



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1" style="margin: auto;"> <tr> <td style="background-color: #00FFFF;">Health Hazard</td> <td style="text-align: center; border: 1px solid black;">3</td> </tr> <tr> <td style="background-color: #FFC0CB;">Fire Hazard</td> <td style="text-align: center; border: 1px solid black;">2</td> </tr> <tr> <td style="background-color: #FFFF00;">Reactivity</td> <td style="text-align: center; border: 1px solid black;">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	2	Reactivity	0	 <p style="text-align: center;">See Section 15.</p>
Health Hazard	3							
Fire Hazard	2							
Reactivity	0							

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/Trade Name	Mustard oil, natural	
	Catalog Number(s)	MU110
	CAS#	8007-40-7
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	
	RTECS	RJ3694550
Commercial Name(s)	Not available.	
	TSCA	TSCA 8(b) inventory: Mustard oil, natural; Allyl isothiocyanate
Synonym	Oil of Mustard; Oils, brassica alba; Oils, brassica nigra; Oils, Mustard	
	CI#	Not available.
Chemical Name	Oils, Mustard	
Chemical Family	Not available.	
Chemical Formula	Not applicable.	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	
<u>IN CASE OF EMERGENCY</u> <u>CHEMTREC (24hr) 800-424-9300</u> CALL (310) 516-8000		

Section 2. Composition and Information on Ingredients					
Name	CAS #	Exposure Limits			% by Weight
		TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	
1) Allyl isothiocyanate, natural	57-06-7				93-98
Toxicological Data on Ingredients Allyl Isothiocyanate, natural: ORAL (LD50): Acute: 112 mg/kg [Rat]. 308 mg/kg [Mouse]. DERMAL (LD50): Acute: 88 mg/kg [Rabbit].					

Section 3. Hazards Identification	
Potential Acute Health Effects	Very hazardous in case of skin contact (permeator). Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Severe over-exposure can result in death.
Potential Chronic Health Effects	Slightly hazardous in case of skin contact (sensitizer), of inhalation. CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Allyl isothiocyanate, natural]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Allyl isothiocyanate, natural]. Mutagenic for bacteria and/or yeast. [Allyl isothiocyanate, natural]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	Not available.
Flash Points	CLOSED CUP: 44.444°C (112°F).
Flammable Limits	Not available.
Products of Combustion	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ ...).
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames and sparks, of heat.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special Remarks on Fire Hazards	Vapor may travel considerable distance to source of ignition and flash back. Contact with metals may evolve flammable hydrogen gas. Vapor may form explosive mixtures with air. When heated to decomposition it emits highly toxic fumes of cyanides.
Special Remarks on Explosion Hazards	Vapor may form explosive mixtures with air.

Section 6. Accidental Release Measures

Small Spill	Absorb with an inert material and put the spilled material in an appropriate waste disposal.
Large Spill	Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas, dike if needed. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers.

Section 8. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits **Allyl isothiocyanate, natural**
 STEL: 1 from AIHA [United States] Inhalation
 STEL: 4 (mg/m³) from AIHA [United States] Inhalation
 Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid. (Oily liquid.)	Odor	Pungent mustard. Irritant.
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Molecular Weight	Not applicable.	Taste	Sharp biting.
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pH (1% soln/water)	Not available.	Color	Colorless to light yellow.
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Boiling Point 148°C (298.4F) - 154 C.

Melting Point -80°C (-112F)

Critical Temperature Not available.

Specific Gravity 1.008 - 1.02(Water = 1)

Vapor Pressure 0.5 kPa (@ 20°C)

Vapor Density 3.41 (Air = 1)

Volatility Not available.

Odor Threshold The highest known value is 0.008 ppm (Allyl isothiocyanate)

Water/Oil Dist. Coeff. Not available.

Ionicity (in Water) Not available.

Dispersion Properties See solubility in water, diethyl ether.

Solubility Soluble in diethyl ether.
 Slightly soluble in cold water.
 Solubility in Water: 5% @ 20 deg. C.
 Completely miscible with chloroform, benzene.
 Miscible with alcohol and most organic solvents.
 Solubility in 70% alcohol: 1 ml dissolves in 10 ml.
 Solubility in 80% Ethanol: 1 ml dissolves in 8 ml.
 Soluble in Carbon disulfide.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Heat, ignition sources (flames, sparks, etc.), incompatible materials
Incompatibility with various substances	Reactive with oxidizing agents, acids, alkalis
Corrosivity	Non-corrosive in presence of glass
Special Remarks on Reactivity	Tends to darken on aging. Incompatible with amines, alcohols. Dangerous on contact with acids or acid fumes. It emits highly toxic fumes of cyanides. Sensitive to light.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 117 mg/kg (Rat) (Calculated value for the mixture). Acute dermal toxicity (LD50): 92 mg/kg (Rabbit) (Calculated value for the mixture).
Chronic Effects on Humans	CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Allyl isothiocyanate, natural]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells [Allyl isothiocyanate, natural]. Mutagenic for bacteria and/or yeast. [Allyl isothiocyanate, natural].
Other Toxic Effects on Humans	Very hazardous in case of skin contact (permeator). Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May affect genetic material (mutagenic). May cause adverse reproductive effects. May cause cancer based on animal test data (Allyl isothiocyanate, natural)
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation and possible blistering and burns. May be fatal if absorbed through skin. Eyes: Causes eye irritation. Lachrymator (substance which increases the flow of tears). Inhalation: Causes respiratory tract irritation. Ingestion: Harmful if swallowed. Causes gastroenteritis (gastrointestinal tract irritation) with nausea vomiting, diarrhea. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause skin sensitization, an allergic reaction. Inhalation: Prolonged or repeated inhalation of vapor or mist may cause allergy type reaction to develop with watery eyes, sneezing, runny nose and symptoms of asthma (coughing, wheezing, and chest tightness). One allergy develops, even very limited exposures can cause symptoms to develop. Ingestion: Prolonged or repeated ingestion of larger amounts may affect the liver, blood (changes in serum composition), and behavior/central nervous system (somnolence).

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.

Continued on Next Page

Special Remarks on the Products of Biodegradation Not available.

Section 13. Disposal Considerations

Waste Disposal Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification CLASS 3: Flammable liquid.
CLASS 6.1: Poisonous material.

Identification : Allyl isothiocyanate, stabilized (Mustard oil, synthetic) UNNA: 1545 PG: II

Special Provisions for Transport Not available.

DOT (Pictograms)



Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.
Pennsylvania RTK: Allyl isothiocyanate; Mustard oil, natural
Minnesota: Allyl isothiocyanate
Massachusetts RTK: Allyl isothiocyanate
Massachusetts spill list: Allyl isothiocyanate
New Jersey: Allyl isothiocyanate
California Director's List of Hazardous Substances: Allyl isothiocyanate
TSCA 8(b) inventory: Allyl isothiocyanate; Mustard oil, natural

California Proposition 65 Warnings California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 232-358-0).
Canada: Listed on Canadian Domestic Substance List (DSL).
China: Listed on National Inventory.
Korea: Listed on National Inventory (KECI).
Philippines: Listed on National Inventory (PICCS).
Australia: Listed on AICS.

Other Classifications

WHMIS (Canada) CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

DSCL (EEC) R10- Flammable.
R24/25- Toxic in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

S16- Keep away from sources of ignition - No smoking.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28- After contact with skin, wash immediately with plenty of soap and water
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

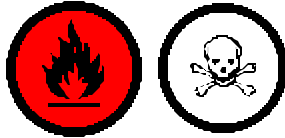
HMS (U.S.A.)

Health Hazard	3
Fire Hazard	2
Reactivity	0
Personal Protection	h

National Fire Protection Association (U.S.A.)

Health  Flammability
 Reactivity
 Specific hazard

WHMIS (Canada)
(Pictograms)



DSCL (Europe)
(Pictograms)



TDG (Canada)
(Pictograms)



ADR (Europe)
(Pictograms)



Protective Equipment



Gloves



Lab coat.



Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information

MSDS Code M4210

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.
Printed 7/8/2008.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.