## Thermo Scientific Niton XL3t GOLDD+ Series Environmental Analyzers

Elemental Limits of Detection in SiO<sub>2</sub> and SRM Matrices Using Soil Analysis

In addition to the offices listed below, Thermo Scientific Niton Anaylzers maintains a network of sales and service organizations throughout the world.

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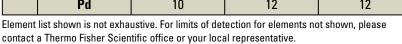
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subsidiaries Specifications, terms and

The Niton® XL3t GOLDD+ Series x-ray fluorescence (XRF) analyzer is the ultimate choice in features and performance. The chart below details the sensitivity, or LODs1, of the Niton XL3t GOLDD+ using Soil Analysis Mode for an SiO, matrix, a typical soil matrix (SiO, with Ca/Fe), and SRM matrix.

Limits of Detection in ppm (mg/kg)										
	Time	60s per filter								
	Matrix	SiO <sub>2</sub>	SiO <sub>2</sub> +Fe+Ca	SRM						
Elements	Мо	3	3	3						
	Zr	3	4	7						
	Sr	3	3	7						
	U	5	4	7						
	Rb	3	3	5						
	Th	4	4	5						
	Pb	5	8	8						
	Se	3	4	4						
	As	4	7	7						
	Hg	6	9	9						
	Au	7	9	9						
	Zn	7	10	12						
	W	20	30	30						
	Cu	10	13	15						
	Ni	25	30	30						
	Co	20	90	90						
	Fe	25	N/A	N/A						
	Mn	35	50	65						
	Cr	10	22	30						
	V	10	25	60						
	Ti	20	60	150						
	Sc	10	75	80						
	Ca	40	N/A	N/A						
	K	45	150	N/A						
	S	75	275	350						
	Ba	35	45	45						
	Cs	30	35	35						
	Te	30	35	35						
	Sb	15	20	20						
	Sn	15	20	20						
	Cd	10	12	12						
	Ag	A/S	A/S	A/S						
	Pd	10	12	12						





### 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, using 60-second analysis times per filter.

#### Please Note:

Ongoing research and advancements in our Niton XL3t GOLDD+ Series analyzers 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.

Actual 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.



### Thermo Scientific Niton XL3t GOLDD+ Series Mining Analyzers

Elemental Limits of Detection in SiO, and SRM Matrices Using Mining Analysis

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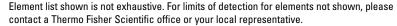
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The Niton® XL3t GOLDD+ Series x-ray fluorescence (XRF)analyzer is the ultimate choice in features and performance. The chart below details the sensitivity, or LODs¹, of the Niton XL2 GOLDD+ Series using mining analysis for an SiO<sub>2</sub> matrix, a typical soil matrix (SiO<sub>2</sub> with Ca/Fe), and SRM matrix.

Limits of Detection in ppm (mg/kg)											
	Time	60s per filter w/out He									
	Matrix	Si	02	SiO <sub>2</sub> +Fe+Ca		SRM					
Elements	Ва	35		40		45					
	Sb	12		15		15					
	Sn	15		18		20					
	Cd	8		10		10					
	Pd	5		5		5					
	Ag	A/S		A/S		A/S					
	Мо	3		3		3					
	Nb	3		3		3					
	Zr	3		3		5					
	Sr	3		3		5					
	Rb	3		3		3					
	Bi	3		5		5					
	As	3		5		5					
	Se	3		3		3					
	Au	16		20		20					
	Pb	5		10		10					
	W	40		60		60					
	Zn	8		15		15					
	Cu	12		15		15					
	Ni	25		30		30					
	Со	20		100		100					
	Fe	35		N/A		N/A					
	Mn	60		65		85					
	Cr	20		30		35					
	V	10		20		35					
	Ti	10		20		60					
	Ca	50		N/A		N/A					
	К	40		N/A		N/A					
	CI	60	50*	80	65*	75	65*				
	S	70	55*	90	75*	125	90*				
	Р	250	200*	400	330*	300	230*				
	Si	N/A	N/A*	N/A	N/A*	N/A	N/A*				
	Al	500	220*	1000	500*	2500	1000*				
	Mg	3500	750*	6000	1500*	6500	2000*				







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