PureLi℠

KBR's High-Purity Lithium Production Technology

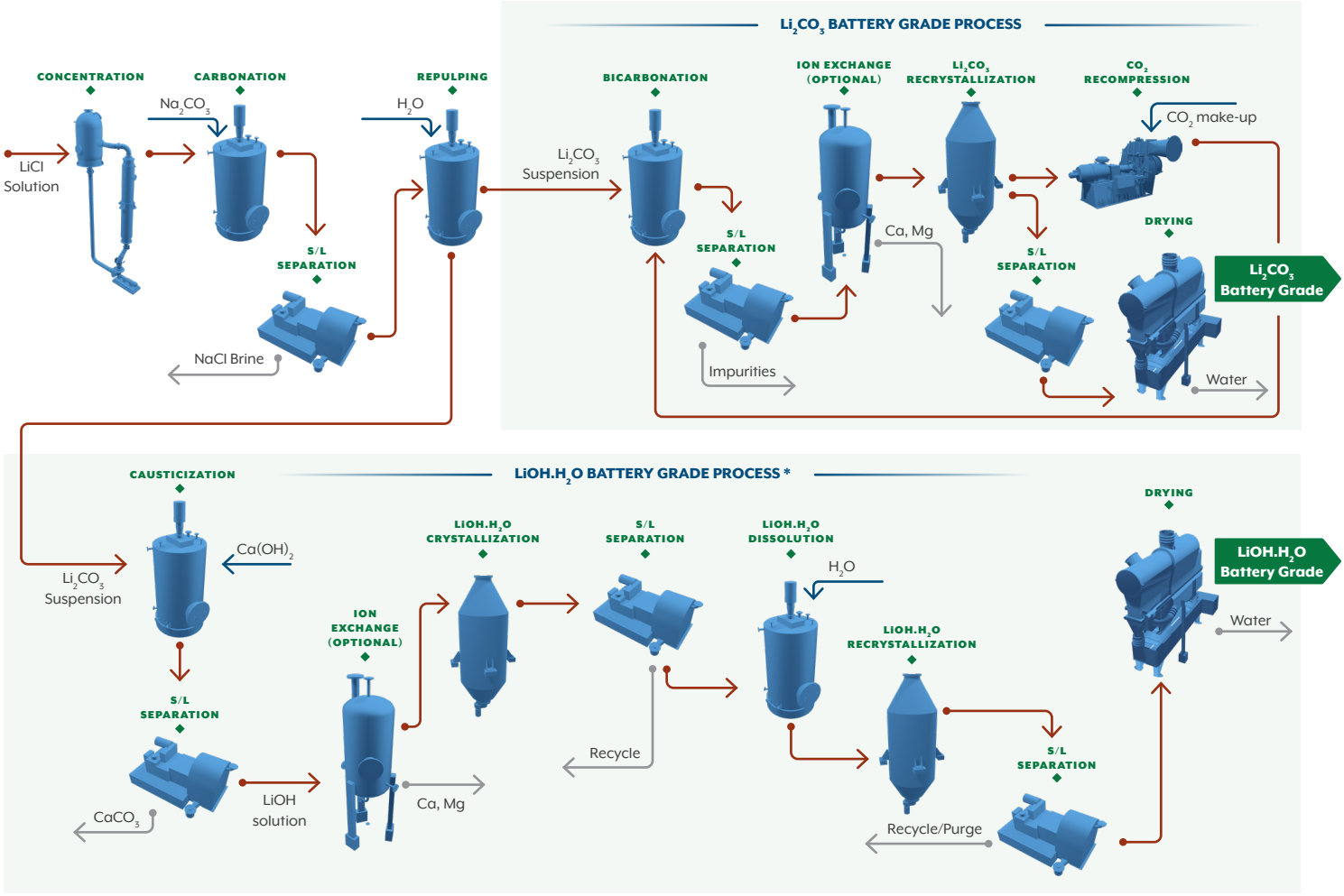
Unlock the power of high-quality lithium to achieve new levels of profitability and energy efficiency

KBR has developed **PureLi℠ - a unique lithium conversion and refining process** to cater to the growing lithium-ion battery demand for electric vehicles and stationary energy storage systems. PureLi is capable of transforming a wide range of lithium feedstocks into battery-grade lithium carbonate or lithium hydroxide monohydrate.

KBR designs and delivers technologies for the continuous production of lithium salts to meet strict product specifications.

The following process flow schemes highlight our evaporation and crystallization core expertise. Our team of experts can also design the upstream process to remove contaminants and unwanted elements by filtration, precipitation, crystallization and ion exchange.

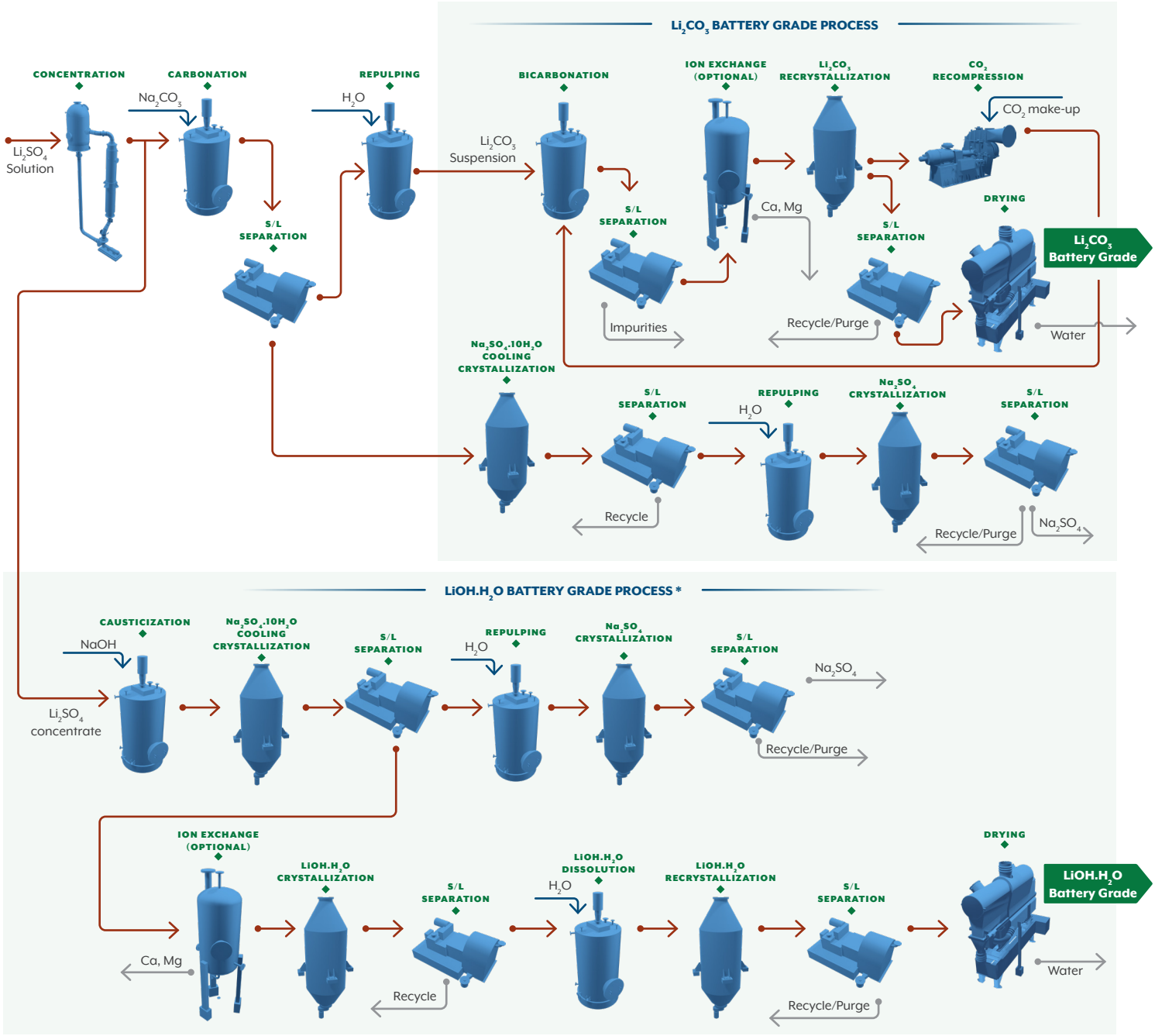
Battery-grade lithium carbonate and lithium hydroxide from lithium chloride solution



WHAT SETS PureLi APART

- **Controlled and continuous production** of battery-grade lithium carbonate and lithium hydroxide monohydrate
- Smart engineering ensuring energy **efficiency and reduced CAPEX and OPEX**
- Enhanced process design for **maximum lithium yield of the highest purity**
- Customized proven process design and solutions for **varying lithium feedstocks**

Battery-grade lithium carbonate and lithium hydroxide from lithium sulfate solution



*ABOVE FLOW SCHEMES REPRESENT THE CONVENTIONAL LITHIUM REFINING TECHNOLOGIES. KBR HAS DEVELOPED **PROPRIETARY PROCESSES** TO PRODUCE HIGH-PURITY LITHIUM HYDROXIDE MONOHYDRATE (LOW-CARBONATE), AN IMPORTANT PRECURSOR FOR SPECIALTY APPLICATIONS.

PROCESS EQUIPMENT

Evaporation

- Falling Film Evaporator
- Forced Circulation Evaporator
- Thermal Vapor Recompression Evaporator
- Mechanical Vapor Recompression Evaporator
- Multiple Effect Evaporator

Crystallization

- Forced Circulation Crystallizer
- Draft Tube Crystallizer
- Draft Tube Baffle Crystallizer
- Vacuum Crystallizer
- Cooling Crystallizer
- Reaction Crystallizer

To help clients achieve their goals, KBR offers

- Lithium solution evaporative concentration
- Lithium salt crystallization and purification
- Valuable by-products recovery from lithium processing
- Solid-liquid separation and drying

Additionally, we can provide

- Impurity removal by filtration, precipitation and/or ion exchange
- Water recovery and recycle from spent brine (zero liquid discharge)
- Solids handling – conveying, packaging, and dust handling
- Design and supply of modular units

KBR represents an unmatched reservoir of talent and experience in a wide range of markets. Our experts and reliable sub-suppliers serve customers worldwide, delivering new evaporation and crystallization plants that comply with today's demanding environmental regulations.

Our combined know-how covers a wealth of experience in the selection of suitable corrosion-resistant materials such as special plastics, high-grade stainless steel, titanium, and impregnated graphite.

We deliver project scopes from feasibility studies and lab testing to licensing, engineering, and supply of proprietary equipment, including modularization.

A TRUSTED PARTNER

State-of-the-art R&D facilities located in Germany for validating simulation results and delivering process guarantees

Founded in 1853

Global footprint & renowned brand

Proprietary refining processes

ABOUT KBR, INC.

We deliver science, technology and engineering solutions to governments and companies around the world. KBR employs approximately 33,000 people performing diverse, complex and mission-critical roles in 33 countries.

At KBR, We Deliver.

kbr.com

Learn more about KBR's Inorganics portfolio

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