FLOCCULATION STUDY OF NATURAL QUARTZ SAMPLE USING ANIONIC POLYACRILAMIDE

1. Svjetlana Sredić, Rudarski fakultet Prijedor, Republic of Srpska, Bosnia and Herzegovina
2. Ljiljana Tankosić, Rudarski fakultet Prijedor, Republic of Srpska, Bosnia and Herzegovina
3. Pavle Tančić, Geološki zavod Srbije, Serbia
4. Zoran Nedić, Fakultet za fizičku hemiju, Serbia

The waste sludge generated during processing of iron ore in the Omarska mine (Republika Srpska, Bosnia and Herzegovina) is fine-grained (<15μm), containing relatively high concentrations of iron, and quartz as its major impurity. In present paper it was studied the flocculation behaviour of the primary natural raw "quartz" sample from Omarska mine. This sample is composed of major quartz which dominate over minor contents of clay minerals and feldspars, and contain 92.9% of SiO2. Particle size distribution analysis confirm that it is present as fine and ultra-fine particles. The zeta potential of quartz depend on pH value. Settling experiments were performed by using three different dispersants (Na-hexamethaphosphate, Na-pyrophosphate and Na-silicate), and anionic polyacrylamide as flocculants. The best results were achieved with Na-hexametaphosphate (1000 g/t) and anionic polyacrylamide A 100. The effect of flocculant on the settling rate depends on solid concentration. Settling rates increase significantly with the increase of the liquid component in both of the cases (natural settling and hindered settling by addition of flocculant).

Ključne reči : Quartz | iron ore | sludge | flocculation | settling rates

Tematska oblast: SIMPOZIJUM A - Nauka materije, kondenzovane materije i fizika čvrstog stanja

Datum: 24.07.2019.

Contemporary Materials 2019 - Savremeni Materijali