

# RTC Lab takes 9th place in the 2022 Reynolds Cup Competition

## What is the Reynolds Cup Competition?

- The Reynolds Cup competition is a biennial event maintained by The Clay Minerals Society, named after Robert Reynolds for his pioneering work in quantitative clay mineralogy and his contributions to clay science.
- The Reynolds Cup competition utilizes mixtures of pure standards that represent realistic sedimentary rock compositions. Any method or any combination of methods can be used to obtain the most accurate quantitative phase analysis.
- Three samples each are given to the various participants to determine who can analyze the samples and obtain abundances that most closely match the known abundances.

## Conclusion from the Reynolds Cup

- RTC Lab is doing well using only our “standard” XRD analyses. We took ninth place out of 93 entries.
- Quantitative Mineralogy is still not an “insert sample, press button” analysis. Methods used to collect data, to analyze data, and the skill/knowledge of the analyst are all still extremely important.
- Chesapeake uses proven in-house software to conduct the analyses.

Chipera, S.J., and Bish, D.L. (2002) FULLPAT: A full-pattern quantitative analysis program for X-ray powder diffraction using measured and calculated patterns. *J. Applied Crystallography*, 35, 744 - 749.

Chipera, S.J., and Bish, D.L., (2013) Fitting Full X-Ray Diffraction Patterns for Quantitative Analysis: A Method for Readily Quantifying Crystalline and Disordered Phases. *Advances in Materials Physics and Chemistry*, 3, 47-53, (Special Issue on X-Ray Diffraction). (<http://www.scrip.org/journal/ampc>).

- Chesapeake consistently does well in the Reynolds Cup competitions, placing third, fifth, sixth and ninth in past competitions.

## An international field of 93 registrants, 68 submissions from 29 countries

 United States	20	 United Kingdom	2
 Germany	12	 Norway	2
 Turkey	6	 Argentina	1
 Australia	5	 Azerbaijan	1
 Canada	5	 Czech Republic	1
 Russia	5	 Egypt	1
 France	4	 Greece	1
 Poland	4	 Hungary	1
 Brazil	3	 Israel	1
 China	3	 Republic of Korea	1
 Italy	3	 The Netherlands	1
 Belgium	2	 Slovenia	1
 Colombia	2	 Slovakia	1
 Spain	2	 Thailand	1
		 Zimbabwe	1

