

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 Pro Series, chiller, ICP-OES, HF liners

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Digestion Time: 30 Minutes

Acid Used: Aqua Regia, HF & H₃BO₃

Average ColdBlock Recovery vs. CRM:

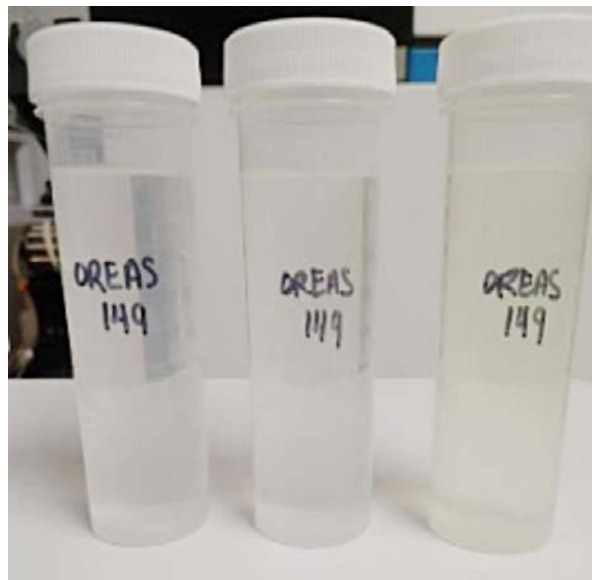
- 98% Calcium
- 103% Lithium
- 97% Niobium

METHODOLOGY

1. Chiller temperature was set to -5 °C
2. 0.25g of each sample was weighed in triplicate and placed into ColdBlock™ digestion vessels (outfitted with HF friendly 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% HNO₃_{vv}

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 149 after bulk-up

OREAS 149 has been prepared from spodumene-rich pegmatite ore with minor additions of Nb concentrate

Results

OREAS 149 Spodumene-rich Pegmatite Ore								
Method:	0.25g - Add 20mL AR + 3mL HF and digest at 80% power for 20 minutes, add 20mL 4% boric acid _{v/v} and digest again at 80% power for 10 minutes. Let cool, and bulk to 50mL							
Element	Certified 4-acid Value (ppm)	ColdBlock Result A (ppm)	ColdBlock Result B (ppm)	ColdBlock Result C (ppm)	Average (ppm)	Stdev	% RSD	% Recovery vs Certified Value
Al	74700	73555	75449	75455	74820	894	1.2%	100%
Ca	10400	10094	10269	10291	10218	88	0.9%	98%
Fe	41700	39904	40489	41248	40547	550	1.4%	97%
K	13800	14802	13946	13093	13947	698	5.0%	101%
Mg	5330	5594	5535	5645	5591	45	0.8%	105%
Na	9320	9734	10221	10015	9990	200	2.0%	107%
Li	9930	10072	10311	10336	10240	119	1.2%	103%
Nb	6310	6191	6087	6111	6130	54	0.9%	97%