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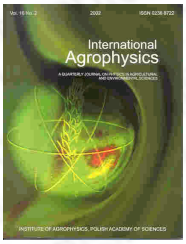

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Swelling-shrinkage properties and hydraulic conductivity of a compacted coal mine tailing rock likely to be used for landfill capping

(get PDF)

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abstract The capping and remediation of municipal landfills require large amounts of soil material which should fulfil definite requirements with respect to hydraulic and shrinkage properties. One of such materials, likely to be applied for landfill capping and remediation, is tailing rock from Bogdanka (Lublin Region, Poland) coal mine. The effect of bulk density (1.35, 1.45, and 1.55 Mg m-3) on water permeability and on swelling/shrinkage properties of that material was studied under laboratory conditions. After the measurement of water permeability of the compacted material its pore water pressure was differentiated (-60, -300 and -500 hPa) and then it was re-saturated and again placed on tension plates of different water potential. During each test the pore water potential and the bulk density were measured. The changes of the properties of the material under investigation are discussed from the point of view of its potential application for the construction of landfill top liners.

keywords landfill liner, swelling, shrinkage, water permeability