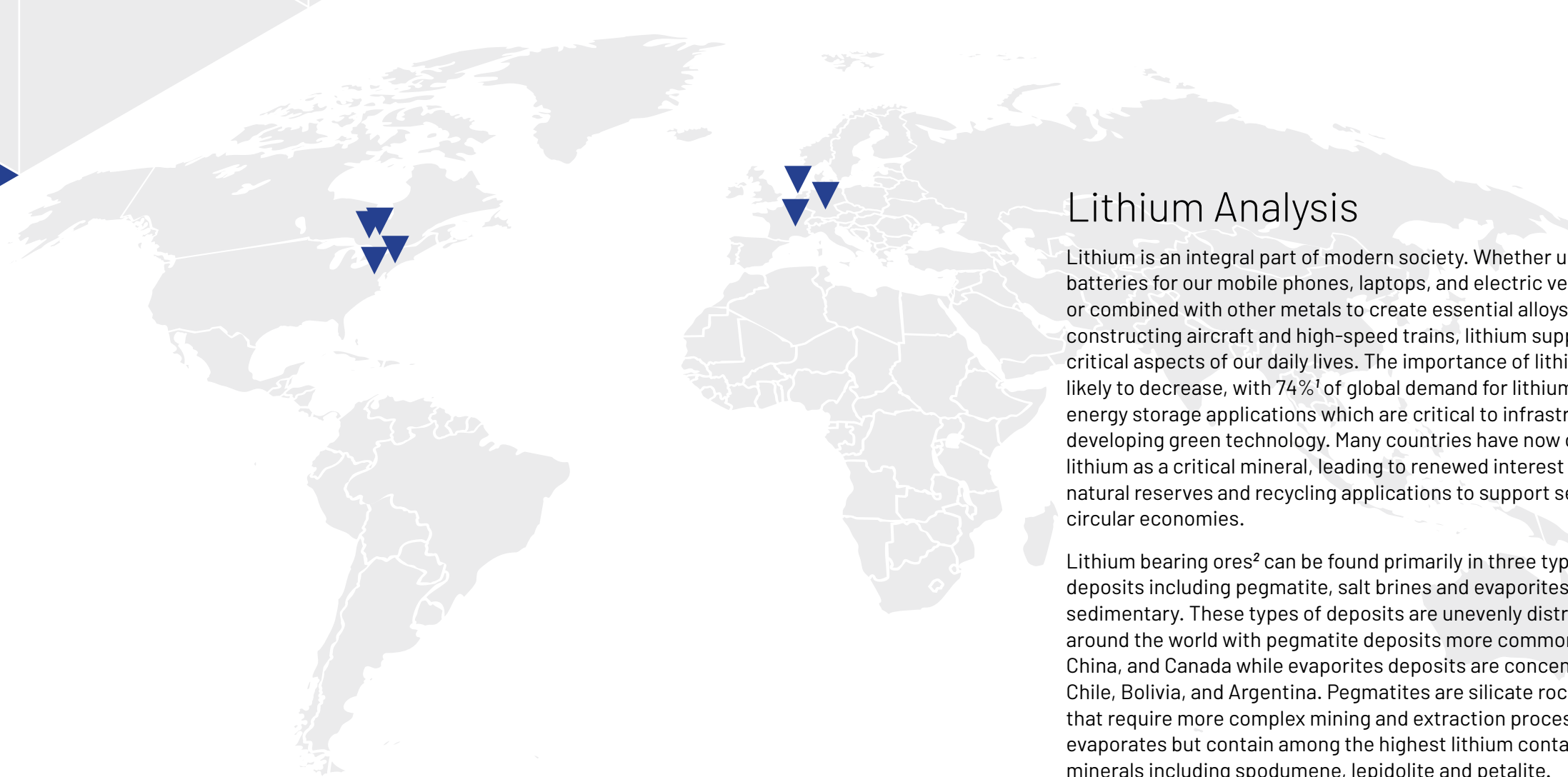


Lithium Analysis
From
Mine to Metal





Lithium Analysis

Lithium is an integral part of modern society. Whether used in the batteries for our mobile phones, laptops, and electric vehicles or combined with other metals to create essential alloys for constructing aircraft and high-speed trains, lithium supports critical aspects of our daily lives. The importance of lithium is not likely to decrease, with 74%¹ of global demand for lithium driven by energy storage applications which are critical to infrastructure and developing green technology. Many countries have now classified lithium as a critical mineral, leading to renewed interest in evaluating natural reserves and recycling applications to support self-sustaining circular economies.

Lithium bearing ores² can be found primarily in three types of deposits including pegmatite, salt brines and evaporites and sedimentary. These types of deposits are unevenly distributed around the world with pegmatite deposits more common in Australia, China, and Canada while evaporites deposits are concentrated in Chile, Bolivia, and Argentina. Pegmatites are silicate rock deposits that require more complex mining and extraction processes than evaporates but contain among the highest lithium containing minerals including spodumene, lepidolite and petalite.

Each ore type requires a different type of extraction and beneficiation process to produce the final lithium concentrate. Regardless of the source and processing steps, elemental analysis is required throughout the lithium mining and purification process to ensure the economic viability of the deposit, to assess the yield from processing steps and to certifying the final product.

The analysis of these different types of lithium ores and processing applications require sample preparation, most commonly through acid digestion, and analysis by ICP-OES, ICP-MS, or atomic absorption. High quality analysis by these methods requires a homogeneous sample, typically prepared by thermal or microwave digestion, reference materials for calibration and validation, high purity acids and reagents and clean digestion vessels and other instrument consumables such as peristaltic pump tubing.

AnalytiChem provides a complete offering of aqueous ICP and AA ISO 17034 standards, matrix matched ore reference materials, digestion equipment and consumables for analytical laboratories supporting the Lithium industry applications.

About AnalytiChem

AnalytiChem manufactures an extensive portfolio of specialized reference materials, culture media, laboratory consumables, and sample preparation equipment and operates with a focus on providing the right solutions to ensure our customers obtain the best results with the highest competitive quality.

Formed in 2021 through the combination of industry leaders, we utilize the expertise of our group companies to provide an integrated value proposition for our customers who operate in the material science, environmental, petroleum, animal health and chemical industries.

Leveraging our global operational hubs in North America, Europe, and Australia and our ISO 17034, ISO/IEC 17025, and ISO 9001 certifications, we Enable the Science that our customers do to improve operational efficiency, safeguard the environment, and support the global infrastructure.



¹ <https://natural-resources.canada.ca/our-natural-resources/minerals-mining/minerals-metals-facts/lithium-facts/24009>.

² <https://geologyscience.com/ore-minerals/lithium-li-ore/>.

Consumables & ICP Supplies

Explore our autosampler tubes, nebulizers, replacement torches, spray chambers, peristaltic pump tubing and more ...

Ore CRMs

The **OREAS**[®] range of CRMs are prepared entirely from natural ore materials and are well characterized in rigorous inter-laboratory testing programs and certified in accordance with ISO recommendations.

Pure Acid

PlasmaPURE Plus (PPP) acids are manufactured with trace metal levels less than 10 ppt (0.01ppb) making them ideal for digestion procedures and trace metal applications

ICP and AA CRMs

The AnalytiChem catalog includes 70 elements with stock concentrations ranging from 1,000ppm to 50,000ppm. Custom single and multi-element CRMs are available to meet specific application requirements.

From sample preparation equipment and consumables to certified reference materials, Analytichem offers a comprehensive laboratory solution for lithium analysis. We enable your science from mine to metal.

Lithium Ore CRMs

CRM Code	Principle Certified Values	Matrix	
OREAS 999	Li 2.67wt. %	Li ₂ O 5.76wt. %	concentrate
OREAS 753	Li 1.02wt. %	Li ₂ O 2.19wt. %	pegmatite
OREAS 752	Li 0.707wt. %	Li ₂ O 1.52wt. %	pegmatite
OREAS 751	Li 0.468wt. %	Li ₂ O 1.01wt. %	pegmatite
OREAS 750	Li 0.230wt. %	Li ₂ O 0.496wt. %	pegmatite

See certificate of analysis for full list of certified trace elements

Pure Acid

Manufactured with trace metal levels less than 10 ppt:

Description	Size	Part Number
Hydrochloric acid, PPP, 32 - 35%	250 mL	250-036-113
	500 mL	250-036-115
	1L	250-036-117
Hydrofluoric acid, PPP, 47 - 51%	250 mL	250-036-121
	500 mL	250-036-123
	2L	250-036-127
Nitric acid, PPP, 67 - 70%	250 mL	250-036-129
	500 mL	250-036-131
	1L	250-036-133
Sulfuric acid, PPP, 93 - 98%	250 mL	250-036-137
	500 mL	250-036-139
	1L	250-036-141

Additional sizes and acid types available

ICP and AA CRMs

Example elements shown below:

1,000 µg/ml			
Element	Matrix	125 ml	500 ml
Beryllium	HNO ₃	140-051-041	140-051-045
Cesium	HNO ₃	140-051-551	140-051-555
Copper	HNO ₃	140-051-291	140-051-295
Lithium	HNO ₃	140-051-031	140-051-035
Magnesium	HNO ₃	140-051-121	140-051-125
Manganese	HNO ₃	140-051-251	140-051-255
Strontium	HNO ₃	140-051-381	140-051-385
Tantalum	HF	140-050-731	140-050-735
Tin	HCl	140-052-501	140-052-505
Tin	HNO ₃ / HF	140-054-501	140-054-505

10,000 µg/ml			
Aluminum	HNO ₃	140-061-131	140-061-135
Aluminum	HCl	140-062-131	140-062-135
Calcium	HNO ₃	140-061-201	140-061-205
Iron	HNO ₃	140-061-261	140-061-265
Lithium	HNO ₃	140-061-031	140-061-035
Potassium	HNO ₃	140-061-191	140-061-195
Silicon	H ₂ O / tr. F-	140-060-141	140-060-145
Titanium	H ₂ O / tr. F-	140-060-221	140-060-225

Additional elements, sizes, and concentrations available

Consumables & ICP Supplies

Our autosampler tubes are manufactured from virgin polypropylene (PP) with ultra-low metal content, making them ideal for applications involving ICP or ICP-MS analysis.

Description	Quantity	Part Number
16 x 100 mm (12 ml) Polypropylene autosampler tubes	1000 tubes	010-515-609
	2 bags of 1000 tubes	010-515-629
17 x 100 mm (15 ml) Polypropylene autosampler tubes	1000 tubes	010-515-607
	2 bags of 1000 tubes	010-515-627



Additional manufactured ICP supplies include nebulizers, replacement torches, spray chambers, and peristaltic pump tubing.

