

3M Advanced Materials Division

3M™ 7Li Enriched Lithium Hydroxide

Introduction

Ceradyne, Inc., a 3M company, supplies isotopically enriched materials designed for pressure water reactors. 3M™ 7Li Enriched Lithium Hydroxide is used to neutralize the acidity created by the addition of boric acid to primary coolant solutions. By controlling the coolant pH, the enriched lithium hydroxide helps limit corrosion of the internal reactor components while reducing formation of unwanted decay products.

3M 7Li enriched lithium hydroxide is offered in monohydrate form with an enrichment level of >99.9 wt% ⁷Li. It meets the requirements of Westinghouse PD Specification 52203BA, Rev. E. This product is normally sold in terms of the “contained ⁷Li content.” The total product typically contains 16.5 ±0.4 wt% of the isotope ⁷Li element. A Certificate of Analysis is provided with each shipment. Recertification services are available at an additional charge upon receipt of a 25 g sample.

Packaging

3M 7Li enriched lithium hydroxide is double bagged and heat-sealed in polyethylene bags, and enclosed within safety sealed steel drums to prevent contamination or moisture exposure. Non-standard packaging is available upon request. Additional charges may apply.

Typical Physical Properties

(Not for specification purposes)

Composition	Weight (%)	
	HP Grade	UHP Grade
Enrichment, Isotopic Lithium-7	99.9 (min.)	99.9 (min.)
Lithium hydroxide	48–58	48–58
Water (monohydrate)	42–52	42–52
Lead (Pb)	0.001 (max.)	0.001 (max.)
Zinc (Zn)	0.0005 (max.)	0.0005 (max.)
Mercury (Hg)	0.00005 (max.)	0.00005 (max.)
Chloride (Cl)	0.5 (max.)	0.05 (max.)
Fluoride (F)	0.5 (max.)	0.05 (max.)
Lithium carbonate	N/A	1.0 (max.)
Sulfates	N/A	0.01 (max.)
Sodium (Na)	N/A	0.003 (max.)
Insolubles	N/A	0.01 (max.)

Analytical Services

As a manufacturer of specialty, high purity chemical and isotopic products, Ceradyne maintains sophisticated analytical and testing capabilities at its manufacturing facility in Quapaw, OK. Our analytical laboratories support on-site production activities and provide our customers with data and evidence that the products they receive meet or exceed their requirements. Our laboratories are fully equipped with current-generation instruments to perform a full range of testing procedures, including: inductively coupled plasma mass spectrometry; atomic absorption spectroscopy;



ion and gas chromatography; carbon/sulfur and oxygen/nitrogen analysis; particle size analysis and BET surface area measurement.

Product Storage, Handling and Safety

Storage: Store in a well-ventilated place. Keep container tightly closed. Keep only in original container. Store in a corrosive resistant container with a resistant inner liner. Store away from acids. Store away from oxidizing agents. Store in a dry place. See Product Safety Data Sheet (SDS) for additional information.

Handling: Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when

using this product. Wash thoroughly after handling. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (e.g. chlorine, chromic acid, etc.) Keep away from reactive metals (e.g. Aluminum, zinc, etc.) to avoid the formation of hydrogen gas that could create an explosion hazard. See product SDS for additional information.

Safety: Handling of this material may be hazardous. Keep only in original container. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing, and eye/face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. See product SDS for additional information.

Regulatory Summary

One or more components in this material are approved for specific commercial uses under a U.S. EPA Low Volume Exemption. Approved commercial uses:

1. Grow crystals for thermoluminescent dosimeters
2. For manufacturing of ion exchange resins for pH adjustments in reactors.
3. Adjust pH of cooling water in nuclear reactors.

See SDS for additional information.

Product is manufactured and sold by Ceradyne, Inc., a 3M company.

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