



## Material Safety Data Sheet N-Butyllithium

### SECTION 1.1 – PRODUCT IDENTIFICATION

<b>Product Name</b>	: N-Butyllithium
<b>Molecular Formula</b>	: Not applicable.
<b>Molecular Weight</b>	: Not applicable.
<b>CAS No.</b>	: Mixture.

### SECTION: 1.2 – COMPANY IDENTIFICATION

**Company Name:** Indenta Chemicals (India) Pvt. Ltd.

**Address:** 117, The Summit Business Bay, Opp Cinemax, Off. Sir M.V. Road, Near WEH Metro Station, Andheri (E), Mumbai 400 093, India

**Telephone #:** +91-22-26849600

**Fax #:** +91-22-26849060

### SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	% by Weight
{n-}Butyllithium	109-72-8	9-12
Hexane	110-54-3	88-91

**Toxicological Data on Ingredients:** n-Butyllithium LD50: Not available. LC50: Not available. Hexane: ORAL (LD50): Acute: 25000 mg/kg [Rat].

### SECTION 3: HAZARD IDENTIFICATION

**Potential Acute Health Effects:** Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeated), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:** CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Hexane]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to peripheral nervous system, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## SECTION 4: FIRST AID MEASURES

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**Eye Contact:** Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention immediately.

**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. 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:** 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 if symptoms appear.

**Serious Ingestion:** Not available.

## SECTION 5: FIRE AND EXPLOSION DATA

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**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 240°C (464°F)

**Flash Points:** CLOSED CUP: -21°C (-5.8°F).

**Flammable Limits:** LOWER: 1.2% UPPER: 7.4%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:** Extremely flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

**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.

**Fire Fighting Media and Instructions:** Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use 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:** Spontaneously flammable in air. Extremely flammable liquid and vapor. Vapor may cause flash fire.

**Special Remarks on Explosion Hazards:** Not available.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:** Toxic flammable liquid, insoluble or very slightly soluble in water. Corrosive 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 curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities

## SECTION 7: HANDLING AND STORAGE

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**Precautions:** Keep locked up.. Keep container dry. 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. Never add water to this product. 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, organic materials, metals, moisture.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction. Do not store above 6°C (42.8°F). Refrigerate

## SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

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**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:** Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

**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:** Hexane TWA: 500 (ppm) from OSHA (PEL) [United States] Inhalation TWA: 1800 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation TWA: 176 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] SKIN TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 500 STEL: 1000 (ppm) from ACGIH (TLV) [United States] Inhalation TWA: 1760 STEL: 3500 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Inhalation Consult local authorities for acceptable exposure limits.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Clear Colorless to light yellow.

**PH (1% soln/water):** Not applicable.

**Boiling Point:** 60° - 80 C (140°F)

**Melting Point:** -95°C (-139°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 0.68(Water = 1)

**Vapor Pressure:** The highest known value is 17.3 kPa (@ 20°C) (Hexane).

**Vapor Density:** The highest known value is 2.97 (Air = 1) (Hexane). Weighted average: 2.77 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** The highest known value is 130 ppm (Hexane)

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available

**Solubility:** Reacts with water

## SECTION 10: STABILITY AND REACTIVITY

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**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Heat, ignition sources, moisture, water, air, dehydrating agents, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, organic materials, metals, moisture. Slightly reactive to reactive with acids. The product reacts violently with water to emit flammable but non toxic gases.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Hexane can react vigorously with strong oxidizers (e.g. chlorine, bromine, fluorine), and

dinitrogen tetraoxide. Lithium is incompatible with acetonitrile + sulfur dioxide, bromine pentafluoride, bromobenzene, carbon + Lithium tetrachloroaluminate + sulfonyl chloride, carbon + sulfonyl chloride, chlorine tri or pentafluoride, diazomethane, diborane, ethylene, halocarbons, halogens, hydrogen, mercury, metal chlorides + nitrogen, metal oxides and chalcogenides, metals, nitric acid, nitrogen fluoride, non-metal oxides, platinum, viton, sodium carbonate, sulfur, sulfonyl chloride, sulfur dioxide, trifluoromethyl hypo fluorite, iron (II) sulfide, manganese telluride, arsenic, beryllium, maleic anhydride, carbides, carbon dioxide + water, chlorine, chromium, chromium trichloride, cobalt alloys, nickel alloys, nitrogen, organic matter, oxygen, phosphorus, rubber, silicates, sodium nitrite, tantalum (V) oxide, vanadium, zirconium tetrachloride, iodoform, nitrogen + metal chlorides, fluorine, magnesium perchlorate. Butyl lithium above 20% in air can ignite spontaneously if the humidity exceeds 70%. Concentrations above 25% are pyrophoric at any humidity.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## SECTION 11: TOXICOLOGICAL INFORMATION

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**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 25000 mg/kg [Rat]. (Hexane).

**Chronic Effects on Humans:** MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Hexane]. Contains material which may cause damage to the following organs: peripheral nervous system, skin, central nervous system (CNS).

**Other Toxic Effects on Humans:** Very hazardous in case of skin contact (irritant), of ingestion, Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive), of inhalation (lung corrosive).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** May cause adverse reproductive effects based on animal data. May be tumorigenic based on animal data. Passes through the placental barrier in animal. (Hexane)

**Special Remarks on other Toxic Effects on Humans:** Acute Potential Health Effects: Skin: Causes severe irritation, burns, and ulceration. Eyes: Causes severe irritation and burns. May cause irreversible eye injury. Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes severe irritation of the upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Irritation and/or aspiration may lead to chemical pneumonitis and pulmonary edema. Ingestion: Causes digestive tract burns with immediate pain, swelling of the throat, convulsions, seizures, and possible coma. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

## SECTION 12: ECOLOGICAL INFORMATION

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**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.

**Special Remarks on the Products of Biodegradation:** Not available

## SECTION 13: DISPOSAL CONSIDERATION

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**Waste Disposal:**

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

## SECTION 14: TRANSPORT INFORMATION

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**DOT Classification:** CLASS 4.2: Spontaneously combustible substance.

**Identification:** Lithium Alkyls (n-Butyllithium) UNNA: 2445 PG: I

**Special Provisions for Transport:** Not available

## SECTION 15: OTHER REGULATORY INFORMATION

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**Federal and State Regulations:** Connecticut carcinogen reporting list. : Hexane Illinois toxic substances disclosure to employee act: Hexane Illinois chemical safety act: Hexane New York release reporting list: Hexane Pennsylvania RTK: n-Butyllithium; Hexane Florida: Hexane Minnesota: Hexane Massachusetts RTK: Hexane New Jersey: n-Butyllithium; Hexane New Jersey spill list: Hexane Louisiana spill reporting: Hexane TSCA 8(b) inventory: n-Butyllithium; Hexane

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS B-6: Reactive and very flammable material. CLASS E: Corrosive liquid.

**DSCL (EEC):** R11- Highly flammable. R14/15- Reacts violently with water, liberating extremely flammable gases. R17- Spontaneously flammable in air. R20- Harmful by inhalation. R34- Causes burns. R62- Possible risk of impaired fertility. R67- Vapors may cause drowsiness and dizziness S6- Keep under Nitrogen S7/8- Keep container tightly closed and dry. 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. S33- Take precautionary measures against static discharges. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S43- In case of fire, never use water or carbon dioxide. Use dry chemical. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S61- Avoid release to the environment. Refer to special instructions/Safety data sheets. S7/9- Keep container tightly closed and in a well-ventilated place. S29- Do not empty into drains.

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 3

**Reactivity:** 2

**Personal Protection:**

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

**Health:** 3

**Flammability:** 4

**Reactivity:** 2

**Specific hazard:**

**Protective Equipment:** Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Face shield.

## SECTION 16: ADDITIONAL INFORMATION

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