

Low limits, high standards

Elemental limits of detection

The Thermo Scientific™ Niton™ XL2 100G x-ray fluorescence (XRF) analyser 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 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
Bn	.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	.018	.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 development in our Niton XL2 analysers will lead to continual improvement in many of the values detailed in this chart.

Contact Niton UK for the latest performance specifications.

Actual analysis time is based on your requirements. In most cases, shorter times will provide you with the detection limits required. For example, if analysis time is reduced from 60 seconds per filter to 15 seconds per filter, then the detection limits obtained would be twice the values shown in the chart. Similarly, increasing the time of analysis will reduce the detection limits by the square root of the increased time.

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