

IARM-153C – Stainless Steel, Grade 317L

SUMMARY

This application note is for the digestion of IARM 153C, a grade 317L stainless steel.

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

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Digestion Time: 15 Minutes

Acid Used: Aqua Regia, HF

Average ColdBlock Recovery vs. CRM:

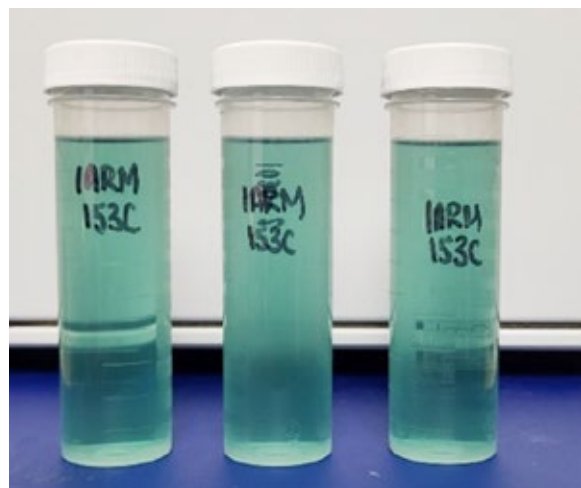
- 99% Chromium
- 98% Nickel
- 99% Molybdenum

METHODOLOGY

1. Chiller temperature was set to -5°C
2. 0.25g of IARM 153C 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 green and clear
- As a safer alternative to HF, you can add solid NH_4HF_2 (Ammonium Bi-fluoride) or NH_4F (Ammonium Fluoride)
- IARM 153C is in the form of chips



IARM 153C after topping up to 50mL

IARM 153C- AISI 317L – UNS S31703 is a certified reference material (CRM) sourced from LGC ARMI. LGC ARMI, Analytical Reference Materials International, Manchester, New Hampshire, USA (October 2017)

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Results

IARM 59A								
Analyte:	Certified Value (wt. %)	+/-	ColdBlock 1 (wt. %)	ColdBlock 2 (wt. %)	ColdBlock 3 (wt. %)	Average	% RSD	Recovery
Al	0.003	0.001	0.00294	0.00292	0.00299	0.0029	1.0	98%
As	0.0061	0.0009	0.0059	0.0059	0.0058	0.01	0.8	96%
Co	0.251	0.003	0.261	0.262	0.26	0.261	0.3	104%
Cr	18.22	0.04	17.99	18.14	18.03	18.05	0.4	99%
Cu	0.442	0.005	0.45	0.442	0.439	0.444	1.0	100%
Mn	1.6	0.01	1.67	1.73	1.66	1.687	1.8	105%
Mo	3	0.04	2.96	2.97	2.97	2.97	0.2	99%
Nb	0.015	0.002	0.014	0.014	0.015	0.014	3.3	96%
Ni	11.1	0.05	10.88	11.02	10.85	10.92	0.7	98%
S	0.0288	0.0008	0.0261	0.0279	0.0256	0.03	3.7	92%
Si	0.349	0.009	0.365	0.345	0.377	0.362	3.6	104%
Sn	0.01	0.001	0.01	0.01	0.009	0.0097	4.9	97%
Ti	0.004	0.001	0.004	0.0038	0.0038	0.0037	3.8	93%
V	0.058	0.003	0.056	0.059	0.054	0.0563	3.6	97%
W	0.043	0.003	0.046	0.041	0.044	0.0437	4.7	102%
Zr	0.004	0.002	0.0035	0.0053	0.0040	0.0043	17.8	107%