

ABATEMENT OF CO₂ EMISSIONS IN ESTONIAN OIL SHALE-BASED POWER PRODUCTION

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Reduction of emissions of greenhouse gases and safe deposition/utilization of solid wastes are among most serious problems in the world's heat-and-power production. CO₂ sequestration by mineral carbonation using alkaline waste ashes as sorbents serves both causes, as after carbonation, the leaching behavior of the alkaline waste materials is often improved.

The aims of the study were to determine the CO₂-binding ability of waste ash at different stages of its hydraulic transportation and under different deposition conditions as well as to establish a concept for abatement of the CO₂ emissions in Estonian oil shale-based power production using methods of chemical technology. The main parameters and mechanism of direct and indirect aqueous carbonation of ash with flue gases and of natural weathering at open-air deposits were elaborated. The expected amounts of CO₂ bound were evaluated. The results can serve as the initial data for design of an industrial-scale pilot plant



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