NEW DATA ON Cu-AMALGAMS, KOLYMITE AND BELENDORFFITE FROM RUDABÁNYA, HUNGARY

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Copper amalgam is known for a while, which was described according to chemical composition and optical characteristic as kolymite at Rudabánya, Hungary (SZAKÁLL, 2001). Cu-amalgams can be found as 20–200 µm anhedral inclusions in native copper, or cuprite. Grains are isotropic, highly reflective, 74.27% at 560 nm, and have tin white color. The amalgams are harder than enclosing native copper and have a positive flat relief. They are brittle and weakly fractured. New investigations of Cu-amalgam suggested the presence of belendorffite, instead of kolymite on the basis of different X-ray powder diffraction line intensities and line splitting (KUPI *et al*., 2010). Chemistry is not relevant as both minerals having the Cu_7Hg_6 composition.

Optical spectroscopic measurements were performed on new polished sections. It could identify the phase as kolymite because the belendorffite has higher reflectance at low wavelengths (below 500 nm) than kolymite (Fig. 1). The measured spectrum is (wavelength in nm/reflectance %): 400/55.50; 420/59.94; 440/62.72; 460/56.76; 480/68.21; 500/70.20; 520/71.70; 540/72.82; 560/74.27; 580/75.34; 600/76.42; 620/76.72; 640/77.02; 660/77.46; 680/78.59; 700/78.55. Our spectrum is slightly elevated compared to the literature (MARKOVA *et al*., 1980) which could be the result of the minor silver content in our samples. WDX composition of the same samples is Cu 26.21, Ag 0.31, Hg 73.10 with a total of 99.83 wt%. This corresponds to the formula of $Cu_{6.87}Ag_{0.05}Hg_{6.08}$. It has a Vickers hardness of 340 ± 8 (3–5 g load). XRD Gandolfi-camera pictures from the same crystals do not show diffraction line splitting, which is characteristic for belendorffite, as it showed at the previously studied material (KUPI *et al*., 2010). On the basis of our data, we prove that both kolymite and belendorffite exist at Rudabánya.

References

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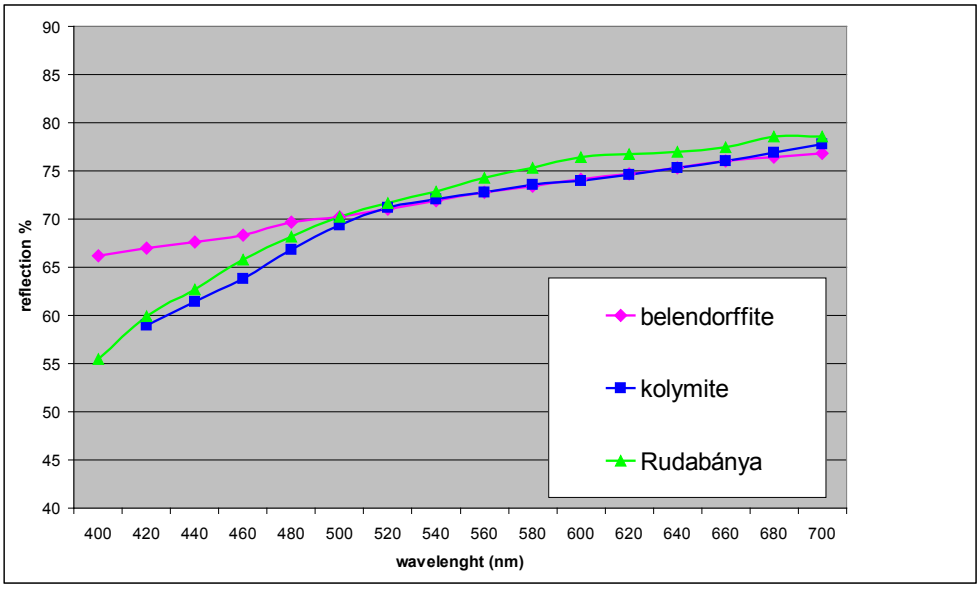

Fig. 1. *Optical spectra of kolymite from Rudabánya, compared to reference data of belendorffite (BERNHARDT & SCHMETZER, 1992) and kolymite (MARKOVA et al., 1980).*