

# Thermo Scientific Niton XL2 100G Alloy Analyzer

## Elemental Limits of Detection in Titanium/Iron/Copper-based Alloys

The Thermo Scientific™ Niton™ XL2 100G x-ray fluorescence (XRF) analyzer is a solid value choice for your toughest testing applications. Where low detection limits and high sample throughput are critical, our perfect combination of hardware, software, and direct industry experience are combined to provide you with a solution to your most difficult analytical requirements. These practical instruments offer unprecedented accuracy, yet are lightweight and rugged with point and shoot simplicity.

The data below represents the estimated optimal Limits of Detection (LOD) in wt. % for the various elements in titanium (Ti), iron (Fe), and copper (Cu) based metals. LODs<sup>1</sup> are calculated as three standard deviations (99.7% confidence level) for each element, using 60-second analysis time.



### Limits of Detection

Time: 60s

Element	Ti-based Alloys	Fe-based Alloys	Cu-based Alloys
Sb	.02	.04	.06
Sn	.02	.03	.05
Cd	.01	.03	.04
Pd	.01	.02	.03
Ag	.01	.03	.04
Mo	.02	.03	.01
Nb	.01	.02	.01
Zr	.01	.01	.01
Bi	.01	.01	.02
Pb	.01	.01	.02
Se	.01	.01	.01
Au	.01	.01	.01
W	.03	.05	.04
Zn	.01	.02	.10
Cu	.02	.03	N/A
Ni	.03	.06	.04
Co	.03	.18	.02
Fe	.04	N/A	.02
Mn	.04	.06	.03
Cr	.09	.03	.04
V	.024	.03	.05
Ti	N/A	.04	.08

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 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 to 15 seconds, 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.

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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