

# X-ray Mineral Services Ltd

## HOW RELIABLE IS YOUR DATA?

X-ray Mineral Services understand how important your data is to you and your business. With this in mind, in addition to our own in-house quality checks and method validation, we participate in inter-laboratory proficiency tests and competitions.

Our performance in these round-robin competitions demonstrates the validity of our methods and also our continued commitment to improvement.

### Elemental Analysis by X-ray Fluorescence (XRF)

X-ray Mineral Services takes part in regular proficiency tests organised by professional bodies such as 'The International Association of Geoanalysts' and commercial organisations such as 'Fluxana'.

Results from two of the latest rounds are summarised in the table:

Proficiency Test		Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	LOI	MgO	Mn <sub>2</sub> O <sub>3</sub>	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub>	SO <sub>3</sub>	SrO	TiO <sub>2</sub>	ZnO
		Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%	Mass%
Fluxana (January 2019)	Actual	4.67	64.99	0.01	2.99	0.75	3.41	2.19	0.23	0.09	0.17	20.15	3.42	0.09	0.19	0.04
	Reported	4.59	65.38	0.00	2.96	0.60	3.56	2.21	0.24	0.02	0.20	20.07	3.39	0.09	0.21	0.05
	Δ	-0.08	0.39	-0.01	-0.03	-0.15	0.15	0.02	0.01	-0.07	0.03	-0.08	-0.04	0.00	0.02	0.01
GeoPT46a (December 2019)	Actual	2.28	40.91	*	5.80	0.12	5.91	1.10	1.10	*	26.58	13.37	*	*	0.15	*
	Reported	2.27	40.97	*	5.67	0.12	5.88	1.13	1.09	*	26.44	13.57	*	*	0.15	*
	Δ	-0.01	0.06	*	-0.13	0.00	-0.03	0.03	-0.01	*	-0.14	0.20	*	*	0.00	*

\* Certificate value not reported

### Mineralogy by X-ray Diffraction (XRD)

The Reynolds Cup is a bi-annual round-robin competition held by the Clay Minerals Society for quantitative mineralogical analysis on clay-bearing type samples. Over 80 laboratories from 27 countries take part in this competition.

In 2016 X-ray Minerals achieved 4<sup>th</sup> position on the carbonate-bearing shale sample and in the next competition, held in 2018, we were placed in 8<sup>th</sup> position overall.

Reynolds Cup 2016 - Carbonate-bearing shale			
Mineral	RC 8-2 (m%)		
	Actual (m%)	Submitted (m%)	Δ
Quartz	15.7	14.2	1.5
K-Feldspar group	3.4	4.0	0.6
Plagioclase group	4.0	3.9	0.1
Calcite	11.4	12.0	0.6
Dolomite/ankerite	6.4	4.5	1.9
Pyrite	2.5	3.1	0.6
Rutile	0.1	0.0	0.1
Anatase	2.3	2.3	0.0
Amorphous group	5.0	3.9	1.1
Total Non-clay	50.8	47.9	6.5
Kaolinite	12.5	10.8	1.7
Mica (dioctahedral)	19.8	18.2	1.6
Smectite (dioctahedral)	11.4	10.5	0.9
Chlorite (trioctahedral)	5.5	9.6	4.1
Total clay/phylosilicate	49.2	49.1	8.3
Total identified	100.0	97.0	14.8
Bias non-clay	6.5		
Bias clay	8.3		
Total bias	14.8		

*"If you are considering getting a mineral analysis of a clay-bearing sample from any type of laboratory, and where accuracy is important, simply ask the lab where they have placed in the Reynolds Cup"*

**Douglas K. McCarty**  
President of the Clay Minerals Society

Reynolds Cup 2018 - Carbonatite			
Mineral	RC 9-3 (m%)		
	Actual (m%)	Submitted (m%)	Δ
Calcite	13.9	12.8	1.1
Dolomite/ankerite	21.9	23.5	1.6
Witherite	6.4	7.5	1.1
Fluorite	3.9	2.6	1.3
Apatite	3.4	3.4	0.0
Diopside (Clinopyroxene)	6.7	9.5	2.8
Forsterite Olivine	7.0	5.3	1.7
Sodalite	2.5	3.8	1.3
Barite	2.6	1.0	1.6
Vanadinite	0.8	0.8	0.0
Zircon	0.4	0.4	0.0
Dravite (Tourmaline)	1.0	1.0	0.0
Total Non-clay	70.5	69.4	14.7
Mica (trioctahedral)	11.9	13.6	1.7
Talc	8.0	4.4	3.6
Vermiculite (trioctahedral)	4.3	5.2	0.9
Chlorite (trioctahedral)	5.3	6.3	1.0
Total clay/phylosilicate	29.5	29.5	7.2
Total identified	100.0	98.9	21.9
Bias non-clay	14.7		
Bias clay	7.2		
Total bias	21.9		

**X-ray Mineral Services provides a rapid, reliable and cost effective analytical service for the finest mineralogical and elemental analysis.**

[www.xrayminerals.co.uk](http://www.xrayminerals.co.uk)

Your one-stop shop for minerals analysis excellence

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