



NQAC

Nestlé Quality Assurance Center
Dublin

Technical Datasheet

Analysis Name: Material Characterization by X-Ray Fluorescence (XRF) Technology

Method Number: NQA-00.8325

Scope of Application: Metals, glass, other non-organic materials

Description: By bombarding a sample with x-rays, the XRF can detect secondary x-ray emission from the sample and thus determine elemental composition.

For metal samples, that elemental composition can be compared to the included metal alloy libraries to attempt to identify the alloy of the sample. That result is given in terms of "match value" with the closer the value to zero, the closer the match to that alloy with a zero-match value being a perfect match.

The XRF can also provide a holistic view of the sample's elemental composition on a parts per million scale.

See example data below

Sample Size Preferred: At least 3 mm X 3 mm, although smaller sample sizes can be scanned

Analytical Platform: X-Ray Fluorescence
Elemental list: Al, Sb, Pd, Ag, Mo, Nb, Zr, Bi, Pb, Se, W, Zn, Cu, Re, Ta, HF, Ni, Co, Fe, Mn, Cr, V, Ti, F, Si, Ca, K, Cl, S, Mg

Special Information: When available, references or potential sources should be submitted with unknown samples for comparison.

The condition and size of the sample can impact the results obtained as the XRF scans the surface of the sample.

XRF results are generally given in the form of a custom report and include information pertinent to the sample being scanned. Upon request, NQAC Dublin can compile the XRF data into a library for the customer to compare to any future samples that may be submitted.

Table reporting metal alloy library matches.

Reading No	Time	Type	Duration	Units	Alloy1	SAMPLE	Mo	Cl
1677	5/17/2020 17:16	General Metals	61.28	%	SS-304 : 0.00	2020-0785-1 coil	0.126	0
1681	5/17/2020 17:29	General Metals	61.53	%	SS-304 : 0.00	2020-0785-2 FM	0.333	0



Table reporting elements in parts per million.

Reading No	Time	Type	Duration	Units	Flags	SAMPLE	P	Si
505	3/5/2021 11:07	TestAll Geo	119.77	ppm	-3mm	2109-1187-1 small	4756.47	4588
506	3/5/2021 11:09	TestAll Geo	119.63	ppm	-3mm	2109-1187-1 small	5066.61	4511
509	3/5/2021 11:18	TestAll Geo	119.63	ppm	-3mm	2109-1187-1 medium	24621.72	1943
510	3/5/2021 11:21	TestAll Geo	121.01	ppm	-3mm	2109-1187-1 medium	24738.06	2004
511	3/5/2021 11:24	TestAll Geo	120.87	ppm	-3mm	2109-1187-1 large	8372.00	1164
512	3/5/2021 11:26	TestAll Geo	119.57	ppm	-3mm	2109-1187-1 large	8475.47	1234