ColdBlock™ Technologies Inc.

APPLICATION NOTE

CDN-ME-1709 – Multi-Element

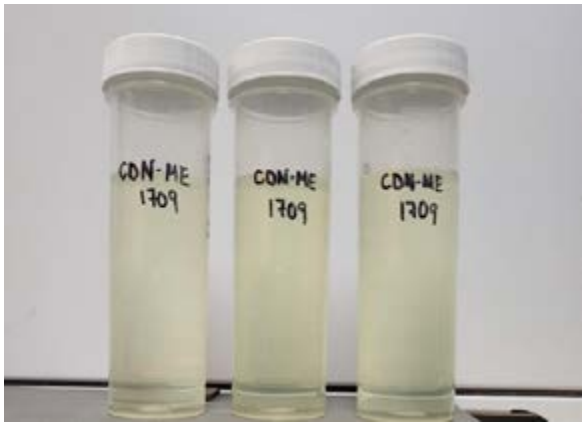
SUMMARY

The application note summarizes the digestion of CDN-ME-1709, 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:	Aqua Regia, HF & H_3BO_3
Average ColdBlock Recovery vs. CRM:	■ 107% Silver ■ 100% Copper ■ 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 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
- If Silver precipitates out of solution as AgCl, 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)

The ore was supplied by Farallon Resources from their Campo Morado property in Mexico.

The Campo Morado precious metal-bearing, volcanogenic massive sulphide deposits occur in a lower Cretaceous bimodal, calc-alkaline volcanic sequence. Most deposits occur in the upper part of a sequence of felsic flows and heterolithic volcanoclastic rocks or at its contact with overlying chert and argillite.

Gold, silver, zinc, and lead are associated with pyrite, quartz, ankerite, sphalerite, chalcopyrite and galena, with minor tennanite-freibergite, arsenopyrite, and pyrrhotite.

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CDN-ME-1709; Multi-Element; CDN Resource Laboratories Ltd; Langley, British Columbia (March, 2018)

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Results

CDN-ME-1709										
Method:	**0.25g**	**20mL 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 mins**								
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	11.8	10.4	13.2	12.1	13.2	12.6	12.6	0.450	3.6%	107%
Cu	1380	1320	1440	1262	1436	1449	1382	85.01	6.1%	100%
Pb	530	490	570	554	610	613	592	27.13	4.6%	112%
Zn	1940	1820	2060	1954	2009	2036	2000	34.31	1.7%	103%

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