

Alkyl Lithium:

- Used as initiators for anionic polymerization and in synthesis of complex organic molecules.
- Is pyrophoric (ignites spontaneously in presence of air(oxygen) or moisture)
- Pyrophoricity is dependent on concentration, flashpoint of solvents. At low concentrations, it has less tendency to ignite by itself.

Safe handling/Precautions:

- Proper PPE (nitrile gloves, splash goggles, lab coat, etc.) must be used.
- The reaction flask must be clamped in the hood and always be under inert atmosphere (nitrogen/argon).
- The commercial bottle should be placed in a secondary container (e.g., crystallization dish) and clamped prior to transfer
- Large-scale reactions should be performed in the presence of a spotter who is ready to intervene if necessary.
- Small scale operation can be performed using syringe (with screw head) technique. Purge the reagent bottle with inert gas, and use well dried syringe to withdraw the butyl lithium.

Disposal:

- Small residues can be quenched inside the hood by diluting with hexane or heptane and slowly adding this solution to 2 M isopropanol in hexane.
- Reusable needles should be quenched immediately; disposables should be quenched before discarded
- Old containers with lot of solid residue must be sent out for safe disposal.

First Aid:

EYE CONTACT (EXTREMELY SERIOUS)

Treatment Summary

- » Flush with plenty of water: 15 minutes.
- » Lift upper / lower lids intermittently.
- » Seek medical attention immediately.



SKIN CONTACT

Treatment Summary

- » Flush with plenty of water: 15 minutes.
- » Remove contaminated clothing.
- » Wash clothing with soap and water.
- » Seek medical attention immediately.



INHALATION

Treatment Summary

- » Escape to fresh air.
- » Give artificial respiration if breathing stops.
- » Seek medical attention immediately, especially if breathing discomfort occurs.



Table 2.1 | RELATIVE BASE STRENGTHS

SPECIES	pK _a VALUE OF CONJUGATE ACID
<i>tert</i> -Butyllithium	53
<i>sec</i> -Butyllithium	51
<i>n</i> -Butyllithium	50
<i>n</i> -Hexyllithium	50
Methylithium	48
Phenyllithium	43

Source: March, J., *Advanced Organic Chemistry*, Wiley Interscience, 5th Ed., 2001, p. 330.