

Product Names *t*-Butyllithium, *t*-BuLi, TBL

Formula (CH₃)₃C–Li

Appearance Clear, yellowish solution

Application This formulation of *t*-Butyllithium in Heptane, while still pyrophoric, has a significantly higher flash point than the traditional pentane formulation. TBL is particularly useful in lithium-halogen exchange reactions. TBL can be used as a strong base in organic synthesis. TBL is more reactive than the *t*-butyl Grignard reagent in nucleophilic additions to carbonyl and nitrile substrates. TBL is also useful in the displacement of halide or alkoxide ligands of inorganic compounds, such as Phosphorus, Silicon, Tin, and Titanium. References: *The Chemistry of Organolithium Compounds*, ed. Zvi Rappoport and Ilan Marek, Wiley, **2004**, West Sussex, England.

Product Specification
Guaranteed

<i>t</i> -Butyllithium, wt %	16 – 27
Free Alkalinity, wt %	0.8 max
Carbon Bound Lithium %	95 min

Solvent Heptane

Physical Properties	Molecular weight	64.06
	Density @20°C	0.69 g/ml (5.76 lb/gal)
	Contained <i>t</i> -Butyllithium	110 g/L (0.92 lb/gal)
	Pyrophoricity	Pyrophoric

Solubility In the pure state, *t*-butyllithium is a solid. *t*-Butyllithium is very soluble in aliphatic, aromatic and ethereal solvents; however it will react with the latter two solvent types even at 0°C.

Thermal Stability At 15°C and 40°C, the average decomposition rates were 0.02 and 0.1 wt. % per day, respectively. Recommended storage: 15°C for a maximum of 150 days and preferably at 0°C.

Toxicity/Safety Data Danger. Catches fire spontaneously if exposed to air. In contact with water releases flammable gases, which may ignite spontaneously. Causes severe skin burns and eye damage. Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. May cause drowsiness or dizziness. Suspected of damaging fertility. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Handle under inert gas. Protect from moisture. Do not allow contact with air. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Wear protective gloves/protective clothing/eye protection/face protection. In case of fire: Use dry chemical for extinction. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON Center or doctor/physician.

COMPLETE INFORMATION ON TOXICITY AND SAFETY IS CONTAINED IN THE SAFETY DATA SHEET (SDS) 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 – 420 L
	Glass bottles	125 mL, 500 mL, and 1 L

Shipping Limitations Shipments of TBL 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)