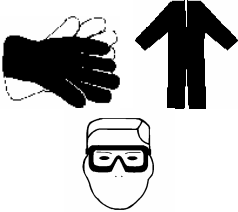





## MATERIAL SAFETY DATA SHEET

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
		 <b>Harmful</b>	 <b>B3      D2B</b>	<b>Not Regulated</b>

### Section 1: Product and Company Information

**Product Name:** n-Dodecane  
**Product Code:** A-12, A-12T  
**Product Use:** Not Available  
**Chemical Family:** Alkanes  
**Synonyms:** Dodecane  
**Manufacturer:** Vertellus Health & Specialty Products LLC  
 300 North Meridian Street, Suite 1500  
 Indianapolis, Indiana 46204  
  
**Phone Number:** (616) 772-2193  
**Fax:** (616) 772-7344  
**24-hour Emergency:** CHEMTREC: (800) 424-9300; (703) 527-3887

### Section 2: Composition and Ingredient Information

#### Hazardous Ingredients of Product Code A-12

Common Name	Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
n-Dodecane	n-Dodecane	112-40-3	99-100	203-967-9	Xn	R36/37/38; R65

#### Hazardous Ingredients of Product Code A-12T

Common Name	Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
n-Dodecane	n-Dodecane	112-40-3	95-100	203-967-9	Xn	R36/37/38; R65

**Note:**

See Section 8 of this MSDS for exposure limit data for these ingredients.  
 See Section 16 for the full text of the R-phrases above.

## MATERIAL SAFETY DATA SHEET

### Section 3: Hazards Identification

**Preparation Hazards and Classification:**

Combustible liquid and vapor. Mild central nervous system depressant. Aspiration hazard. May be irritating to eyes, skin and respiratory tract.

USA: This product is a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Evaluation.

Canada: This is a controlled product under WHMIS.

European Communities (EC): This substance is not classified in the Annex I of Directive 67/548/EEC. This substance is considered dangerous and has been classified according to Directive 1999/33/EC and its adaptations. Classification: Harmful.

**Appearance, Color and Odor:**

Colorless liquid with a slight gasoline-like odor.

**Primary Route(s) of Exposure:**

Inhalation, Ingestion, Eye contact, Skin contact

**Potential Health Effects:**

**ACUTE (short term): see Section 8 for exposure controls**

**Inhalation:** Because of low vapor pressure and low saturated vapor concentration of decanes, it is unlikely to produce a sufficiently high vapor concentration to cause effects unless material is heated or mists are formed. In this case depression of the central nervous system may result in drowsiness, dizziness, confusion and incoordination. Concentrated vapor may cause nose and throat irritation.

**Ingestion:** Decanes in general have very low oral toxicity and large amounts would have to be ingested to cause depression of the central nervous system as described for inhalation above. Based on physical properties, decanes can be easily aspirated following ingestion or vomiting. This could result in potentially fatal lung damage (pulmonary edema). Ingestion is not a typical route of occupational exposure.

**Skin:** Direct skin contact with decanes may cause moderate to severe irritation.

**Eyes:** Eye contact will probably cause moderate to severe irritation with redness and pain. Concentrated vapor is probably irritating to the eyes.

**CHRONIC (long term): see Section 11 for additional toxicological data**

Prolonged or repeated skin exposure may cause irritation and dermatitis (inflammation, reddening and swelling).

**Medical Conditions**

Not available

**Aggravated by Exposure:**

### Section 4: First Aid Measures

**Inhalation:**

Remove source of contamination or move victim to fresh air. If breathing has stopped, trained personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention immediately.

**Eye Contact:**

Quickly and gently blot or brush away excess chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the chemical is removed, while holding the eyelid(s) open. Obtain medical advice immediately.

**Skin Contact:**

Remove contaminated clothing, shoes and leather goods. Gently blot or brush away excess chemical quickly. Wash gently and thoroughly with water and non-abrasive soap for 5 minutes or until the chemical is removed. If irritation persists, obtain medical advice immediately. Completely decontaminate clothing, shoes and leather goods before re-use or discard.

**Ingestion:**

Never give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water. Obtain medical attention immediately.

## MATERIAL SAFETY DATA SHEET

### Section 5: Fire Fighting Measures

<b><u>Extinguishing Media:</u></b>	Carbon dioxide, dry chemical powder, alcohol foam or polymer foam, water spray or fog.
<b><u>Unusual Fire and Explosion Hazards:</u></b>	<p>Sensitivity to mechanical impact: Not sensitive Sensitivity to static discharge: n-Dodecane can accumulate static charge by flow or agitation due to its low electrical conductivity.</p> <p>Combustible liquid. Vapor can form flammable or explosive mixtures with air at, or above 74°C. Liquid can float on the top of water and travel long distances and/or spread fire. During a fire, irritating/toxic gases may be generated. Vapors from heated liquid can accumulate in confined spaces, resulting in a flammability hazard. Closed containers may rupture violently when heated.</p>
<b><u>Fire Fighting Instructions:</u></b>	Evacuate area and fight fire from a safe distance. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Stop leak before attempting to stop the fire. If the leak cannot be stopped, and if there is no risk to the surrounding area, let the fire burn itself out. If a leak or spill has not ignited, use water spray in large quantities to disperse the vapors and to protect personnel. Closed containers may explode in the heat of the fire. Fire-exposed containers should be cooled by application of hose streams. For a massive fire in a large area, use unmanned hose holder or monitor nozzles; if this is not possible withdraw from fire area and allow fire to burn. Firefighters may enter the area if positive pressure self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full Bunker Gear is worn.
<b><u>Hazardous Combustion Products:</u></b>	During a fire, irritating and toxic gases, fumes and vapors may be generated. Products of combustion may include carbon monoxide, carbon dioxide and dense smoke.

### Section 6: Accidental Release Measures

<b><u>Personal Precautions:</u></b>	Wear all proper personal protective equipment as indicated in Section 8. Prevent skin and eye contact. Avoid inhaling vapors and mists of this product. Remove all sources of ignition and heat.
<b><u>Environmental Precautions:</u></b>	Prevent material from contaminating soil and from entering sewers or waterways.
<b><u>Methods for Containment:</u></b>	Isolate the spill area. Stop the leak if it is safe to do so. Contain the liquid immediately using a suitable inert absorbent (sand, clay, vermiculite or commercial hydrocarbon absorbents).
<b><u>Methods for Clean-up:</u></b>	<p>Small spills: Soak up liquid with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labeled containers. Flush area with water.</p> <p>Large spills: Contact fire and emergency services and supplier for advice.</p>

### Section 7: Handling and Storage

<b><u>Handling</u></b>	Combustible liquid. Use with adequate ventilation. Avoid generating mists and vapors. It is good practice to use combustible liquids in the smallest possible amounts, in a well-ventilated area, separate from the storage area. Avoid contact with skin and eyes. Wash thoroughly after handling. Empty containers may retain product residues.
<b><u>Storage:</u></b>	Store in a cool, dry area, out of direct sunlight and away from ignition sources. Keep containers closed when not in use.

## MATERIAL SAFETY DATA SHEET

### Section 8: Exposure Controls and Personal Protection

#### Exposure Limits

<u>Ingredient</u>	<u>ACGIH TLV (8-hr. TWA)</u>	<u>U.S. OSHA PEL (8-hr. TWA)</u>	<u>Ontario (Canada) TWAEV</u>	<u>UK OEL (8-hr. TWA)</u>
n-Dodecane	Not established	Not established	Not established	Not established

#### Exposure Controls

**Engineering Controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of dust, mist or vapor.

#### Personal Protection:

**Respiratory Protection:** Not required for normal use. Wear an approved organic vapor respirator as needed to control exposure. Wear a positive pressure supplied air respirator for uncontrolled releases or when the organic vapor respirator limitations may be exceeded.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 or Canadian Standards Association (CSA) Standard Z94.4-93 must be followed whenever workplace conditions warrant a respirator's use.

**Skin Protection:** Wear chemical protective gloves and body-covering clothing to prevent skin exposure.

**Eye Protection:** Wear chemical goggles. Wear a face-shield when necessary to prevent contact with skin and eyes.

#### Other Protective Equipment:

Have a safety shower and eye-wash fountain readily available in the immediate work area.

#### Hygiene Measures:

Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Launder contaminated clothing before re-wearing or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping. Avoid skin and eye contact. Avoid inhaling mists and vapors.

## MATERIAL SAFETY DATA SHEET

### Section 9: Physical and Chemical Properties

<b><u>Physical State:</u></b>	Liquid	<b><u>Vapor Pressure:</u></b> <b><u>(mm Hg @ 20°C)</u></b>	0.3 mm Hg
<b><u>Appearance:</u></b>	Water white (colorless)	<b><u>Vapor Density:</u></b> <b><u>(Air = 1)</u></b>	5.9
<b><u>pH:</u></b>	Not available	<b><u>Solubility in Water:</u></b>	Insoluble
<b><u>Relative Density:</u></b> <b><u>(water = 1)</u></b>	0.753 @ 25°C	<b><u>Water / Oil distribution</u></b> <b><u>coefficient:</u></b>	Not available
<b><u>Boiling Point:</u></b>	216 °C (421 °F)	<b><u>Odor Type:</u></b>	Slight gasoline-like odor
<b><u>Freezing Point:</u></b>	-10 °C (14 °F)	<b><u>Odor Threshold:</u></b>	Not available
<b><u>Viscosity:</u></b>	Not available	<b><u>Evaporation Rate:</u></b> <b><u>(n-Butyl Acetate = 1)</u></b>	Not available
<b><u>Oxidizing Properties:</u></b>	Not available	<b><u>Auto Ignition Temperature</u></b> <b><u>(°C):</u></b>	203 °C (397 °F)
<b><u>Flash Point and Method (°C):</u></b>	74 °C (165 °F) CC	<b><u>Flammability Limits (%):</u></b>	LEL: 0.6 % UEL: Not available

### Section 10: Stability and Reactivity

<b><u>Stability:</u></b>	Stable under normal temperatures and pressures.
<b><u>Conditions to Avoid:</u></b>	Avoid heat, open flames, static discharge, sparks and other ignition sources.
<b><u>Incompatible Materials:</u></b>	Strong oxidizing agents.
<b><u>Hazardous Decomposition Products:</u></b>	Products of incomplete combustion may include carbon monoxide, carbon dioxide and dense smoke.
<b><u>Possibility of Hazardous Reactions:</u></b>	Hazardous polymerization will not occur.

## MATERIAL SAFETY DATA SHEET

### Section 11: Toxicological Information

#### Acute Toxicity Data

<u>Ingredient</u>	<u>LD<sub>50</sub> Oral</u> (mg/kg)	<u>LD<sub>50</sub> Dermal</u> (mg/kg)	<u>LC<sub>50</sub> Inhalation</u> (mg/m <sup>3</sup> , 4 hrs.)
n-Dodecane	Not available	Not available	Not available

#### Chronic Toxicity Data

**Carcinogenicity:** The table below indicates whether each agency has listed any ingredient as a carcinogen.

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
n-Dodecane	Not listed	Not listed	Not listed	Not listed

#### **Carcinogenicity Designations:**

ACGIH: American Conference of Governmental Industrial Hygienists  
 IARC: International Agency for Research on Cancer  
 NTP: National Toxicity Program  
 OSHA: Occupational Safety and Health Administration

**Irritation:** May cause eye, skin and respiratory irritation.

**Sensitization:** Not applicable

**Neurological Effects:** Not applicable

**Teratogenicity:** Not applicable

**Reproductive Toxicity:** Not applicable

**Mutagenicity (Genetic Effects):** Negative results have been obtained with mammalian cells in vitro.

**Toxicologically Synergistic Materials:** Not available

### Section 12: Ecological Information

**Ecotoxicity:** Not available

**Mobility:** Not available

**Persistence and degradability:** Not available

**Bioaccumulative potential:** Not available

**Other adverse effects:** Not available

## MATERIAL SAFETY DATA SHEET

### Section 13: Disposal Considerations

<b><u>Waste Disposal Method:</u></b>	Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.
<b><u>USA:</u></b>	Dispose of in accordance with local, state and federal laws and regulations. RCRA Waste numbers: None listed
<b><u>Canada:</u></b>	Dispose of in accordance with local, provincial and federal laws and regulations.
<b><u>EC:</u></b>	Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

### Section 14: Transport Information:

<b><u>U.S. Hazardous Materials Regulation (DOT 49CFR):</u></b>	Not regulated
<b><u>Canadian Transportation of Dangerous Goods (TDG):</u></b>	Not regulated
<b><u>ADR/RID:</u></b>	Not regulated
<b><u>IMDG:</u></b>	Not regulated
<b><u>Marine Pollutants:</u></b>	None
<b><u>ICAO/IATA :</u></b>	Not regulated

## MATERIAL SAFETY DATA SHEET

### Section 15: Regulatory Information

**NFPA Hazard Rating**

Category	NFPA
Acute Health	1
Flammability	2
Instability	0

**HMIS Hazard Rating**

Category	HMIS
Acute Health	1
Flammability	2
Physical Hazard	0

**USA**

**TSCA Status:** This substance is listed on the TSCA inventory.

**SARA Title III:**

Sec. 302/304: None  
 Sec. 311/312: None  
 Sec. 313: None  
 CERCLA RQ: None

**Canada**

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

**WHMIS Classification:** B3 – Combustible liquid  
 D2B – Material Causing Other Toxic Effects [Skin/eye irritation]

**NSNR Status (New Substance Notification Regulations):** This substance is listed on the Canadian Domestic Substance List (DSL).

**NPRI Substances (National Pollutant Release Inventory):** None

**List of Volatile Organic Compounds (VOCs)** Present on List of VOCs (Ontario)

**EC Classification for the Substance/Preparation:**

**Symbol:**



Harmful

**Risk Phrases:** R36/37/38: Irritating to eyes, respiratory system and skin.  
 R65: Harmful: may cause lung damage if swallowed.

**Safety Phrases:** S24/25: Avoid contact with skin and eyes.  
 S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 S62: If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

**European Inventory of Cosmetic Ingredients Directive (INCI) (76/768/EEC) – Perfume and Aromatic Materials:**

The substance n-Dodecane is present on the INCI.

**European Flavoring Substances Regulation (1999/217/EC) – Register of Flavouring Substances:**

The substance n-Dodecane is listed as Chemical Group 31.



## MATERIAL SAFETY DATA SHEET

<b><u>Denmark:</u></b>	Advisory List for Self-Classification of Dangerous Substances – N;R51/53 This classification is not based on actual testing of the substance but from predictions of Quantitative Structure Activity Relationship (QSAR) models.
<b><u>Australia:</u></b>	Present on Inventory of Chemical Substances (AICS).
<b><u>China:</u></b>	Present on China Inventory.
<b><u>Japan:</u></b>	Existing and New Chemical Substances (ENCS): 2-10
<b><u>Korea:</u></b>	Existing and Evaluated Chemical Substances (KE-12826)
<b><u>Philippines:</u></b>	Present on inventory of Chemicals and Chemical Substances (PICCS).
<b><u>New Zealand:</u></b>	Present on Composite List of Single Component Substances Considered for Transfer (Dangerous Good).

### Section 16: Other Information

**Full Text of R-phrases appearing in Section 2:** R36/37/38: Irritating to eyes, respiratory system and skin.  
R65: Harmful: may cause lung damage if swallowed.

#### Preparation Information

**Prepared by:** LEHDER Environmental Services Limited  
704 Mara Street, Suite 210  
Pt. Edward, ON  
N7V 1X4 [www.lehder.com](http://www.lehder.com)

**Phone:** (519) 336-4101

**Preparation Date:** December 23, 2005

**Revision Date:** Not applicable

**Revision Summary:** Not applicable

**Disclaimer:** While LEHDER Environmental Services Limited believes that the data set forth herein is accurate, as of the date hereof, LEHDER makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data is offered solely for your consideration, investigation and verification.

**Manufacturer Disclaimer:** This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of Vertellus Health & Specialty Products LLC. The data on this sheet relates only to the specific material designated herein. Vertellus Health & Specialty Products LLC assumes no legal responsibility for the use or reliance upon these data.

**Printed Date:** September 18, 2006

**Printed Summary:** Changed manufacturer from Zeeland, A Division of Rutherford Chemicals LLC to Vertellus Health & Specialty Products LLC. Changed Section 16 Manufacturer Disclaimer. Added printed date to Section 16.