



Wet separation processes as method to separate limestone and oil shale

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Biggest oil shale industry is located in Estonia. Oil shale usage is mainly for electricity generation, shale oil generation and cement production. All these processes need certain quality oil shale. Oil shale seam have interlayer limestone layers. To use oil shale in production, it is needed to separate oil shale and limestone. A key challenge is find separation process when we can get the best quality for all product types. In oil shale separation typically has been used heavy media separation process. There are tested also different types of separation processes before: wet separation, pneumatic separation. Now oil shale industry moves more to oil production and this needs innovation methods for separation to ensure fuel quality and the changes in quality. The pilot unit test with Allmineral ALLJIG have pointed out that the suitable new innovation way for oil shale separation can be wet separation with gravity, where material by pulsating water forming layers of grains according to their density and subsequently separates the heavy material (limestone) from the stratified material (oil shale)bed.

Main aim of this research is to find the suitable separation process for oil shale, that the products have highest quality. The expected results can be used also for developing separation processes for phosphorite rock or all others, where traditional separation processes doesn't work property.

This research is part of the study Sustainable and environmentally acceptable Oil shale mining No. 3.2.0501.11-0025 <http://mi.ttu.ee/etp> and the project B36 Extraction and processing of rock with selective methods – <http://mi.ttu.ee/separation>; <http://mi.ttu.ee/miningwaste/>