



LITHIUM DIISOPROPYLAMIDE (LDA 9500)

CAS No. 4111-54-0

QS-PDS-009 Revision: 02

Product Names Lithium diisopropylamide, LDA 9500, LDA

Formula $[(CH_3)_2CH]_2N-Li$

Appearance Yellow to red-yellow or brown solution; may be cloudy

Application LDA is a *non-pyrophoric* hindered non-nucleophilic strong base widely used for the generation of carbanions¹, including the initiation of anionic polymerization².
(1) Wakefield *Organolithium Methods*; Academic Press: New York, **1988**, 32-44.
(2) *J.Polym.Sci. Part A: Polym. Chem.* **1994**, 32, 2425. This product circumvents the generation and evolution of butane associated with the preparation of LDA by the reaction of *n*-butyllithium and diisopropylamine.

Product Specification

Lithium Diisopropylamide, wt%	<u>Guaranteed*</u> 24.0 – 27.0
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**This product can be made to agreed upon customer specifications*

Solvent

	<u>Typical</u>
THF, wt%	22
Heptane, wt%	29
Ethylbenzene, wt%	13

Physical Properties

Molecular weight	107.13
Density @20°C	0.86g/mL (7.18 lb/gal)
Contained LDA	215g/L (1.79 lb/gal)
Pyrophoricity	Non-pyrophoric

Solubility

LDA remains soluble at 0°C; however, if stored at less than -10°C for more than 10 days, small amounts may precipitate as LDA/THF solid.

Thermal Stability

Recommended storage temperature is < 5°C. At 20°C and 40°C, the average decomposition rates were 0.10 and 0.65 wt.% per day, respectively. The degradation is *via* imine formation and cleavage of THF. The accidental introduction of oxygen and moisture tends to accelerate the decomposition and darken the solution color. The generated solids are unsolvated LDA and lithium hydride which can be removed by filtration prior to use. However, in most instances, these solids are inert in the chemical application and will hydrolyze in water.

CAUTION: When dry and finely divided, these solids are pyrophoric.



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Toxicity/Safety Data Flammable liquid. Water reactive. In case of fire do not use water or carbon dioxide. Corrosive to the eyes (may cause blindness), skin, mucous membranes and upper respiratory tract. 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 OPTIMA MATERIAL SAFETY DATA SHEET (MSDS) AVAILABLE FOR THIS PRODUCT.

Handling/Storage/Disposal Use in a closed system under argon or nitrogen. Do not get in eyes, on skin or clothing. Do not breathe vapors or mist. Store in a cool place. Keep container closed. Keep away from sources of ignition, water, air, acids and oxidizing agents.

Shipping Containers	Bulk containers	2000 – 20000 L
	Cylinders	#20 – 420 L
	Drums	55 gallon
	Glass bottles	125 mL, 500 mL , and 1 L

Shipping Limitations Shipments of LDA are described as "Flammable Liquid, Corrosive, N.O.S., (LITHIUM DIISOPROPYLAMIDE IN TETRAHYDROFURAN/HEPTANE), 3(8), UN2924, PG II." Shipments require "Flammable Liquid" and "Corrosive" labels.

Post, Parcel	Not acceptable
Sea	Class 3 (8) (IMDG)
Road, Rail (USA)	Class 3 (8) (DOT)
Road, Rail (EU)	Class 3 (8) (RID/ADR)
Air	Class 3 (8) (IATA)
	2.5 L maximum per inner glass container.
	5 L maximum per single/outer container.
	Cargo aircraft only

For shipments within Europe, labeling for supply requirements are:

F	Highly Flammable
C	Corrosive
N	Dangerous 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 Organometallics and Reactive Specialty Organics Safe Handling Guide available on-line at www.fmclithium.com.