

Summary

The present thesis provides assessment potential of the Mořina - Východ deposit (Velká Amerika) as a raw material reserves for the Kozolupy - Čeřinka deposit. The reason for this work is limited lifetime of the Kozolupy - Čeřinka deposit (approx. 11-14 years) that does not allow fulfilling the requirement to ensure the production of limestone for flue gas desulphurization for ČEZ until 2035. Objective of this work is to summarize all the existing knowledge of the deposit and define the expected technological parameters of raw materials and consider the possibility of its use as a raw material for flue gas desulphurization. Special attention was paid to dolomitization of the limestone, namely to its extent and nature, because elevated Mg content lowers the quality of the limestone ore. Finally, ore reserve calculations and mining intentions are presented.

On the basis of microscopic research two types of dolomite were distinguish: diagenetic and epigenetic. Diagenetic dolomite originated at shallow burial together with recrystallization of limestone slurry at temperatures up to 50 °C. Homogenization temperatures of primary fluid inclusions in epigenetic dolomite lay in the range 76-92 °C (sample A9) and 63-88 °C (sample A25). The trapping temperature of these inclusions was probably only slightly higher (up to about 15 °C) than the measured homogenization temperature. On the basis of measured inclusion homogenization temperatures, size of dolomite grains and areal distribution of MgCO₃ admixture, we may suggest that epigenetic dolomite formed due to deeper burial associated with the Koda fault.

Chemical analyses of limestone ore, performed by the portable XRF spectrometer, documented overall good quality of the ore: high carbonate content (> 95 wt. %) and low content of contaminants such as SiO₂, Al₂O₃ and Fe₂O₃. The only drawback represents the increased content of MgCO₃, fortunately the upper limit for MgCO₃ admixture specified by the CEZ is exceed only moderately. A comparison of various options of reserve calculation demonstrated that the countersink mining down to 300 m above sea level, represents the only economically viable alternative. The calculated reserves yielded 2 368 thousand m³ (62 771 tons) of limestone ore and the overburden ratio is 60/40.

Key Words: XRF spectrometry, limestone, dolomitization, Barrandian, Velká Amerika, estimation of reserves