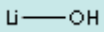
LITHIUM HYDROXIDE MONOHYDRATE

PRODUCT IDENTIFICATION	
CAS NO.	1310-65-2 (Anhydrous) 
	1310-66-3 (Monohydrate)
	54251-08-0 (Dimer)
EINECS NO.	215-183-4
FORMULA	$LiOH \cdot H_2O$
MOL WT.	41.96
H.S. CODE	2825.20
TOXICITY	
SYNONYMS	lithium hydrate; Lithium Hydroxide hydrate; Lithiumhydroxid (German); Hidróxido de litio (Spanish); Hydroxyde de lithium (French);
DERIVATION	
CLASSIFICATION	

PHYSICAL AND CHEMICAL PROPERTIES	
PHYSICAL STATE	white crystalline powder
MELTING POINT	462 C
BOILING POINT	
SPECIFIC GRAVITY	1.51
SOLUBILITY IN WATER	soluble
pH	strong base
VAPOR DENSITY	
AUTOIGNITION	
NFPA RATINGS	
REFRACTIVE INDEX	
FLASH POINT	
STABILITY	Stable under ordinary conditions

APPLICATIONS

Lithium Hydroxide is used for purification of gases and air (as a carbon dioxide absorbent), as a heat transfer medium, as a storage-battery electrolyte, as a catalyst for polymerization, in ceramics, manufacturing other lithium compounds and esterfication specially for lithium stearate.

SALES SPECIFICATION	
APPEARANCE	white crystalline powder
LiOH	56.5% min
Al	0.03% max
Fe	0.001% max
CO_2	0.5% max
K+Na	0.3% max
Cl	0.04% max
SO_4	0.05% max
WATER INSOLUBLES	0.1% max

TRANSPORTATION	
PACKING	25kgs in bag
HAZARD CLASS	8 (Packing group:II)
UN NO.	2680

GENERAL DESCRIPTION OF LITHIUM AND ITS COMPOUNDS

Lithium is a soft, the lightest, silver-white, highly reactive metallic element in Group 1 of periodic table; atomic number 3; atomic mass 6.941; melting point ca 180.5 C; boiling point ca 1,342 C; specific gravity 0.534 g/cm^3 valence +1; electronic config. 2-1 or $1s^2 2s^1$. Lithium metal is prepared by the electrolysis of a molten mixture of potassium and lithium chlorides. It is used in various alloys with magnesium, copper, manganese, cadmium and aluminum to form a strong, low density material, as a heat transfer medium, in cooling system of nuclear reactor, and as a scavenger, in ceramics, glasses and in rocket fuel. Lithium forms many important inorganic and organic compounds such as;

Lithium Hydride (LiH): Flammable, white, translucent solids; decomposes at 850 °C; reacts violently with water to yield hydrogen and lithium hydroxide; used as a hydrogen source or reducing agent to prepare other hydrides amides and 2H isotopic compound, as a shielding material for thermal neutrons.

Lithium Hydroxide (LiOH); white, hygroscopic, crystalline material; soluble in water, slightly soluble in ethanol and insoluble in ether; there are commercially forms of monohydrate and anhydrous; used for purification of gases and air (as a carbon dioxide absorbent), as a heat transfer medium, as a storage-battery electrolyte, as a catalyst for polymerization, in ceramics, manufacturing other lithium compounds and esterfication specially for lithium stearate which is used as general purpose lubricating greases due to its high resistance to water and the useful at both high and low temperature.

Lithium Carbonate (Li_2CO_3) ; white granular powder; slight soluble in water, melts at 723°C, decomposes above 1310°C; It is prepared commercially by treating the ore with sulphuric acid at 250°C and leaching the product to give a solution of lithium sulphate. The carbonate is then obtained by precipitation with sodium carbonate solution; It is used as a flux in the aluminium, glass and ceramics production to improves the brightness of glazes and increases the firing range. It is a source of lithia, strong high temperature flux. It is used as an additive in cement industry to improve acceleration and fast setting process. It is used as an additive in floor screeds and tiles. It is used for the production of other lithium chemicals and organic compounds as a catalyst. Pharmaceutical grade of lithium carbonate is used for the primary treatment of depression and bipolar disorder.

Lithium Bromide (LiBr); white powder with a bitter taste; melts at 547°C, soluble in water, alcohol and glycol; used as an operating medium for air-conditioning and industrial drying system due to its very hygroscopic property. and as a sedative and hypnotic in

medicine. It is also used in manufacturing pharmaceuticals and alkylation process. It is used as brazing and welding fluxes.

Lithium chloride; white hygroscopic deliquescent granule or powder having high melting point at 614°C. Lithium chloride and bromide are the mostly proscopic materials used as a operating medium for air-conditioning and industrial drying system. It is used as brazing and welding fluxes. It is also used in as an intermediate for manufacturing other chemical compounds.

Lithium Fluoride (LiF); white poisonous powder melting at 870°C, boiling at 1670°C; slightly soluble in water, soluble in acids but insoluble in alcohol; t is used as a flux in the aluminium, glass and ceramics production to improves the brightness of glazes and increases the firing range. It is used as a flux for brazing and welding of zirconium, titanium and magnesium. It is used as a heat-exchange medium.

Lithium Iodide (LiI; LiI.3H_2O) white to yellowish solid; soluble in water alcohol; there are commercially anhydrous form (melts at 446°C) and trihydrate form (loses water at 72°C); It is used in organic synthesis, manufacturing medicines and mineral waters.

Lithium Stearate ($LiC_{18}H_{35}O_2$); white crystalline powder derived from lithium hydroxide with cooking tallow (or other animal fat); melting at 220 C; used as general purpose lubricating greases providing high resistance to water and the useful at both high and low temperature, which have found extensive applications in the automotive, aircraft and heavy machinery industry. It is also applied as a stabilizer in cosmetics as well as plastic industry. It is used as a corrosion inhibitor in petroleum.

Lithium Molybdate (Li_2MoO_4); white crystals melting at 705°C; soluble in water; used as a catalyst for petroleum cracking and as a mill additive for steel.

Lithia (Li_2O); A white crystalline compound, melting at 1700°C. the main uses are in lubricating greases, ceramics, glass and refractories, and as a flux in brazing and welding.

Lithium Carbide (Li_2C_2);

Lithium Phosphate (Li_3PO_4);

Lithium Sulphate (Li_2SO_4); white crystalline material, soluble in water but insoluble in ethanol. It forms a monohydrate and an anhydrous form, The compound is prepared by the reaction of the hydroxide or carbonate with sulphuric acid.

Lithium Tetrahydridoaluminate (Lithal, LiAlH4); A powerful reducing agent in synthetic organic chemistry; aldehydes, esters and ketones to the corresponding alcohols. nitriles to primary amines.