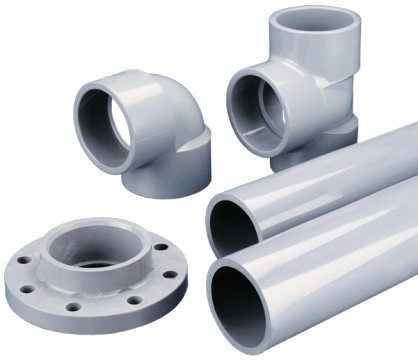
Corzan®
MATERIAL & PIPING SOLUTIONS

PRECISELY ENGINEERED. REAL-WORLD TESTED.

Fighting Corrosion in the Lithium-Ion Industry



From slurries to salts, corrosion has a costly impact on every stage of the lithium-ion life cycle.

Corzan® CPVC in the Lithium Life Cycle

Phase	Corzan CPVC's Role	What Corzan CPVC Can Handle
Lithium Mining & Processing	■ Chemical process piping ■ Tank lining in chemical storage tanks ■ Chemical waste or drainage piping ■ Process/cooling water piping ■ Corrosive exhaust ducting	■ pH adjustment chemicals such as sodium hydroxide/caustic soda ■ Leaching chemicals for mineral extraction such as sulfuric acid and hydrochloric acid ■ Raw lithium slurries ■ Lithium carbonate slurries
Direct Lithium Extraction (DLE)	■ Interconnecting pipe for all separation & purification stages (i.e. adsorption, ion-exchange, solvent extraction, membrane process)	■ Brine (temperature-dependent) ■ Lithium carbonate and lithium hydroxide ■ Process & wash water
Lithium-Ion Battery Chemistry Precursor Cathode Active Material (pCAM) Production	■ Chemical process piping	■ Metal sulfates including nickel, cobalt, and manganese ■ Lithium carbonate and lithium hydroxide
Lithium-Ion Battery Recycling	■ Chemical process piping	■ Recoverable minerals from lithium-ion batteries, including nickel, cobalt, manganese and lithium ■ Leaching chemicals like sulfuric, hydrochloric, nitric and phosphoric acids used in the hydrometallurgical process

The extraction and purification of lithium and recycling of lithium-ion batteries rely on very strong acids and bases and handle various types of salts. Though caused by different chemical processes, acids, bases and salts carry a heavy risk of corrosion in metallic piping. This is very costly to the lithium-ion industry.

Corrosion's Impact on the Lithium Industry

The corrosion caused by the strong salts of lithium mining, including direct lithium extraction (DLE), and the strong acids and bases of refining and battery recycling can have a heavy impact. Weakened materials can leak or fail, posing safety risks by exposing workers and the environment to the chemicals within. It also risks bottom lines and productivity: leaks, failures and even preemptive corrosion remediation require downtime and capital expenditure. Corrosion can also foul the end-product, presenting additional losses.

Addressing Corrosion in Lithium Mining, Refining and Recycling

Piping material choice is the first line of defense against corrosion, which is why stainless steel remains a popular choice in this industry. The additional elements in stainless steel, such as chromium, give the material much greater resistance to these chemical processes compared to carbon steel.

Stainless steel's benefits come with some drawbacks, however: it has a high material cost and a higher installation cost due to weight and the need for a skilled welder. In some places within lithium mining, processing and recycling, these costs are justified. But in other places, alternative piping materials will provide the reliability and longevity needed at a lower total cost.

Trust Corzan® CVPC to Deliver Corrosion Resistance for Lithium Mining, Processing and Battery Recycling

Corzan CPVC has a proven record of long-term, reliable performance against many of the chemicals commonly used in lithium mining and processing and lithium-ion battery recycling. The key is CPVC's molecular composition.

CPVC, or chlorinated polyvinyl chloride, is a PVC homopolymer that has been subjected to a chlorination reaction to add more chlorine to its polymer chain. This additional chlorine protects the molecular "backbone" from attack. This gives CPVC greater resistance to the types of degradation caused by acids and bases, especially at elevated concentrations and temperatures.

A high-quality CPVC like Corzan CPVC inherently resists salts and has good resistance against the chemicals commonly used in the lithium-ion industry, especially compared to carbon steel and many other plastics. Corzan CPVC has been tested for suitability against over 500 chemicals and compounds, and the top 10 chemicals that specifying engineers choose Corzan CPVC to handle include many of the chemicals common to the lithium-ion industry.

And because Corzan CPVC resists corrosion from harsh chemicals common in the lithium life cycle, it reduces the need for frequent repairs, replacements, and system downtime—making it a more cost-effective solution over time.

Corzan®
MATERIAL & PIPING SOLUTIONS

The Lubrizol Corporation, a Berkshire Hathaway company
9911 Brecksville Road ■ Cleveland, Ohio 44141-3201 USA
corzan@lubrizol.com ■ www.corzan.com

Printed in U.S.A. October 2025