

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

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Digestion Time: 30 Minutes

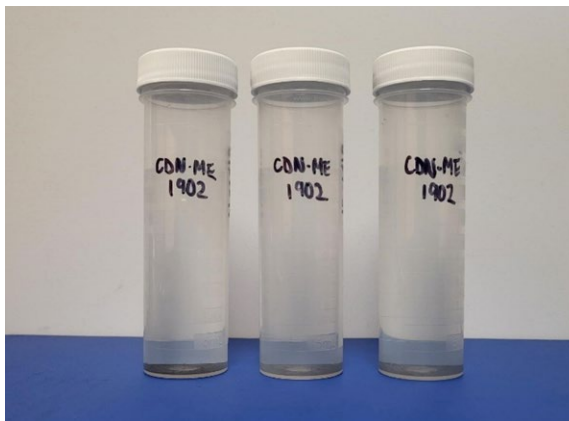
Acid Used: Aqua Regia, HF & H₃BO₃

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 was added
4. Sample was digested at 80% power for 20 minutes
5. 20mL of 10%_{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% HNO₃ + 0.5% HCl_{v/v}



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

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 >10% HCl_{v/v}
- If the Sulfide content of your sample is > 10 wt.% – reverse the ratios of Aqua Regia and use 1:3, HCl:HNO₃ – always add the Nitric acid first (reddish brown NO₂ fumes might form)

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

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Results

| CDN-ME-1902 | | | | | | | | | | |
|-------------|---------------------------------------|--|-------|----------|----------|----------|---------------|--------|-------|----------------------------|
| Method: | 0.25g | 20mL reverse Aqua Regia + 3 mL HF digested at 80% for 20 minutes, add 20mL of 10% 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 | 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% |