**Novel Crystallization Process for High-Purity Lithium Hydroxide Monohydrate**

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Keywords: High-Purity Lithium Hydroxide Monohydrate, Crystallization Process, sustainability, scalability, eco-friendliness

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Lithium chemicals are in high demand due to the rise of electromobility and the surging need for lithium ion batteries. The two main lithium chemicals used as a lithium source in the cathode active material are lithium carbonate and lithium hydroxide. Lithium hydroxide is typically produced as lithium hydroxide monohydrate (LiOH.H2O, LHM) for desired battery applications. However, specifications for lithium hydroxide are more stringent than those for lithium carbonate, thus the production of battery-grade material requires more purification steps. In addition, LHM is a delicate substance and has to be handled in a controlled atmosphere due to its tendency to take up CO2 from the air, resulting in its conversion to lithium carbonate and a limited shelf life.

This presentation outlines the synthesis of LHM using a novel crystallization approach that enhances the purity of the product by meticulously controlling parameters such as concentration, pH, and temperature. Through this process, impurities are effectively minimized, ensuring the production of LiOH.H2O with exceptional chemical homogeneity and electrochemical stability. Furthermore, this presentation underscores the sustainability aspect of this proprietary crystallization process, emphasizing its scalability and eco-friendliness.