

# EDXRF1255 - Sulfur in Gypsum



## Scope

The measurement of sulfur in gypsum is demonstrated.

## Background

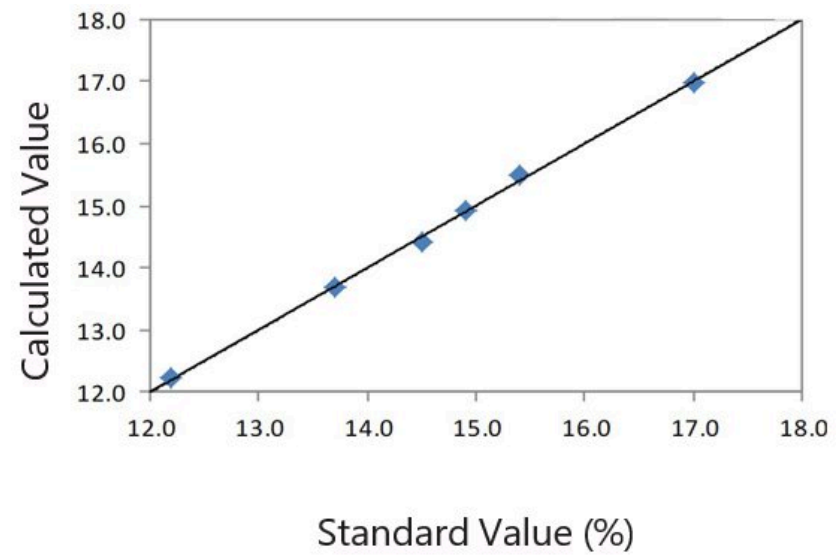
Gypsum (calcium sulfate dihydrate) is a very useful industrial mineral sought mainly for its high sulfur content. An important use of gypsum is in finished Portland cement to prevent flash-setting of concrete and also to establish drying properties in wet environments. Other uses include drywall (plasterboard), fertilizers, and soil conditioners. Whether at the quarry, cement plant, or industrial manufacturing site, the sulfur content of the gypsum as it is processed needs to be closely monitored to ensure the quality and proper formulations of the products. To meet the industry needs, Rigaku offers [NEX QC](#), a simple and versatile benchtop EDXRF analyzer for the analysis of sulfur in gypsum.

## Calibration and measurement

Empirical calibration was developed using a set of six assayed standards ranging between 12 – 17% S.

Element: S		
Units: %		
Sample I.D.	Standard value	Calculated value
STD 1	12.2	12.22
STD 2	13.7	13.68
STD 3	14.5	14.43

STD 4	14.9	14.91
STD 5	15.4	15.48
STD 6	17.0	16.98



Correlation Plot S

## Standard sample recovery and precision

The low and high S content calibration standards were measured 10 consecutive times in a static position to demonstrate effective recovery and analytical precision (repeatability). Analytical results and precision data are reported below.

Element: S				
Units: Mass %				
Sample I.D.	Assay value	Average value	Std. dev	% Relative
STD 1	12.2	12.18	0.02	0.2
STD 6	17.0	16.95	0.03	0.3

## Conclusion

The data shows NEX QC yields excellent results for the measurement of sulfur in gypsum, without the need for helium purge. Given complete assay values, the calcium content can also be measured, as well as other elements in the gypsum. The simple, modern touchscreen interface allows for reliable and efficient measurement protocols to meet the analytical needs at the quarry, at the cement plant when testing gypsum and finished cement, as well as during the manufacturing of other gypsum products.

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## Related products



### NEX QC Series

Combines quality, affordability, and performance for a wide range of applications