CALEDON LABORATORY CHEMICALS

MATERIAL SAFETY DATA SHEET

DECANE

PRODUCT CODE NUMBER(S): 3301-2, 3308-2

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Decane, Decyl hydride*
Chemical Family: *Saturated aliphatic hydrocarbon*
Chemical Formula: $C_{10}H_{22}$
Product Use: *Laboratory solvent*
Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9
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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	*%*	*TLV Units*	*CAS No.*
Decane	*99.0*	*Not established*	*124-18-5*

PHYSICAL DATA

Physical State: *Liquid*
Odour and Appearance: *Colourless liquid, with a mild gasoline-like odour.*
Odour Threshold (ppm): *1 94 ppm (detection)*
Vapour Pressure (mm Hg): *1mm Hg @ 16.5°C*
Vapour Density (Air = 1): *4.90*
Evaporation Rate (bu ac=1): *0.07*
Boiling Point (°C): *174°C*
Freezing Point (°C): *-30°C*
pH: *Not available*
Specific Gravity: *0.730 @ 20°C*
Coefficient of Water/Oil distribution: *LogP(oct)=5.98*

SHIPPING DESCRIPTION

UN: *2247*
T.D.G. Class: *3*
Pkg. Group: *III*

REACTIVITY DATA

Chemical Stability: *Stable*
Incompatibility with other substances: *May react violently, with increased risk of fire and explosion, with strong oxidizing materials. Not corrosive to metals.*
Reactivity: *Avoid heat, sparks, open flame, all ignition sources and incompatible materials, and generation of mist.*
Hazardous Decomposition Products: *Carbon oxides and various hydrocarbons*

FIRE AND EXPLOSION DATA

Flammability: *Combustible liquid and vapour. Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Liquid can accumulate static charge. Liquid floats on water and may spread fire. Closed conainers may rupture violently when exposed to fire.*
Extinguishing Media: *Water fog; CO_2; alcohol or polymer foam; dry chemical. Water may be used to cool containers and disperse vapours but will be ineffective for extinguishing fire because it may not cool liquid below flash point. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment and clothing sufifcient to prevent inhalation of mists and vapours and contact with skin and eyes. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.*
Flash Point (Method Used): *46°C (CC)*
Autoignition Temperature: *210°C*
Upper Flammable Limit (% by volume): *2.6; 5.4*
Lower Flammable Limit (% by volume): *0.8*
Hazardous Combustion Products: *Carbon oxides and hydrocarbons formed when burned*
Sensitivity to Impact: *None known*
Sensitivity to Static discharge: *Vapour readily ignited by static discharge. Liquid can probably accumulate static charge by flow or agitiation.*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD_{50}: *Not available*
LC_{50}: *(mouse) 72,300 mg/m^3/2h*

Effects of Acute Exposure to Product:

Inhaled: *Low vapour pressure, so not likely to be a hazard unless heated or if mists are present. In that case, irritating and harmful. Exposure to high vapour concentrations may cause rapid breathing, fatigue, headache, light-headedness, dizziness and other central nervous system effects.*
In contact with skin: *Severe irritant, causing redness, itching, pain (based on animal studies, no human information available). Probably readily absorbed through skin, causing systemic effects as in 'Inhaled". Prolonged contact may defat the skin, causing drying, redness, thickening, scaling and hair loss.*
In contact with eyes: *Vapour and liquid are probably moderately to severely irritating to eye tissue. (Based on animal skin studies - no eye studies or human information available.*
Ingested: *Probably low oral toxicity. In large amounts, may cause central nervous system depression as in "Inhaled". However, during ingestion or vomiting, aspiration may occur, which can cause chemical pneumonitis, pulmonary edema and possible death.*

Effects of Chronic Exposure to Product:

In animal testing, application of 100-150 mg of undiluted n-decane to skin of mice, 3 x weekly for 50 weeks, caused damage to skin, lungs, spleen and kidneys.
Carcinogenicity: *Not considered to be a carcinogen by NTP, IARC, or OSHA, however, n-decane has enhanced the carcinogenicity of known carcinogens and has demonstrated tumor-promoting activity when tested dermally in mice. No*

carcinogenic activity has been associated with exposure to n-decane alone.

Teratogenicity: *No human or animal information available*

Reproductive Effects: *No human or animal information available*

Mutagenicity: *Negative in Ames and cultured mammalian cell tests.*

Synergistic Products: *See Carcinogenicity*

PREVENTIVE MEASURES

Engineering Controls: *Non-sparking, grounded exhaust ventilation, separate from other ventilation systems.*

Respiratory Protection: *Use only in a fume hood. NIOSH approved air-purifying respirator with organic vapour cartridges or full face-piece chemical cartridge respirator with organic vapour cartridges for concentrations that cannot be controlled by exhaust ventilation. For higher or unknown concentrations, as in fire or spill conditions, positive-pressure, full face-piece self contained breathing apparatus, or full face-piece supplied-air respirator with an auxiliary positive-pressure self contained breathing apparatus.*

Eye Protection: *Chemical safety goggles and/or face shield*

Skin Protection: *Rubber or neoprene gloves. Overalls, apron or protective clothing sufficient to prevent contact if splash occurs*

Other Personal Protective Equipment: *Safety shower and eye wash in work area*

Leak and Spill Procedure: *Evacuate area. Eliminate all sources of ignition. Provide maximum ventilation. Cleanup personnel must be thoroughly trained in the hazards of this material and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists, and contact with skin, eyes or clothing. Stop or reduce discharge if safe to do so. Contain spill and collect using inert absorbent material. Prevent from entering sewers or waterways. Do not touch spilled material or contaminated absorbent. Contaminated absorbent may pose the same hazards as the chemical; treat with caution. Flush area of spill with copious amounts of running water.*

Waste Disposal: *Follow all federal, provincial and local regulations for disposal.*

Handling Procedures and Equipment: *COMBUSTIBLE, TOXIC LIQUID. Workers must be thoroughly trained in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing. Avoid any contact with eyes, skin and clothing. Avoid inhalation of mists or vapours. Keep away from heat, sparks, flame and all sources of ignition. Post "No Smoking" signs. Ground and bond equipment and containers to prevent a static charge buildup. Use spark-resistant tools and avoid "splash filling" of containers. Keep storage and work areas free of combustible or incompatible materials. Avoid generating mists or vapours. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Empty containers may contain hazardous residues; treat with caution.*

Storage Requirements: *Store in suitable, labelled containers, in a cool, dry, well ventilated area, out of direct sunlight, and away from combustible or incompatible materials and all ignition sources. Keep containers tightly closed when not in use. Protect from damage and inpsect regularly for signs of leaking or damage. Storage facilities should be made of fire-resistant materials, and have raised sills or ramps, with trenching to a safe area, and sealed floors to prevent absorption.*

FIRST AID MEASURES

Specific Measures:

Eyes: *Flush eyes with gently running water for at least twenty (20) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact during first aid procedures. Obtain medical advice immediately.*

Skin: *Remove contaminated clothing (including rings, watches, belts and shoes). Brush or blot away excess chemical. Wash exposed area with soap and large amounts of running water for at least fifteen (15) minutes or until all traces of chemical are removed. Get medical advice. Decontaminate clothing before reuse, or discard.*

Inhalation: *Remove casualty to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Give oxygen for breathing difficulty. If breathing has STOPPED give artificial respiration. If breathing and pulse are ABSENT, give CPR. IMMEDIATELY OBTAIN MEDICAL ATTENTION. Stay with casualty until medical assistance is reached.*

Ingestion: *DO NOT INDUCE VOMITING. DANGER OF ASPIRATION. If the casualty is alert and NOT convulsing, give 2 to 4 glasses of water to drink to dilute the material. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water. Get medical attention imeediately.*

REFERENCES USED

CCINFO disc: Cheminfo

Budavari: The Merck Index, 12th ed., 1997

Royal Society of Chemistry: Chemical Safety Data Sheets, Vol 1, 1992

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *May 4, 1989*

Revision: *March 2011*

MSDS: *3301-2, 3308-2*

Proposed WHMIS Designation: *B3; D2B (irritant)*

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