

Thermo Scientific Niton XL2 GOLDD Series Mining Analyzers

Elemental Limits of Detection in SiO₂ and SRM Matrices Using Mining Analysis

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The Niton® XL2 GOLDD Series x-ray fluorescence (XRF) analyzer is the performance choice for your toughest testing applications. The chart below details the sensitivity, or LODs¹, of the Niton XL2 GOLDD Series using mining analysis for an SiO₂ matrix, a typical soil matrix (SiO₂ with Ca/Fe), and SRM matrix.

Limits of Detection in ppm (mg/kg)				
	Time	60s per filter		
	Matrix	SiO ₂	SiO ₂ +Fe+Ca	SRM
Elements	Ba	75	100	100
	Sb	30	30	30
	Sn	30	35	35
	Cd	25	25	25
	Pd	15	15	15
	Ag	A/S	A/S	A/S
	Mo	A/S	A/S	A/S
	Nb	35	35	35
	Zr	15	18	20
	Sr	6	8	15
	Rb	5	8	10
	Bi	10	15	15
	As	6	15	15
	Se	6	10	10
	Pb	10	20	20
	W	75	100	100
	Zn	15	25	25
	Cu	25	35	40
	Ni	45	50	60
	Co	35	200	200
	Fe	60	N/A	N/A
	Mn	75	125	125
	Cr	150	150	150
	V	450	450	450
	Ti	700	700	700
	Ca	65	N/A	N/A
	K	125	N/A	N/A
	Cl	75	75	100
	S	120	150	200
	P	350	500	500
	Si	N/A	N/A	N/A
	Al	750	1500	3000
	Mg	7500	8000	8000

Element list shown is not exhaustive. For limits of detection for elements not shown, please contact a Thermo Fisher Scientific office or your local representative.



Limits of detection (LODs) are dependent on the following factors:

- Testing time
- Interferences/matrix
- Level of statistical confidence

LODs are calculated as three standard deviations (99.7% confidence interval) for each element for a 120-second total analysis time.

Please Note:

Ongoing research and advancements in our Niton XL2 Series analyzers with geometrically optimized large area drift detector (GOLDD) technology will lead to continual improvement in many of the values detailed in this chart. Contact a Thermo Fisher Scientific office or your local representative for the latest performance specifications.

Analysis time is based on your requirements, and, in most cases, shorter times will give you the detection limits you require. For example, if analysis time was reduced from 60 seconds/filter to 15 seconds/filter, then the detection limits obtained would be twice the values shown in the chart. Similarly, increasing the analysis time will reduce the detection limits by the square root of the increased time.

A/S = Application-specific

N/A = Not applicable

1. Definition and Procedure for the Determination of the Method of Detection Limit, 40 CFR, Part 136, Appendix B. Revision 1.11. U.S. Environmental Protection Agency. U.S. Government Printing Office: Washington, DC, 1995.

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