

## APPLICATION NOTE

# OREAS 999 Spodumene Concentrate

## SUMMARY

The application note summarizes the digestion of OREAS 999, a Spodumene Concentrate Certified Reference Material using ColdBlock™ Digestion CBM Technology.

**Instrument:** ColdBlock CBM sample digester, chiller, HF liners, ICP-OES

**Published:** November 2022

**Digestion Time:** 30 Minutes

**Acid Used:** Aqua Regia, HF & H<sub>3</sub>BO<sub>3</sub>

**Average ColdBlock Recovery vs. CRM:**

- 99% Lithium
- 97% Calcium
- 105% Magnesium

## METHODOLOGY

1. Chiller temperature was set to -5°C
2. 0.25g of each sample was weighed in triplicate and placed into ColdBlock™ Digestion HF compatible liners
3. 20 mL Aqua Regia + 3mL Hydrofluoric Acid was added
4. Sample was digested at 80% power for 20 minutes
5. 20mL of 4% Boric Acid was added, and sample was digested again at 80% power for 10 minutes
6. Sample was cooled and bulked to 50mL using 2% HNO<sub>3</sub> v/v

## DISCUSSION

- The addition of Boric Acid will help re-solubilize any Fluoride precipitates that form such as Ca, Mg & Al
- After 30 minutes the samples appear clear, and no visible material remains



*OREAS 999 after bulk-up*

OREAS 999 is a spodumene concentrate derived from the processing of lithium pegmatite ores sourced from the Greenbushes area of Southwestern Australia

# OREAS 999

## Spodumene Concentrate

### Results

OREAS 999								
20mL AR + 3mL HF - 80% 20 minutes + 20mL 4% H <sub>3</sub> BO <sub>3</sub> 80% 10 minutes								
Element	Certified 4-Acid (ppm)	ColdBlock Result A	ColdBlock Result B	ColdBlock Result C	Average (ppm)	Stdev	% RSD	% Recovery
Al	107700	111155	112839	115408	<b>113134</b>	1749	1.5%	<b>105%</b>
Ca	4500	4313	4307	4407	<b>4343</b>	46	1.1%	<b>97%</b>
Fe	16200	16043	16231	16638	<b>16304</b>	248	1.5%	<b>101%</b>
K	5000	4941	4593	4795	<b>4777</b>	143	3.0%	<b>96%</b>
Mg	4100	4359	4395	4134	<b>4296</b>	115	2.7%	<b>105%</b>
Na	6930	6555	6653	6781	<b>6663</b>	92	1.4%	<b>96%</b>
Li	26500	25858	26199	26855	<b>26304</b>	414	1.6%	<b>99%</b>