Thermo Scientific Niton XL2 GOLDD Series Analyzers

Consumer Goods Screening – Elemental Limits of Detection in Polymers

The Niton® XL2 GOLDD Series x-ray fluorescence (XRF) analyzer is the performance choice for your toughest testing applications. These purpose-built instruments for consumer goods analysis utilize a proprietary Fundamental Parameters (FP)-based routine and Thermo Scientific TestAll technology for quick and accurate results on plastics, polymers, and metal alloy samples, including solders, with no user input.

The chart below details the sensitivity, or limits of detection (LODs)[1] of the Niton XL2 GOLDD Series for specific polymer matrices. LODs are calculated as three standard deviations (99.7% confidence interval) for each element for a 30-second total analysis time.

Limits of Detection in ppm (mg/kg)			
	Time	30s / filter	
	Matrix	PE	PVC
Elements	Ba	150	N/A
	Sb	30	35
	Sn	30	35
	Cd	16	20
	Bi	8	25
	Pb	8	20
	Br	5	25
	Se	5	25
	As	5	25
	Hg	8	40
	Au	8	40
	Zn	12	80
	Cu	15	80
	Ni	15	80
	Fe	20	125
	Cr	30	110
	V	200	1200
	Ti	150	1500
	Cl	50	N/A

Element list show 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

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.

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 to 15 seconds, then the detection limits obtained would be double the value. Similarly, increasing the analysis time will reduce the detection limits by the square root of the increased time.

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.

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

Americas
Billerica, MA USA
US Toll Free: 800 875-1578
+1 978 670 7460
niton@thermofisher.com

Europe, Middle East, Africa and South Asia
+49 89 3681 380
niton.eur@thermofisher.com

Asia Pacific
Central, Hong Kong
+852 2869 6669
niton.asia@thermofisher.com

www.thermoscientific.com/niton

AN44824 07/2010

Thermo SCIENTIFIC