

APPLICATION NOTE

OREAS 149 Spodumene-rich Pegmatite Ore

SUMMARY

The application note summarizes the digestion of OREAS 149, a Spodumene-rich Pegmatite Ore Certified Reference Material using ColdBlock™ Digestion CBM Technology.

Instrument: ColdBlock CBM sample digester, chiller, ICP-OES

Published: November 2022

Digestion Time: 30 Minutes

Acid Used: Aqua Regia, HF & H₃BO₃

Average ColdBlock Recovery vs. CRM:

- 100% Lithium
- 98% 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 10% 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% HNO₃ v/v

DISCUSSION

- The addition of Boric Acid will help re-solubilize any Fluoride precipitates that form such as Ca, Mg & Al
- Tetra Fluoroboric Acid may be used in lieu of H₃BO₃
- After 30 minutes the samples appear clear, and no visible material remains



OREAS 149 after bulk-up

OREAS 149 has been prepared from spodumene-rich pegmatite ore with minor additions of Sn Oxide ore & NB concentrate

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Results

OREAS 149								
20mL AR + 3mL HF - 80% 20 minutes + 20mL 10% H3BO3 80% 10 minutes								
Element	Certified 4-Acid (ppm)	ColdBlock Result A	ColdBlock Result B	ColdBlock Result C	Average (ppm)	Stdev	% RSD	% Recovery
Al	74700	73555	75449	75455	74820	894.3289	1.2%	100%
Ca	10400	10094	10269	10291	10218	87.91829	0.9%	98%
Fe	41700	39904	40489	41248	40547	550.4397	1.4%	97%
K	13800	14802	13946	13093	13947	697.8068	5.0%	101%
Mg	5330	5594	5535	5645	5591	44.89095	0.8%	105%
Na	9320	9734	10221	10015	9990	199.5616	2.0%	107%
Li	9930	10072	10311	10336	10240	118.9435	1.2%	103%