ColdBlock™ Technologies Inc.

APPLICATION NOTE

CDN-ME-1902 – Multi-Element

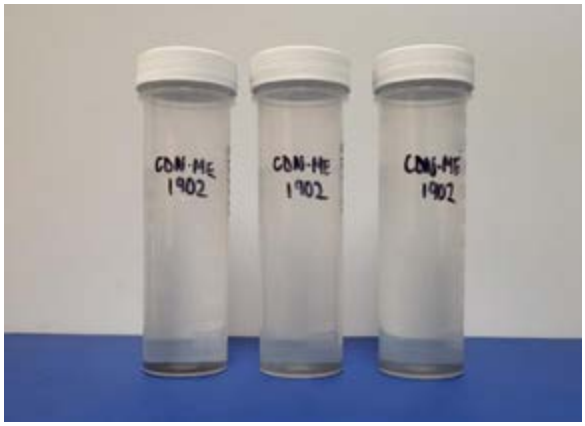
SUMMARY

The application note summarizes the digestion of CDN-ME-1902, a multi-element Reference Material using ColdBlock™ Digestion Pro Series Technology.

Instrument:	ColdBlock CBM sample digester, chiller, HF compatible liners, ICP-MS & ICP-OES
Published:	January 2023
Digestion Time:	30 Minutes
Acid Used:	Reverse Aqua Regia, HF & H_3BO_3
Average ColdBlock Recovery vs. CRM:	■ 102% Copper ■ 104% Lead ■ 103% Zinc

METHODOLOGY

1. Chiller temperature was set to -5°C
2. 0.25g of each sample was weighed and placed into a ColdBlock™ Digestion vessel
3. 20 mL of reverse Aqua Regia + 3 mL HF was added
4. Sample was digested at 80% power for 20 minutes
5. 20mL of 4%$_{v/v}$ Boric acid was added
6. Samples were digested again at 80% power for 10 minutes
7. Samples were cooled and bulked to 50mL using 2% HNO_3 + 0.5% $HCl_{v/v}$



DISCUSSION

- The addition of Boric acid will help re-solubilize any insoluble fluorides and will help neutralize any remaining HF in solution
- To improve silver recoveries, bulk up with >20% $HCl_{v/v}$
- If the Sulfide content of your sample is > 10 wt.% – reverse the ratios of Aqua Regia and use 1:3, HCl:HNO_3 – always add the Nitric acid first (reddish brown NO_2 fumes might form)

Standard CDN-ME-1902 was prepared by combining miscellaneous ores.

cdnlabs.com

CDN-ME-1902; Multi-Element; CDN Resource Laboratories Ltd; Langley, British Columbia (November, 2019)

CDN-ME-1902 – Multi-Element

Results

CDN-ME-1902										
Method:	0.25g	20mL reverse Aqua Regia + 3 mL HF digested at 80% for 20 minutes, add 20mL of 4% Boric Acid – and digest again at 80% for another 10 minutes								
Element	CDN Labs Certified 4-acid Value (ppm)	CDN Labs 95% Confidence Limits		Sample A	Sample B	Sample C	Average (ppm)	Stdev	% RSD	% Recovery vs 4-acid value
		Low	High							
Ag	349	332	366	301	301	310	304	4.06	1.3%	87%
Cu	7810	7540	8080	7949	7986	8004	7980	23.09	0.3%	102%
Pb	22000	21000	23000	22648	22768	23041	22819	164.59	0.7%	104%
Zn	36600	34300	38900	37396	37827	37738	37654	185.77	0.5%	103%

ColdBlock™ Technologies Inc.

info@coldblock.ca
coldblock.ca/contact-us