

n-BUTYLLITHIUM IN BRANCHED OCTANES

CAS No. 109-72-8

QS-PDS-043 REVISION: 00

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

Formula CH₃CH₂CH₂CH₂-Li

Appearance Clear, yellowish 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 %	23.0 – 25.0
Free Alkalinity, wt %	1.0 max
Carbon Bound Lithium %	96.0 min

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

Solvent Isopar[®] C (A trademark of the ExxonMobil Chemical for their hydrocarbon fluid with a boiling range of 96–107°C.)

Physical Properties

Molecular weight	64.06
Density @20°C	0.707 g/ml (5.90 lb/gal)
Contained <i>n</i> -Butyllithium	170 g/L (1.42 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 20°C and 35°C, the average decomposition rates were 0.0015 and 0.011 wt. % per day, respectively. 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

**NORTH AMERICA
AND HEADQUARTERS**
FMC Lithium
Seven LakePointe Plaza
2801 Yorkmont Road, Suite 300
Charlotte, NC 28208
P: +1.704.426.5300
F: +1.704.426.5370

EUROPE
FMC Chemicals
Commercial Road
Bromborough
Merseyside
CH62 3NL, England
P: +44.151.482.7356
F: +44.151.482.7361

JAPAN
FMC Lithium
9F, Aoyama Building
1-2-3, Kita-Aoyama
Minato-ku, Tokyo
107-0061, Japan
T: +81.3.3402.3716
F: +81.3.3402.3700

CHINA
FMC Lithium
15F Far East International Plaza
No. 317 Xianxia Road
Shanghai 200051 P. R. China
T: +86.21.6235.1919
F: +86.21.6235.1917

INDIA
FMC India Private Limited
Embassy Star
8, Palace Road
High Grounds
Bangalore 560052, India
T: +91.80.2238.4311
F: +91.80.2238.5255

TAIWAN
FMC Lithium
9F-1, 263 Tun Hwa S. Rd.
Sec. 1
Taipei, Taiwan
T: +866.2.2705.4400
F: +866.2.2702.7460

MARKETS SERVED

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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	2500 – 20000 L
	Cylinders	#5 – 450 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.