U.S. Silica (USS) is an industrial Mineral Company that supplies quartz sand, ground silica, kaolinite, and APLITE to chemistry sensitive manufacturing concerns such as the glass industry. The manufacturing concerns are buying USS products for specific elemental abundances - specifically SiO2 (quartz products) and Al2O3 (Kaolinite and APLITE Products) with minimal “contamination elements” where the amount of “contamination elements” are defined by the manufacturer.

Due to the logistics associated with supplying silica sand, a variety of different quartz sand formations are mined to meet the needs of the market place. These mines are located to best serve the regional needs of the market place. Each of these deposits have their own unique chemical signatures and plant processing configurations designed to address “contamination elements” within the ore body and to produce an appropriately sized, clean and dry product for the customer.

Quartz is mined from sandstone and dune formations by open pit mining techniques and dredging. The processing may involve size reduction, washing, scrubbing, sizing, mineral separation and drying.

To monitor product quality, USS has been installing wavelength dispersive XRF units to provide near real time analysis of trace element concentrations. The new generation of lower energy XRF (~1KW) units allows USS to economically monitor Fe2O3 (0.025 wt%), and Al2O3 (0.1 wt%), but also to obtain rapid and accurate values for TiO2 (0.02 wt%), MgO (0.005 wt%), CaO (0.005 wt%), K2O (0.005 wt%) and Na2O (0.005 wt%) (* estimated company wide averages).