LITHIUM HEXAMETHYLDISILAZIDE (LHS) 24 wt% IN THF

CAS No. 4039-32-1

Product Names
Lithium hexamethyldisilazide, Lithium bis-trimethylsilylamide, LHS

Formula
\([\text{CH}_3\text{Si}]_2\text{N-Li}\]

Appearance
Yellow to brown solution

Application
LHS is a non-pyrophoric strong base, widely employed in organic synthesis as a metatation agent. The principle advantages of this reagent are the improved selectivity obtained in deprotonation reactions and the enhanced thermal stability. It is employed as a base in generating enolates for the preparation of lactone precursors. (1) J.Org. Chem. 1993, 58, 7304. (2) Synlett 1993, 507. (3) Tetrahedron 1994, 50, 9061. LHS is offered as a THF solution, and is therefore simple to transfer from the shipping container to a reactor or storage vessel.

LHS is a more stable base than lithium diisopropylamide (LDA).

Product Specification

<table>
<thead>
<tr>
<th>Guaranteed*</th>
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</thead>
<tbody>
<tr>
<td>Lithium hexamethyldisilazide, wt%</td>
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<tr>
<td>2-methyl-2-butene, wt%</td>
</tr>
</tbody>
</table>

*S this product can be made to agreed upon customer specifications.

Solvent

THF, wt% 
Typical 
66

Physical Properties

Molecular weight
167.33

Density @ 20°C
0.88 g/mL (7.34 lb/gal)

Contained LHS
211.2 g/L (1.76 lb/gal) for 24 wt% soln

Pyrophorcity
Non-pyrophoric

Solubility
The 1.3 M LHS solution in THF is soluble in liquid aliphatic and aromatic hydrocarbons, ethers, and tertiary amines. An LHS-THF complex will slowly precipitate at low temperatures (< -20°C) after several days; however, the complex will readily redissolve at room temperature.

Thermal Stability
LHS in THF is very stable at room temperature, < 0.0001 wt. % loss per day under a dry inert atmosphere. At 40°C, solutions could slowly become hazy with little detectable decomposition. Incidental exposure of LHS solution to oxygen may cause darkening of color.

Air Treatment     Construction     Energy     Fine Chemicals     Glass & Ceramics     Greases & Lubricants     Polymers     Pool Water Treatment

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AND HEADQUARTERS     FMC Lithium     FMC Lithium     FMC Lithium     FMC India Private Limited     FMC Lithium

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**LITHIUM HEXAMETHYLDISILAZIDE (LHS) 24 wt% IN THF**

**CAS No. 4039-32-1**

**Toxicity/Safety Data**

Flammable liquid. Water reactive. In case of fire do not use water or carbon dioxide. Corrosive to eyes, skin, mucous membranes, upper respiratory tract. Possible carcinogen: may contain up to 0.1 wt% isoprene. Inhalation of vapors may cause dizziness, nausea, anesthesia, numbness, motor weakness in fingers and toes, incoordination, and headache. If ingested, may produce a lung aspiration hazard.

**COMPLETE INFORMATION ON TOXICITY AND SAFETY IS CONTAINED IN THE FMC MATERIAL SAFETY DATA SHEET (MSDS) AVAILABLE FOR THIS PRODUCT.**

**Handling/Storage/Disposal**

Use in a closed system under argon or nitrogen. Do not get in eyes, on skin or clothing. Do not breathe vapors or mist. Store in a cool place. Keep container closed. Keep away from sources of ignition, water, air, acids and oxidizing agents.

**Shipping Containers**

- Bulk containers: 2000 – 20000 L
- Cylinders: #20, #100, #420
- Drums: 55 gallon
- Glass bottles: 125 mL, 500 mL, and 1 L

**Shipping Limitations**

Shipments of LHS are described as "Flammable Liquid, Corrosive, N.O.S., LITHIUM HEXAMETHYLDISILAZIDE IN TETRAHYDROFURAN, 3 (8), UN2924, PGI." Shipments require "Flammable Liquid" and "Corrosive" labels.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Classification</th>
<th>Requirements</th>
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</thead>
<tbody>
<tr>
<td>Post, Parcel</td>
<td>Not acceptable</td>
<td></td>
</tr>
<tr>
<td>Sea</td>
<td>Class 3 (8) IMDG</td>
<td></td>
</tr>
<tr>
<td>Road, Rail (USA)</td>
<td>Class 3 (8) DOT</td>
<td></td>
</tr>
<tr>
<td>Road, Rail (EU)</td>
<td>Class 3 (8) RID/ADR</td>
<td></td>
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<tr>
<td>Air</td>
<td>Class 3 (8) IATA</td>
<td>2.5 L maximum per inner glass container, 5.0 L maximum per single/outer container. Cargo aircraft only.</td>
</tr>
</tbody>
</table>

For shipments within Europe, labeling for supply requirements are:

- **F** Highly Flammable
- **C** Corrosive
- **R&S Phrases** See Material Safety Data Sheet

Responsible Care® initiative dictates that all shipments of lithium chemicals must be transported in a DOT-approved vehicle in a responsible manner (i.e., no flat bed trucks).

**Additional Resources**