

IARM-35B – 1-1/4Cr-1/2Mo Steel

SUMMARY

This application note is for the digestion of IARM 35B, a 1-1/4Cr-1/2Mo low alloy heat resistant steel.

Instrument: ColdBlock CBM, ICP-MS, ICP-OES

Published: November 2023

Digestion Time: 15 Minutes

Acid Used: Aqua Regia, HF

Average ColdBlock Recovery vs. CRM:

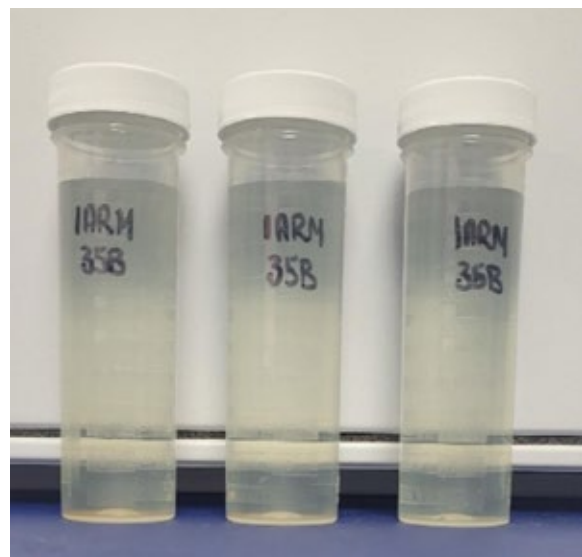
- 103% Chromium
- 102% Molybdenum
- 101% Silicon

METHODOLOGY

1. Chiller temperature was set to -5°C
2. 0.25g of IARM 35B was weighed and placed into a ColdBlock HF friendly test tube
3. 12mL of Aqua Regia + 1mL HF was added
4. Sample was digested at 90% power for 15 minutes
5. Sample was cooled and bulked to 50mL using 2% HNO_3 v/v

DISCUSSION

- Samples were digested triplicate
- After 15 minute digestion, the samples are clear and colorless (minor amount of material settled on the bottom of tube)
- As a safer alternative to HF, you can add solid NH_4HF_2 (Ammonium Bi-fluoride) or NH_4F (Ammonium Fluoride)
- IARM 35B is in the form of chips



IARM 35B after topping up to 50mL

IARM 35B 1.25Cr-0.5Mo is a certified reference material (CRM) sourced from LGC ARMI. LGC ARMI, Analytical Reference Materials International, Manchester, New Hampshire, USA (February 1993)

IARM 35B, 1-1/4Cr-1/2Mo Steel

Results

IARM 35B								
Analyte:	Certified Value (wt. %)	+/-	ColdBlock 1 (wt. %)	ColdBlock 2 (wt. %)	ColdBlock 3 (wt. %)	Average	% RSD	Recovery
Al	0.016	0.0018	0.0162	0.0162	0.0142	0.016	6.1	97%
As	0.006	0.0017	0.00624	0.00607	0.00519	0.006	7.9	97%
Co	0.008	0.0011	0.0069	0.0069	0.0068	0.007	0.7	86%
Cr	1.12	0.0091	1.153	1.152	1.151	1.15	0.07	103%
Cu	0.11	0.0034	0.11	0.112	0.111	0.11	0.7	101%
Mn	0.45	0.0063	0.43	0.435	0.434	0.433	0.5	96%
Mo	0.46	0.0068	0.469	0.474	0.470	0.47	0.5	102%
Ni	0.084	0.0033	0.088	0.088	0.087	0.088	0.5	104%
Nb	0.003	0.0011	0.0031	0.0029	0.0021	0.0027	16.0	90%
S	0.015	0.0006	0.015	0.014	0.013	0.014	3.5	93%
Si	0.58	0.0114	0.60	0.59	0.58	0.59	1.4	101%
Sn	0.006	0.0006	0.0058	0.0058	0.0057	0.006	0.9	96%
Ti	0.003	0.0005	0.0028	0.0033	0.0030	0.003	5.9	101%
V	0.005	0.0018	0.0055	0.0054	0.0050	0.005	4.5	106%