

XRD Report – Quantitative XRD Analysis of Mt Sylvia Absorbacite 21-10-2013

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Commercial-in-confidence

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Introduction

One sample of Mt Sylvia Diatomite labelled Absorbacite 21-10-2013 200°C was submitted by Ian Neering for quantitative X-ray diffraction (XRD) analysis.

Sample Preparation

Approximately 2g of the supplied material was ground for 10 minutes in a McCrone micronizing mill under ethanol. The resulting slurries were oven dried at 60°C then thoroughly mixed in an agate mortar and pestle before being lightly back pressed into stainless steel sample holders for X-ray diffraction analysis.

X-ray Diffraction Analysis

XRD patterns were recorded with a PANalytical X'Pert Pro Multi-purpose Diffractometer using Fe filtered Co K α radiation, automatic divergence slit, 2° anti-scatter slit and fast X'Celerator Si strip detector. The diffraction patterns were recorded from 3 to 80° in steps of 0.017° 2 theta with a 0.5 second counting time per step for an overall counting time of approximately 35 minutes.

Qualitative analysis was performed on the XRD data using in-house XPLOT and HighScore Plus (from PANalytical) search/match software. Quantitative analysis was performed on the XRD data using the commercial package SIROQUANT from Sietronics Pty Ltd. Amorphous content was determined using tridymite as the amorphous mineral component.

Results

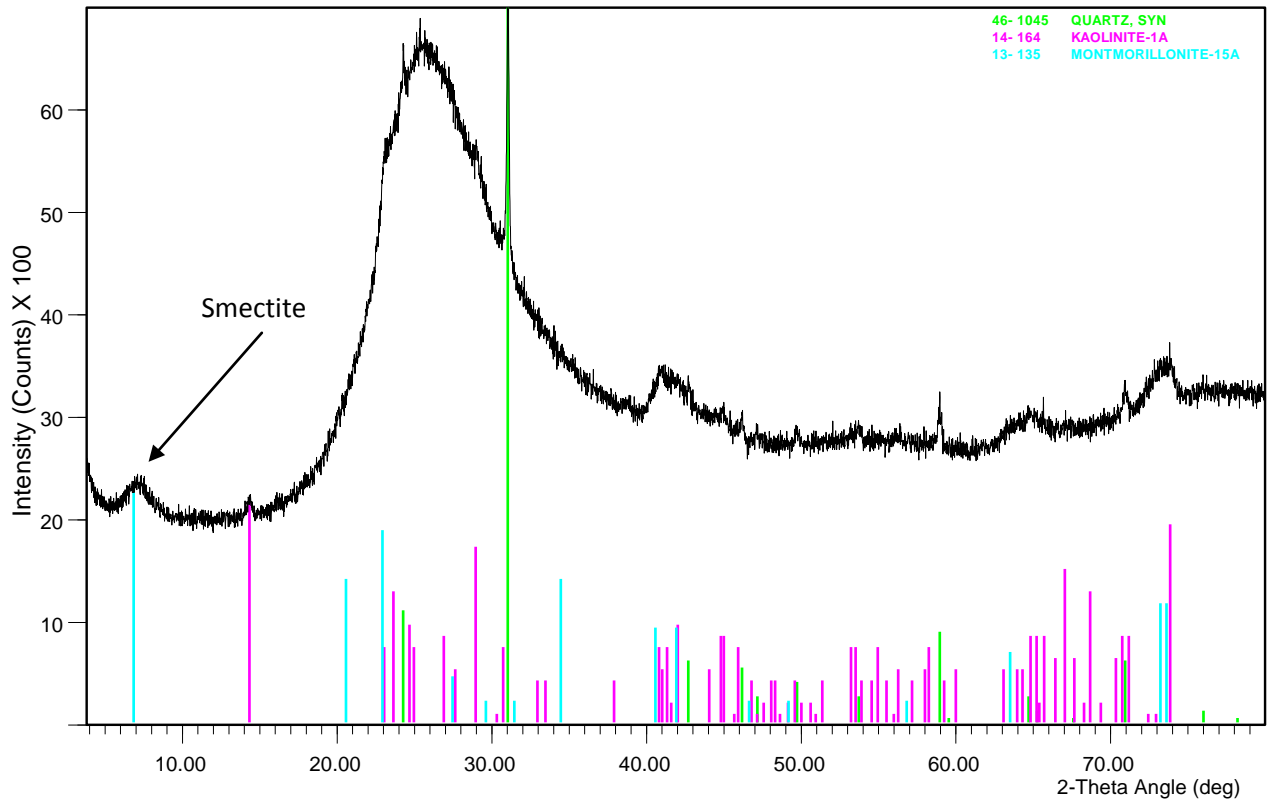
Quantitative XRD analysis results are shown in Table 1. The composition shows trace smectite (montmorillonite), which is indicated in Figure 1 by the peak at approximately 6.6° 2-theta.

Table 1. Quantitative XRD analysis (wt.%) of Absorbacite White 15-11-2012 sample.

CSIRO ID	Client ID	Quartz %	Cristobalite %	Mullite %	Smectite %	Kaolin %	Albite/Anorthite %	Amorphous %
39385	21-10-13 200°C	1	nd	nd	4	<1	nd	95

nd – not detected

39385. 21-10-13 200°C. Micronized



File Name: c:\...l2908_mt_sylvia_200c\2908-39385.xpt

Figure 1. XRD pattern of Absorbacite 21-10-2013 200°C sample (Co K α radiation)

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