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DIGESTION OF HIGH GRADE CHROMITE ORE USING COLDBLOCK™ DIGESTION CB12L TECHNOLOGY

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Introduction

This application note will focus on the digestion of High-Grade Chromite Ore using ColdBlock™ Digestion CB12L Technology.

Method

Triplicate samples of CRM (Certified Reference Material) GCR-06, a high-grade Chromite Ore, were weighed to 0.25g, placed in ColdBlock™ Digestion vessels and digested using the following methods:

- 8mL H₂SO₄ & 5.5mL H₃PO₄ digested at 85% power for 20 minutes using ColdBlock™ Digestion CB12L Technology. Chiller temperature was set to -5° Celsius.

After digestion and subsequent cooling, samples were normalized to 50mL using 1% HNO₃, centrifuged and analyzed on the Agilent 5100 ICP-OES.

Table 1: GCR-06 Certified Values of Major Elements (XRF Analysis Method)

Certified Oxide Values %		Certified Values %	
MgO	9.01	Mg	5.4339
Al ₂ O ₃	8.72	Al	4.6151
TiO ₂	0.343	Ti	0.2056
Cr ₂ O ₃	47.92	Cr	32.7869
MnO	0.716	Mn	0.5545
Fe ₂ O ₃	28.8	Fe	20.1436

Results

Table 2: ColdBlockTM Digestion CB12L Recoveries (%)
GCR-06

ColdBlock CB12L	Average	Standard Deviation	% Recovery
Mg (*280.270)	5.41	0.0562	100
Al (*396.152)	4.55	0.0309	99
Ti (*368.520)	0.2	0.0042	97
Cr (*267.716)	32.57	0.2168	99
Mn (*257.610)	0.57	0.002	103
Fe (*238.204)	20.02	0.1759	99

*OES Wavelengths