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## pXRF Analysis of Heterogeneous Rocks with Respect to Sample Preparation: Applications to Mafic Igneous Rocks

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### EXTENDED ABSTRACT

**Geologic and geochemical analysis of rocks is complicated by sample heterogeneity. Using a portable X-ray fluorescence (pXRF) spectrometer has its advantages and can be used in analyzing heterogeneous samples, but there are some drawbacks as well. The analyses depth of lighter elements is much more limited than that of heavier elements and thus different sample volumes are analyzed. A natural glass or homogeneous sample or a sample that has been heavily processed to produce a homogeneous sample can aid in producing high quality geochemical analyses. Producing such a sample can involve a prohibited amount of work or might not be feasible in some cases. Analyzing a minimally processed sample of shale, granite, or in our case, a mafic igneous rock, may prove to be advantageous if the results are similar to well established methods. This work will analyze a heterogeneous mafic igneous rock known as Star Galaxy, a donated piece of countertop, via a number of different processes and methods and compare results to those from a commercial laboratory.**

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