Section 1 – Chemical Product and Company Identification

MSDS Name: Lithium hexamethyldisilazide in toluene

Chemical Family: Organo-metallic Amide

Molecular Formula: $[(CH_3)_3Si]_2NLi$

Use of the substance: Chemical intermediate

Company: Optima Chemicals Group, LLC
200 Willacoochee Hwy.
Douglas, Georgia 31535
Telephone (912) 384-5101 FAX (912) 384-6330
Emergencies: Telephone (912) 384-5101

Section 2 – Hazards Identification

Hazards:

Highly flammable liquid and vapor.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

NFPA Rating: Health: 3 Flammability: 3 Reactivity: 2 Special: W

Precautionary Statements:

Handle under inert gas, protect from moisture.
Wear chemical splash goggles with a face shield, rubber gloves and rubber clothing.
Keep away from heat/sparks/open flame – No smoking.
Keep Container tightly closed.
Ground/bound container and receiving equipment.
Use explosion-proof electrical, ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust or mist.
Wash thoroughly after handling.
Avoid breathing vapors.
Use only outdoors or in well-ventilated area.
In case of fire do not use water or carbon dioxide. Use dry chemical.

Section 3 – Composition, Information on Ingredients

CAS #	EC#	Chemical Name	Wt.%
4039-32-1	223-725-6	Lithium hexamethyldisilazide (LHS)	24-26
108-88-3	203-625-9	Toluene	72-75
106-97-8	203-448-7	Butane	0-3
999-97-3	213-668-5	Hexamethyldisilazane	1-2

Section 4 – First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids. Seek medical attention.

Skin: Quickly wipe off as much as possible, then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Thoroughly wash with soap and water, and seek medical attention.

Ingestion: Quickly wipe material from the mouth, and rinse mouth out with plenty of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

Inhalation: Remove from exposure, to fresh air immediately. If not breathing give artificial respiration, and seek medical attention.

Notes to Medical Doctor: This product is corrosive and reacts with water. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Treatment is otherwise symptomatic and supportive.

Section 5 – Fire Fighting Measures

Flammable Limits: For Toluene Upper: 7.1% Lower: 1.1%

General Hazard: Flammable liquid. Reacts with water to give off flammable fumes and corrosive dust.

Fire Extinguishing Agents Recommended: Do not use water or CO2. Use dry chemical.

Hazardous Combustion Products: Lithium hydroxide, carbon dioxide, carbon monoxide.

Special Fire fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Autoignition temperature: Not available for product.

Properties contributing to flammability: Water reactivity and volatility of solvents.

Flashpoint: 4.4 degrees C (Toluene)

Sensitivity to Static Discharge: Yes

Sensitivity to Impact: None

Section 6 – Accidental Release Measures

Remove all sources of ignition. Do not use water in the initial phases of clean up. Contain spill with absorbent. Transfer to approved transport container and clean up spillage with an absorbent. Dispose of waste according to local and Federal laws and regulations. Before cleanup measures begin, review the entire MSDS with particular attention to Section 3, and Section 8.

Section 7 - Handling and Storage

Handling: Use in a closed system under argon or nitrogen. Do not get in eyes, on skin or clothing. Do not breathe vapors or mist.

Storage: Store in cool, dry place. Store in tightly closed container. Keep away from sources of ignition, water, air, acids and oxidizing agents.

Section 8 – Exposure Controls, Personal Protection

Exposure Limits: Toluene, PEL (OSHA) – 200 ppm, TWA (ACGIH) – 50 ppm, STEL/Ceiling (OSHA) – 500 ppm.

Engineering Controls: Use in closed system under argon or nitrogen. If personal contact can occur, use local exhaust ventilation (explosion proof), to keep airborne concentrations below exposure limits.

Eyes and Face: Wear splash goggles with a face shield.

Skin: Wear rubber gloves and rubber protective clothing.

Respiratory: When engineering controls are not adequate, wear a NIOSH/MSHA respirator approved for protection against organic vapors and mists.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

Section 9 – Physical and Chemical Properties

Appearance and Odor: Yellow-clear solution, solvent odor of toluene.

Melting Point: Not available

Boiling Point: 110.6 degrees C (Toluene)

Flash Point: 4.4 degrees C (Toluene)

Vapor Pressure: 2.93 kPa (22mm Hg) at 20 degrees C (Toluene)

Vapor Density: 3.1 (Toluene)

pH: Not applicable

Specific Gravity: 0.86 g/3cm

Percent Volatile: 75-90

Water Solubility: Exothermic reaction

Evaporation Rate: Not available

Flammable Limits: Not available for formulation

Molecular Weight: 167.33 (LHS)

Autoignition Temperature: Not available

Viscosity: Not available

Decomposition Temperature: Not available

Explosive Properties: Not explosive

Oxidizing Properties: Not an oxidizer

Section 10 – Stability and Reactivity

Stability: Stable under normal handling conditions.

Incompatibility: Heat, fire, air, water, acids and oxidizing chemicals

Hazardous Polymerization: Does not polymerize

Hazardous Decomposition Products: Lithium oxide, lithium hydroxide, ammonia, oxides of nitrogen, bis-trimethylsiloxane

Conditions to Avoid: Water, heat, sparks, open flame.

Section 11 – Toxicological Information

Eyes: No data available for the product.

Skin: Corrosive, packing group II, Corrositex In-Vitro Skin, Corrosion assay, Hexamethyldisilazane: Dermal LD50 = 710 uL/kg (rabbit). RTECS.

Ingestion: No data available for the product. Hexamethyldisilazane (hydrolysis product): Oral LD50 = 850 mg/kg (rat), Toluene: Oral LD50 = 636 mg/kg (rat)

Inhalation: No data available for the product.Toluene: LC50 = 49 gm/m3/4H (rat)

Acute Effects from Overexposure: This product is corrosive to the eyes, skin, mucous membranes, upper respiratory tract, and is water reactive. Inhalation of vapors may cause dizziness, nausea, anesthesia, numbness, burning sensation and motor weakness in fingers and toes, incoordination, and headache. May cause peripheral nervous system disorder and/or damage. Low viscosity material - if swallowed may enter the lungs and cause lung damage.

Chronic Effects from Overexposure: No data available for the product. Toluene: Possible reproductive hazard – may cause developmental toxicity, based on animal information. Toluene was not carcinogenic in mice and rats exposed by inhalation to up to 1200 ppm for 24 months. Prolonged skin exposure may result in dermatitis. Symptoms observed in laboratory animals following subchronic inhalation exposure to toluene has caused narcosis, tremors and anesthesia in laboratory animals.

Sensitization: No

Carcinogenicity: Not listed by NTP, OSHA, or EH40. IARC: Toluene is listed as Group 3, unclassifiable as to human carcinogenicity. ACGIH: Toluene is listed as Category A4, unclassifiable as to human carcinogenicity.

Mutagenicity: No data available for the product.

Reproductive Toxicity: No data available for the product. Toluene: Possible reproductive hazard – may cause developmental toxicity, based on animal information.

Section 12 – Ecological Information

Ecotoxicological Information:

Environmental toxicity testing of the product has not been conducted.

Toluene: 24-96 hr. LC50 = 56-34 mg/l (fathead minnow) [Handbook of Env. Data on Org. Chem., 4th Ed]. 24-96 hr. LC50 = 24 mg/l (bluegill) [Handbook of Env. Data on Org. Chem., 4th Ed]. 48 hr. EC50 = 15 mg/l (daphnia magna) [Handbook of Env. Data on Org. Chem., 4th Ed.].

Chemical Fate Information:

No data available for the product. Lithium hexamethyldisilazide reacts exothermically with water. Hydrolysis products consist of lithium hydroxide and hyxamethyldisilzane.

Toluene: Toluene biodegrades slowly and volatilizes rapidly from soil. It is not expected to bioconcentrate.

Section 13 – Disposal Considerations

Dispose of in accordance with federal, state, and local regulations.

Section 14 – Transport Information

DOT Shipping: Flammable liquid, corrosive. N.O.S. (lithium hexamethyldisilazide in toluene), 3 Flammable liquid (8,Corrosive), UN2924, PG II.

Labels: Flammable, Corrosive

Marine Pollutant: No

PIH: Not designated Poison Inhalation Hazard by USDOT.

Section 15 – Regulatory Information

United States:

Section 311 Hazard Category (40CFR 370): Reactive, fire hazard, acute health hazard, chronic health hazard.

Section 313 Reportable Ingredients (40 CFR 372): No reporting requirements.

Section 302 Extremely Hazardous Substances (40 CFR 355): Not listed.

CERCLA Hazardous Substance (40 CFR 302.4): Toluene has a reportable quantity of 1000 pounds.

TSCA Sec 12B Export Notification: Toluene is not subject to these requirements.

TSCA Inventory Status (40 CFR 710): Listed

Canada:

WHMIS: Hazard Classification – Class B, Division 6 (Reactive Flammable Materials), Class E, (Corrosive), Ingredient Disclosure List: Toluene is listed.

Section 16 – Additional Information

Creation Date: 12/2/2009

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

This information is believed to be accurate and represents the best information currently available to Optima Chemical Group LLC. However, we make no warranty of merchantability, express or implied, with respect to such information and assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.