Great Science. Great Service.

Crystalline Silica By XRD

Background

The significance of identifying and managing crystalline silica dust exposure in workplaces.

Exposure to Crystalline Silica has been a topic of increasing interest over recent years as it has presented itself as a significant risk in the wake of inadequate control measures and elevated silica dust levels among people working in stonemasonry, construction and the mining industries.

MPL Laboratories is a national leader in airborne **CONTAM** monitoring and analysis.

We are **NATA Accredited** for **Respirable Dust (AS 2985)** and have been for **Crystalline Silica by re-deposition** and **FTIR (NIOSH 7603)** for over 20 years!

we are now **NATA ACCREDITED**

for **Crystalline Silica (α-Quartz) and Cristobalite by XRD**

NATA

Accreditation Number 2901

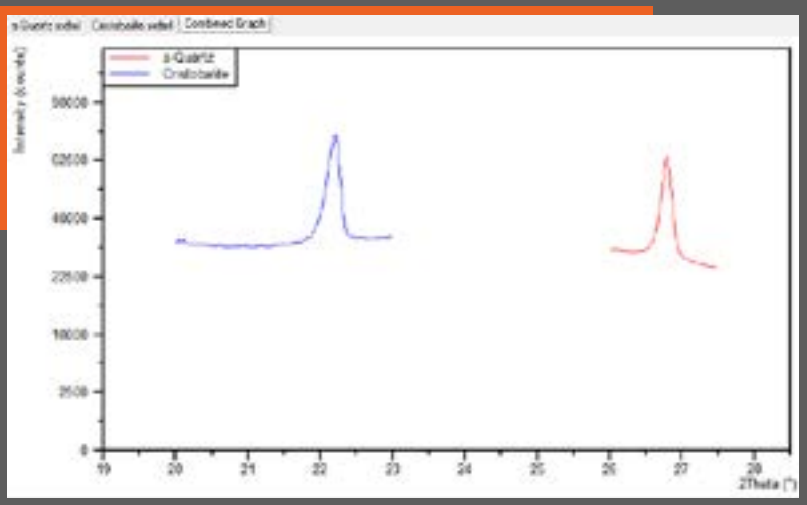
MPL Laboratories has a wide scope of **NATA Accreditation** for an extensive range of sample matrices.

With **NATA Accreditation**, you have the confidence that you are partnering with a laboratory that will provide you with quality results.

Issue: April 2021

Ready Access to Both Methods

Both FTIR (after re-deposition) and XRD have advantages and disadvantages, depending on the nature of the samples collected. Each suffers from interferences of different types and if these cannot be overcome using one method, the best option is to revert to the other.



A-Quartz and Cristobalite peaks by XRD (above) XRD on the bench (top right corner).

By having access to both methods of analysis in-house we are able to not only provide XRD for those clients operating in mineralogy with known FTIR interferences (e.g. Feldspars, Amorphous Silica), but also provide XRD as a follow-up when such interferences are observed using the FTIR technique.

MPL Laboratories Reporting Limits

Analyte	Based on Method Ref	Reporting Limit (mg/filter)#	Reporting Limit (mg/m³)# (assume 1080L sample volume)	Safe Work Australia and Worksafe NZ - OEL (TWA)
XRD (Direct on Filter)	ISO 16258-1;	25mm filter:		
α-Quartz	MDHS 101-2;	0.005 mg/filter	0.005 mg/m³	0.05 mg/m³
Cristobalite	NIOSH 7500 (Direct on Filter)	0.01 mg/filter	0.01 mg/m³	0.05 mg/m³
FTIR (Redeposition)				
α-Quartz	NIOSH 7603	0.005 mg/filter	0.005 mg/m³	0.05 mg/m³
Cristobalite	In-house	0.02 mg/filter	0.02 mg/m³	0.05 mg/m³

Based on filters not being overloaded or suffering with matrix interferences.

Fast Turnaround*

With our many years of experience in processing large numbers of dust samples, MPL Laboratories has been able to streamline the analytical process – even with ashing and re-deposition required for the FTIR analysis.

These same principles have been applied to the XRD analysis of the filters and we are pleased to offer a **routine turnaround of 5 working days** on either technique.

* Please note, some forms of silica analysis have special testing requirements, such as ***Amorphous Silica*** (e.g. Fumed Silica, Silica Fume) and thermally generated ***Tridymite***.

If you are specifically interested in these forms, please contact us prior to submitting samples.

Get in Touch

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