

Evolution of crystal salts on level 600 in the Kłodawa salt mine

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The Kłodawa Salt Dome is located in Central Poland within the Mid-Polish Trough (MPT) area. It is the largest salt diapir which entirely pierces through the Mesozoic cover along a distance of ca. 26 km and width up to 2 km (Werner *et al.*, 1960). The salt dome consist of Zechstein salts belonging to PZ2, PZ3 and PZ4 cycles. The oldest one (PZ1) is known only as separate blocks. The inner structure of the diapir is very complicated as a result of uprising of salt members during the evolution of the salt dome and differentiated rheological, petrological and chemical properties of the various evaporate layers. The tectonic events show piercing of older salt by younger and the youngest ones, and pinching out of the layers, as well as occurrences of narrow high amplitude folds. In a general outline, two anticlines elongated in a NW-SE direction predominate in the SW and NE parts of the diapir. Anticlines are separated by the deep central syncline composed of the youngest salt layers.

During tectonic processes numerous epigenetic salts appear. They form veins and accumulations of variegated size. Their mineral composition includes large halite crystals, blue-coloured halite as well as polyhalite, carnallite and sylvite (Stańczyk, 1970, Stańczyk-Stasik, 1976, Tobała & Natkaniec-Nowak, 2008). Crystal salts are

characterized by large crystals which dimension exceeding few centimetres. They are formed as the results of intense recrystallization of halite during the uprising of rock salt. Fluid inclusion studies carried on crystals from level 600 of the Kłodawa Salt Mine showed that the formation of these salts has been possible with the participation of relatively hot fluids. Their chemical composition apart from NaCl included also large amounts of KCl and MgCl₂. Such composition is proved by the presence of sylvine and carnallite daughter minerals in fluid inclusions. Crystal salts on level 600 occur together with blue salts and polyhalites. Very unusual are also fragments of birefringent halite crystals.

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