

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe and European Community Standards

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): ELISHA® CLEANER
CHEMICAL NAME/CLASS: Vegetable Oil/Solvent Mixture
U.N. NUMBER: Not Applicable
U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK: Not Applicable
HAZCHEM CODE (AUSTRALIA): Not Applicable
POISONS SCHEDULE NUMBER (AUSTRALIA): Not Applicable
PRODUCT USE: Degreaser
SUPPLIER/MANUFACTURER'S NAME: DeNOVUS LLC
ADDRESS: P. O. Box 280, Hunthausen Drive
Moberly, MO 65270
EMERGENCY PHONE: 01/660/269/3700
BUSINESS PHONE: 01/660/269/3700
DATE OF PREPARATION: August 25, 1999

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	EINECS #	Proportion (w/v%)	EXPOSURE LIMITS IN AIR					
				ACGIH-TLV		OSHA-PEL		IDLH mg/m ³	OTHER mg/m ³
				TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³		
Ester of Vegetable Oil (exposure limits are for Vegetable oil mists)	Proprietary		80-90	10	NE	15 (Total dust) 5 (Respirable fraction)	NE	NE	NIOSH REL: TWA = 15 (Total dust) 5 (Respirable fraction)
Cycloalkene Compound	Proprietary		10-20	NE	NE	NE	NE	NE	NE
Other constituents. Each of the other constituents are present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).			Balance	The remaining components do not contribute any significant additional hazards. All pertinent information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian Workplace Hazardous Materials Identification System Standards (CPR 4) and European Community Standards (Commission Directive 93/112/EEC), and applicable Australian regulations [NOHSC: 1005(1994)].					

NE = Not Established.

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: All WHMIS, Australian WorkSafe, and European Community required information is included. It is located in appropriate sections based on the ANSI Z400.1-1998 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This is a clear, yellow liquid with a citrus odor. **Health Hazards:** This product may mildly irritate eyes, skin, and other contaminated tissues. **Flammability Hazards:** If involved in a fire, this product will decompose to produce toxic gases (e.g., oxides of carbon). **Reactivity Hazards:** Negligible. **Environmental Hazards:** Negligible. **Emergency Recommendations:** Emergency responders must wear proper personal protective equipment for the releases to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant route of occupational overexposure is contact with skin and eyes. The symptoms of overexposure to this product, via route of exposure, are as follows:

INHALATION: Inhalation of mists or sprays of this product may mildly irritate the nose, throat, and other tissues of the respiratory system. Symptoms are generally alleviated upon breathing fresh air.

CONTACT WITH SKIN or EYES: Skin or eye contact with this product may be mildly irritating. Symptoms of eye contact may include redness and watering. Symptoms of skin contact may include redness and itching. Symptoms are generally alleviated upon rinsing. The Cycloalkene Compound component of this product is a skin sensitizer; subsequent exposure to very small amounts may cause an allergic-type reaction in susceptible individuals.

SKIN ABSORPTION: The Cycloalkene Compound component of this product may be absorbed through the skin. Absorption over a large area of skin for a prolonged period of time may cause symptoms similar to those described for "Ingestion".

INGESTION: Ingestion is not anticipated to be a significant route of occupational overexposure for this product. If this product is swallowed (i.e., through poor hygiene practices), it may cause nausea, vomiting, and diarrhea.

INJECTION: Though not anticipated to be a significant route of overexposure for this product, injection (via punctures or lacerations by contaminated objects) may cause redness at the site of injection.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**.

ACUTE: This material may mildly irritate the eyes, skin, and other contaminated tissues.

CHRONIC: Due to the presence of the Cycloalkene Compound, exposure to this product may lead to an allergic reaction and sensitization in susceptible individuals. Refer to Section 11 (Toxicology Information) for further information.

TARGET ORGANS: ACUTE: Eyes, skin. CHRONIC: Skin.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

Victim must be taken for medical attention, especially if adverse effects continue after initial treatment. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If this material contaminates the skin and causes irritation, begin decontamination with running water. Recommended flushing is for 15 minutes if any sign of skin irritation develops. Contaminated individual should seek immediate medical attention if any adverse exposure symptoms develop.

EYE EXPOSURE: If this product enters the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. **Minimum** flushing is for 15 minutes. Do not interrupt flushing. Contaminated individual must seek medical attention.

INHALATION: If vapors of this product are inhaled, remove contaminated individual to fresh air.

INGESTION: If this material is eaten, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING. Have victim rinse mouth thoroughly with water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.



HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH	(BLUE)	1
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FLAMMABILITY	(RED)	1
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REACTIVITY	(YELLOW)	0
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PROTECTIVE EQUIPMENT	B
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EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8

For routine applications.

See Section 16 for Definition of Ratings

4. FIRST-AID MEASURES (Continued)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory conditions may be aggravated by acute or chronic overexposures to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT (Pensky-Martens Closed Cup): 218°C (425°F)

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:

Water Spray: YES

Foam: YES

Halon: YES

Carbon Dioxide: YES

Dry Chemical: YES

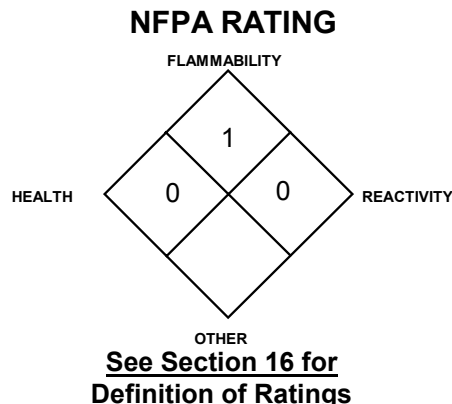
Other: Any "ABC" Class

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product must be substantially preheated before ignition can occur. This product may mildly irritate contaminated tissue. When involved in a fire, the products of thermal decomposition may include irritating fumes and toxic gases (e.g., oxides of carbon).

Explosion Sensitivity to Mechanical Impact: Not applicable.

Explosion Sensitivity to Static Discharge: Not applicable.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move fire-exposed containers if it can be done without risk to firefighters. If possible, firefighters should control runoff water to prevent environmental contamination. Rinse contaminated equipment with soapy water before returning such equipment to service.



6. ACCIDENTAL RELEASE MEASURES

RELEASE RESPONSE: Small releases should be absorbed and placed in a closed container. Responders should wear gloves, goggles, and suitable body protection during the clean-up of small spills. Larger, uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Spills may be slippery.

In case of a large spill, clear the affected area, protect people, and respond with trained personnel. Identify all sources of ignition before clean-up procedures begin. Minimum Personal Protective Equipment should be **Level C: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and Air-Purifying respirator with high efficiency particulate filter**. **Self-Contained Breathing Apparatus must be selected if releases occur in confined or poorly ventilated areas or if the level of oxygen is below 19.5%.** Absorb spilled material with polypads or other suitable absorbent. Rinse area with soap and water solution and follow with a water rinse.

Close off sewers and take other measures to protect human health and the environment as necessary. Decontaminate the area thoroughly. Dispose of in accordance with applicable U.S. Federal, State, or local procedures or appropriate standards of Australia, Canada, or EC Member States (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing mists or sprays generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight or sources of intense heat. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

7. HANDLING and STORAGE (Continued)

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures or appropriate standards of Australia, Canada, or EC Member States.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients) if applicable. Ensure eyewash/safety shower stations are available near areas where this product is used. If necessary, refer to Australian National Code of Practice for the Control of Workplace Hazardous Substances [NOHSC: 2007 (1994)] for further information.

INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS: Currently, there are no exposure limit values additional to those cited in Section 2 (Composition and Information on Ingredients).

RESPIRATORY PROTECTION: Respiratory protection is not generally needed during routine use of this product. For operations in which mists or sprays of this product will be generated, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN166, and EC member states, or the Australian Standard 1716-Respiratory Protective Devices, and Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Splash goggles or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, or the European Standard EN166, or the Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment for further information.

HAND PROTECTION: Wear latex or rubber gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this MSDS. If necessary, refer to Australian Standard 2161-Industrial Safety Gloves and Mittens for further information.

BODY PROTECTION: Use body protection appropriate for task (e.g., coveralls, Tyvek® suit). If necessary, refer to Australian Standard 3765-Clothing for Protection Against Hazardous Chemicals for further information.

9. PHYSICAL and CHEMICAL PROPERTIES

RELATIVE VAPOR DENSITY (air = 1): Not established.

SPECIFIC GRAVITY (water = 1): Not established.

SOLUBILITY IN WATER: Not established.

VAPOR PRESSURE, mm Hg @ 20°C: Not established.

VISCOSITY: Not established.

ODOR THRESHOLD: Not established.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.

APPEARANCE, ODOR AND COLOR: This is a clear, yellow liquid with a citrus odor.

HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance and odor of this product may act as distinguishing characteristics.

EVAPORATION RATE (n-BuAc = 1): Not established.

MELTING/FREEZING POINT: Not established.

BOILING POINT: Not established.

pH: Not established.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: If exposed to extremely high temperatures, the products of thermal decomposition may include irritating fumes and toxic gases (e.g., oxides of carbon).

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers, strong acids, strong reducing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Exposure to or contact with extreme temperatures and incompatible chemicals.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following data are for components of this product present in 1% concentration or greater:

CYCLOALKENE COMPOUND:

TDLo (oral, rat) = 39600 mg/kg/16 days/intermittent; Related to Chronic Data: death

TDLo (oral, rat) = 840 mg/kg/4 weeks/continuous; Kidney, Urethra, Bladder: other changes in urine composition; Kidney, Urethra, Bladder: other changes

TDLo (oral, rat) = 4875 mg/kg/91 days/intermittent; Liver: changes in liver weight; Kidney, Urethra, Bladder: - changes in bladder weight

TDLo (oral, rat) = 1500 mg/kg/5 days/intermittent; changes in liver weight, changes in bladder weight

TDLo (oral, rat) = 38625 mg/kg/2 years/continuous; Tumorigenic: Carcinogenic by RTECS criteria; Kidney tumors; Reproductive: Tumorigenic effects: testicular tumors

TDLo (oral, rat) = 20083 mg/kg/female 9–15 days after conception; Reproductive: Specific Developmental Abnormalities: musculoskeletal system Reproductive: Effects on Newborn: growth statistics (e.g. %, reduced weight gain) Reproductive: Effects on Newborn: physical

CYCLOALKENE COMPOUND (continued):

TDLo (oral, mouse) = 39600 mg/kg/16 days/intermittent; Related to Chronic Data: death

TDLo (oral, mouse) = 32500 mg/kg/13 weeks/intermittent; Related to Chronic Data: death

TDLo (oral, mouse) = 67 gm/kg/39 weeks/intermittent; Tumorigenic: equivocal tumorigenic agent by RTECS criteria Gastrointestinal: tumors

TDLo (oral, mouse) = 3546 mg/kg/female 7–12 days after conception; Reproductive: Specific Developmental Abnormalities: musculoskeletal system Reproductive: Effects on Newborn: physical

TDLo (oral, mouse) = 14178 mg/kg/female 7–12 days after conception; Reproductive: Effects on Newborn: growth statistics (e.g. %, reduced weight gain)

TDLo (oral, dog) = 180 gm/kg/26 weeks/intermittent; Kidney, Urethra, Bladder: changes in bladder weight

TDLo (oral, rabbit) = 3250 mg/kg/female 6–18 days after conception; Reproductive: Effects on Newborn: physical

CYCLOALKENE COMPOUND (continued):

LD₅₀ (oral, rat) = 4400 mg/kg

LD₅₀ (intraperitoneal, rat) = 3600 mg/kg

LDLo (subcutaneous, rat) = 30200 mg/kg

LD₅₀ (intravenous, rat) = 110 mg/kg

LD₅₀ (oral, mouse) = 5600 mg/kg

LD₅₀ (intraperitoneal, mouse) = 600 mg/kg;

Behavioral: altered sleep time (including change in righting reflex); Behavioral: somnolence (general depressed activity); Nutritional and Gross Metabolic: body temperature decrease

LD₅₀ (subcutaneous, mouse) = 3170 mg/kg; Peripheral Nerve and Sensation: spastic paralysis with or without sensory change

LDLo (intraduodenal, mouse) = 1 gm/kg; Behavioral: altered sleep time (including change in righting reflex); Behavioral: somnolence (general depressed activity); Nutritional and Gross Metabolic: body temperature decrease

LD₅₀ (skin, rabbit) > 5 gm/kg

LD₅₀ (skin, mammal) > 5 gm/kg

ESTERS OF VEGETABLE OIL: Currently, there are no toxicological data available for this component.

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product may mildly irritate eyes, skins, and other contaminated tissues.

SENSITIZATION TO THE PRODUCT: The Cycloalkene Compound component of this product is a skin sensitizer; subsequent exposure to very small amounts may cause an allergic-type reaction.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of the Cycloalkene Compound component of this product provided teratogenic data.

Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

*A **mutagen** is a chemical, which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An **embryotoxin** is a chemical, which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A **teratogen** is a chemical, which causes damage to a developing fetus, but the damage does not propagate across generational lines. A **reproductive toxin** is any substance, which interferes in any way with the reproductive process.*

ACGIH BIOLOGICAL EXPOSURE INDICES: Currently, there are no ACGIH Biological Exposure Indices (BEIs) associated with the components of this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will slowly degrade in the environment and form a variety of organic and inorganic materials.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No specific information is currently available on the effect of this product on plants or animals in the environment. This product may be harmful to contaminated plant and animal life (especially in large quantities). Refer to Section 11 (Toxicological Information) for specific information regarding the effects of this product's components on test animals.

12. ECOLOGICAL INFORMATION (Continued)

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product may be harmful to aquatic plant and animal life in contaminated bodies of water (especially in large quantities). Aquatic toxicity data for the product is available as follows:

PRODUCT:

LC₅₀ (saltwater mysid, *Mysidopsis bahia*) = 211 mg/L/96 hours/24.0–24.8°C/pH 7.9–8.2

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Australia, Canada, or EC Member States. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

U.S. EPA WASTE NUMBER: Not applicable to wastes consisting only of this product.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Not Applicable
HAZARD CLASS NUMBER and DESCRIPTION: Not Applicable
UN IDENTIFICATION NUMBER: Not Applicable
PACKING GROUP: Not Applicable
DOT LABEL(S) REQUIRED: Not Applicable

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 1996: Not Applicable

MARINE POLLUTANT: No component of this product is designated as a Marine Pollutant, per Appendix B to 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This material is not considered as dangerous goods.

IATA DESIGNATION: This material is not considered as dangerous goods by the International Air Transport Association.

INTERNATIONAL MARITIME ORGANIZATION (IMO): This material is not considered as dangerous goods.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This material is not considered by the United Nations Economic Commission for Europe to be dangerous goods.

AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL: This material is not considered as dangerous goods.

15. REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

U.S. TSCA STATUS: The components of this product are listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: Components of this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: No.	Michigan - Critical Materials Register: No.	Pennsylvania - Hazardous Substance List: No.
California - Permissible Exposure Limits for Chemical Contaminants: No.	Minnesota - List of Hazardous Substances: No.	Rhode Island - Hazardous Substance List: No.
Florida - Substance List: No.	Missouri - Employer Information/Toxic Substance List: No.	Texas - Hazardous Substance List: No.
Illinois - Toxic Substance List: No.	New Jersey - Right to Know Hazardous Substance List: No.	West Virginia - Hazardous Substance List: No.
Kansas - Section 302/313 List: No.	North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.	Wisconsin - Toxic and Hazardous Substances: No.
Massachusetts - Substance List: No.		

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this product is on the California Proposition 65 lists.

15. REGULATORY INFORMATION (Continued)

U.S. ANSI STANDARD LABELING (Z129.1): **CAUTION!** MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE SKIN AND EYE IRRITATION. Avoid prolonged or repeated contact with skin. Avoid breathing mists or sprays. Avoid contact with eyes. Wash thoroughly after handling. Work in well-ventilated area. Do not taste or swallow. Wear gloves, goggles, and appropriate body protection. **FIRST-AID:** In case of skin contact, flush with soap and plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. In case of eye contact, flush with plenty of water for 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention if adverse effects develop. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb with polypads or other inert absorbent, place in a suitable container, and seal. Consult Material Safety Data Sheet for additional information.

ADDITIONAL CANADIAN REGULATIONS:

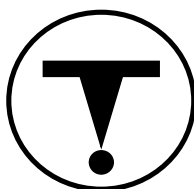
CANADIAN DSL STATUS: The components of this product are listed on the DSL/NDSL Inventory.

CANADIAN WHMIS IDL DISCLOSURE STATUS: The Cycloalkene Compound component of this product has a disclosure requirement level of 1%.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA) PRIORITY SUBSTANCES LISTS: The components of this product are not on the Priority Substances Lists.

CANADIAN WHMIS SYMBOLS: **Class D2B:** Materials Causing Other Toxic Effects (Skin sensitization).



EUROPEAN COMMUNITY INFORMATION:

EC LABELING AND CLASSIFICATION: This product does not meet the definition of any hazard class as defined by the European Community Council Directive 67/548/EEC.

EC CLASSIFICATION: Not applicable.

EC RISK PHRASES: Not applicable.

EC SAFETY PHRASES: Not applicable.

EUROPEAN COMMUNITY ANNEX II HAZARD SYMBOL: Not applicable.

EC INFORMATION FOR COMPONENTS:

Cycloalkene Compound:

EC EINECS/ELINCS NUMBER: 227-813-5

EC CLASSIFICATION: Irritant [Xi].

EC RISK PHRASES: Flammable. Irritating to skin. [R: 10-38]

EC SAFETY PHRASES: After contact with skin, wash immediately with plenty of soap and water. [S: 28A]

Esters of Vegetable Oil:

EC EINECS/ELINCS NUMBER: 267-055-2

EC CLASSIFICATION: An official classification for this substance has not been published in Commission Directives 93/72/EEC or 94/69EC.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The components of this product are listed on the AICS.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

LABELING AND CLASSIFICATION: This product does not meet the definition of any hazard class.

CLASSIFICATION: Not applicable.

RISK PHRASES: Not applicable.

SAFETY PHRASES: Not applicable.

ADDITIONAL LABELING INFORMATION: Not applicable.

HAZARD SYMBOL: Not applicable.

DANISH INFORMATION FOR PRODUCT:

NEUROTOXIC SUBSTANCES IN THE WORKING ENVIRONMENT: No a component of this product is listed as a Neurotoxic Substance in the Working Environment in Denmark.

15. REGULATORY INFORMATION (Continued)

DUTCH INFORMATION FOR THE PRODUCT:

LIST OF PRIORITY SUBSTANCES: No component of this product is listed as substance hazardous in the environment under VROM 93292/7-93, by the Hague, Ministry of Housing and Physical Planning and the Environment.

GERMAN INFORMATION FOR THE PRODUCT:

AQUATIC HAZARD CLASS (WGK): None of the components of this product have specific WGK classifications assigned. As such, the classification for this product, per the VwVS regulations is WGK 3.

TECHNICAL INSTRUCTION ON AIR QUALITY CONTROL (TALuft): None of the components of this product have specific TALuft Classifications.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE EXISTING AND NEW CHEMICAL SUBSTANCE LIST (ENCS) STATUS: The components of this product are on the Japanese ENCS.

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

KOREAN INFORMATION FOR PRODUCT:

KOREAN EXISTING CHEMICALS LIST (ECL) STATUS: The components of this product are listed on the Korean ECL.

NORWEGIAN INFORMATION FOR PRODUCT:

ENVIRONMENTAL POLLUTANTS: No component of this product is listed as Environmental Pollutants by the State Pollution Control Authority in Norway.

SWEDISH INFORMATION FOR THE PRODUCT:

SWEDISH NATIONAL CHEMICALS INSPECTORATE'S LIST OF CARCINOGENIC SUBSTANCES: The components of this product are not on the National Chemicals Inspectorate's List Of Carcinogenic Substances.

SWEDISH NATIONAL CHEMICALS INSPECTORATE'S ESTHER MANUAL: The components of this product are not ESTHER Substances.

SWEDISH HIGH VOLUME CHEMICALS: No components of this product are on the list of Swedish High Volume Chemicals. This is the list of 1000 compounds that are of the highest volume produced or imported into Sweden.

OTHER SWEDISH REGULATIONS: No component of this product is on the Swedish list of Environmentally Hazardous Chemicals.

16. OTHER INFORMATION

PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.
9163 Chesapeake Drive, San Diego, CA 92123-1002
(619) 565 - 0302

DATE OF PRINTING:

February 17, 2004

<p>The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. DeNOVUS LLC assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, DeNOVUS LLC assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.</p>

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association, which establishes exposure, limits.

TLV - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (**TWA**), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (**C**). Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL.

NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). **Flammability Hazard:** **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). **Reactivity Hazard:** **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures). PPE Rating B: Hand and eye protection is required for routine chemical use.

NATIONAL FIRE PROTECTION ASSOCIATION: **Health Hazard:** **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). **Flammability Hazard and Reactivity Hazard:** Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (**NFPA**). **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **Ecological Information:** **EC** is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL_m** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:

U.S. and CANADA: This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label.

EUROPEAN and INTERNATIONAL: **EC** is the European Community (formerly known as the **EEC**, European Economic Community). **EINECS:** This the European Inventory of Now-Existing Chemical Substances. **AICS** is the Australian Inventory of Chemical Substances. **MITI** is the Japanese Minister of International Trade and Industry. **ECL** is the Korean Existing Chemicals List. **IMO** is the International Maritime Organization and **IATA** is the International Air Transport Association. The **ARD** is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the **RID** are the International Regulations Concerning the Carriage of Dangerous Goods by Rail.