

Bi₃Te₂: A NEW MINERAL PHASE FROM THE TYPE SPECIMEN OF PILSENITE (“WEHRLITE”)

WEISZBURG, T. G. (Department of Mineralogy, Eötvös L. University, Budapest, Hungary)

E-mail: weiszburg@ludens.elte.hu

Tellurides have been connected to the Carpathian–Pannonian Region since the discovery of the new element tellurium in Transylvania in the 18th century.

Nagybörzsöny (in German: Deutsch-Pilsen), Börzsöny Mts., Hungary, is one of the classical localities of bismuth tellurides in the region. It is the type locality of pilsenite (formerly: “wehrlite”).

The type specimen of pilsenite, to be found in the Mineral Collection of the Eötvös L. University, was studied by reflected light microscopy in details by SZTRÓKAY (1946). Later SZTRÓKAY & NAGY (1982) gave local chemical data of the phases mentioned earlier, and thought to be found two new mineral phases, one of them member of the Bi-Te-S system. Preliminary results of the re-examination of the very mount used by SZTRÓKAY & NAGY (1982) was given by WEISZBURG *et al.* (1992). The new measurements and the revised interpretation of the data published by SZTRÓKAY & NAGY (1982) made it clear that the specimen really contains a new phase of the Bi-Te-S system, but different what was assumed earlier. The aim of the current paper is the presentation of this new phase, Bi₃Te₂.

Bi₃Te₂ represents a surprisingly large, homogenous volume of the sample, occupies the central part of the massive, not lamellar half of it (lamellar = pilsenite). Its total volume is over 0.5 cm³. This amount of material made it possible to collect not only local chemical and optical, but also reliable XPD data, unavailable earlier. Based on the unit cell dimensions and the chemical formula assumptions could be made on the stacking order of the phase.

In the Nagybörzsöny sample the homogenous Bi₃Te₂ is surrounded by homogenous joseite-B. Their boundary is sharp and clear. This fact, and some microprobe data of the composition of Bi₃Te₂ published from other geological regions indicate that Bi₃Te₂ is a stable, energetically favoured phase in nature along the pilsenite – native bismuth line. Nomenclatural consequences of the present results are under preparation for IMA CNMMN.

This work was supported by OTKA Grant # T016628.

References

SZTRÓKAY, K. (1946). *Annales Historico-Naturales Musei Nationalis Hungarici.*, 39: 75–103.

SZTRÓKAY, K.I. & NAGY, B. (1982). in: *Ore Genesis. The State of the Art.* (ed. AMSTUTZ *et al.*), Springer, pp. 773–783.

WEISZBURG, T.G., CRIDDLE, A.J. & STANLEY, C.J. (1992). Abstracts of the GAC-MAC Joint Annual Meeting, Wolfville, Nova Scotia, Canada, p. A116.