

n-BUTYLLITHIUM IN HEXANES (15% SOLUTION)

CAS No. 109-72-8

QS-PDS-038 Revision: 00

Product Names *n*-Butyllithium, *n*-BuLi, NBL

Formula CH₃CH₂CH₂CH₂-Li

Appearance Clear, colorless to yellow solution

Application *n*-Butyllithium is a very strong base, exceedingly useful in organic synthesis. NBL has found particular utility in deprotonation and metal-halogen exchange reactions. NBL is also a very effective initiator of anionic polymerization of styrene and conjugated dienes. The synthesis of solution SBR and of styrenic thermoplastic elastomers (TPEs), in particular, is facilitated by NBL. References: *The Chemistry of Organolithium Compounds*, ed. Zvi Rappoport and Ilan Marek, Wiley, 2004, West Sussex, England.

Product Specification

Typical*

| | |
|-----------------------------|-------------|
| <i>n</i> -Butyllithium, wt% | 14.5 – 15.5 |
| Carbon Bound Lithium, % | 95 min |

* This product can be made to agreed upon customer specifications.

Solvent Hexanes

| | | |
|----------------------------|------------------------|-------------------------|
| Physical Properties | Molecular weight | 64.06 |
| | Density @20°C | 0.68 g/ml (5.68 lb/gal) |
| | Contained butyllithium | 102.0 g/L (0.85 lb/gal) |
| | Pyrophoricity | Pyrophoric |

Solubility *n*-Butyllithium is miscible in all proportions with aliphatic, aromatic, and ethereal solvents; however, there is some reactivity with the latter two solvent types.

Thermal Stability At 25°C, the average decomposition rate is 0.002 wt.% per day. Recommended storage: 20°C or lower and preferably at 0°C.

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

| MARKETS SERVED | NORTH AMERICA AND HEADQUARTERS FMC Lithium | EUROPE FMC Chemicals | JAPAN FMC Lithium | CHINA FMC Lithium | INDIA FMC India Private Limited | TAIWAN FMC Lithium |
|----------------|--|---|--|---|---|--|
| | Seven LakePointe Plaza 2801 Yorkmont Road, Suite 300 Charlotte, NC 28208 P: +1.704.426.5300 F: +1.704.426.5370 | Commercial Road Bromborough Merseyside CH62 3NL, England P: +44.151.482.7356 F: +44.151.482.7361 | 9F, Aoyama Building 1-2-3, Kita-Aoyama Minato-ku, Tokyo 107-0061, Japan T: +81.3.3402.3716 F: +81.3.3402.3700 | 15F Far East International Plaza No. 317 Xianxia Road Shanghai 200051 P. R. China T: +86.21.6235.1919 F: +86.21.6235.1917 | Embassy Star 8, Palace Road High Grounds Bangalore 560052, India T: +91.80.2238.4311 F: +91.80.2238.5255 | 9F-1, 263 Tun Hwa S. Rd. Sec. 1 Taipei, Taiwan T: +866.2.2705.4400 F: +866.2.2702.7460 |

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Toxicity/Safety Data

Pyrophoric liquid. Can catch fire if exposed to air. Reacts violently with water to give off flammable gases and corrosive dusts. Corrosive to eyes (may cause blindness), skin, nose, throat and stomach. Can catch fire on contact with body moisture or if exposed to air. 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

Keep away from water, air, and oxidizing materials. Wear full face protection and gloves. Use in a closed system under argon or nitrogen. Keep away from heat, sparks and flame. Protect storage container from leaks and physical damage.

Shipping Containers

| | |
|-----------------|-------------------------|
| Bulk containers | 2000 – 20000 L |
| Cylinders | #5 – 420 L |
| Glass bottles | 125 mL, 500 mL, and 1 L |

Shipping Limitations

Shipments of NBL are described as " Organometallic substance, liquid, pyrophoric, water-reactive (*N-BUTYLLITHIUM, HYDROCARBON SOLUTION*), 4.2 (4.3), UN 3394, PG I". Shipments require "Spontaneously Combustible" and "Dangerous When Wet" labels.

| | |
|-------------------|---------------------------|
| Post, Parcel, Air | Not acceptable |
| Sea | Class 4.2 (4.3) (IMDG) |
| Road, Rail (USA) | Class 4.2 (4.3) (DOT) |
| Road, Rail (EU) | Class 4.2 (4.3) (RID/ADR) |

For shipments within Europe, labeling for supply requirements are:

| | |
|-------------|--------------------------------|
| F | Highly Flammable |
| C | Corrosive |
| N | Hazardous for the Environment |
| 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

Refer to the Butyllithium Safe Handling Guide available on-line at www.fmclithium.com.