
<b>Acute Toxicity</b>	
Tetrahydrofuran	LD50: 1650 mg/kg (Rat, oral) LC50: 180 mg/L (Rat, inhalation) LC50: 53.9 mg/L (Rat, inhalation)

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**Chronic Toxic Effects** – Symptoms of respiratory tract irritation and damage to respiratory epithelium were reported in rats exposed to 5000 ppm of tetrahydrofuran for 90 days. Elevation SGPT suggests a disturbance in liver function.

**Carcinogenicity** – Listed under ACGIH – A3

**Reproductive Toxicity / Teratogenicity / Embryotoxicity / Mutagenicity** – None known

#### Section 12. Ecological Information

<b>Ecotoxicity</b>	LC50: 2700 – 3600 mg/L (Pimephales promelas) 96 hr static LC50: 1970 - 2360 mg/L (Pimephales promelas) 96 hr flow through
<b>BOD and COD</b>	BOD = 100% in 14 days
<b>Biodegradability / OECD</b>	Readily biodegradable
<b>Toxicity of the Products of Biodegradation</b>	No data
<b>Special Remarks</b>	Not expected to bioaccumulate

#### Section 13. Disposal Considerations

Dispose of in accordance with local, provincial and federal regulations

#### Section 14. Transport Information

<b>TDG Classification</b>	Tetrahydrofuran Class 3 UN 2056 Packing Group II
<b>Emergency Response Guide #</b>	ERG # 127
<b>Marine Pollutant</b>	No
<b>Special Precautions</b>	None

#### Section 15. Regulatory Information

<b>Canada – DSL Inventory</b>	All components of this product are either on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL) or exempt
<b>TSCA</b>	All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt
<b>WHMIS Hazard Class</b>	B2 D2B
<b>Additional Information</b>	None

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**Section 16. Other Information****Prepared by:**

Chemfax Products Ltd., Technical Department

**Date Prepared:** 28 September, 2012**Revision Date:** 27 June, 2014**Disclaimer**

Notice to reader

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