

EGU2020-9326

<https://doi.org/10.5194/egusphere-egu2020-9326>

EGU General Assembly 2020

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## Processing waste from feldspar raw material as a potential source of certain strategic elements

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Feldspar-rich leucogranite formed by metasomatic / hydrothermal alteration of original granite makes one of the key resources of feldspar raw material for ceramic / glass industries in the Czech Republic. Studied material is composed by prevailing albite and quartz accompanied with small amounts of minor / accessory phases which represent the major harmful components responsible for colour changes in final product. To improve quality of marketed feldspar, part of exploited raw material started to be processed by using magnetic separation in recent years.

To increase efficiency of processing, trials on usage of additional processing / separation methods have been applied in recent study. The approach involves three successive steps: (1) laboratory, (2) small-scale, and (3) full-scale separation schemes.

Concerning laboratory separation, several grams of input material were processed by using magnetic separation and gravity separation. This helped in separation of major harmful components (Fe-, Mn-, Ti-rich phases partly with complex mineralogical binding with Nb-Ta, Li-micas, and apatite).

Small-scale separation as a second step attempted to find optimized processing flow-chart usable for separation of some potentially interesting phases (Li-rich and Nb-Ta minerals). Control of the best granulometry presented one of the challenges. By studying various separation techniques, combination of dry magnetic separation and air gravity concentrating table proved to be very effective.

During full-scale separation several tons of input material were processed by magnetic separation followed by air-gravity concentrating table. The chemical composition of separation end-products was tested by XRF. Properties important for ceramic / glass industry (specifically experimental burning and colorimetric measurements) were checked as well. Such an approach allowed for realistic evaluation of the beneficiation flow-chart prior to its implementation on the industrial scale of processing of feldspar raw material.