

## *n*-BUTYLLITHIUM IN TOLUENE (20% SOLUTION)

CAS No. 109-72-8

QS-PDS-040 Revision: 00

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

**Formula** CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-Li

**Appearance** Clear, yellow to red 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%	19.5 – 20.5
Free Alkalinity, wt%	0.5 max
Carbon Bound Lithium, %	97 min

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

**Solvent** Toluene

<b>Physical Properties</b>	Molecular weight	64.06
	Density @20°C	0.85g/ml ( 7.14 lb/gal)
	Contained butyllithium	170g/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 15°C and 40°C, the average decomposition rates were 0.015 and 0.11 wt.% per day, respectively. Recommended storage: 10°C or lower and preferably at 0°C.

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

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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.

<b>Shipping Containers</b>	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
R&S phrases	See Material Safety Data Sheet

Responsible Care<sup>®</sup> 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](http://www.fmclithium.com).