

## **DELAFOSSITE (Cu<sup>1+</sup>Fe<sup>3+</sup>O<sub>2</sub>) FROM MARTONYI, NE HUNGARY; A NEW MINERAL FOR HUNGARY**

JÁNOSI, M. & SZAKÁLL, S. (Department of Mineralogy, Herman Ottó Museum, Miskolc, Hungary)  
E-mail: [homin@matavnet.hu](mailto:homin@matavnet.hu)

Martonyi, a smaller metasomatized iron rich carbonate ore body (KOCH *et al.*, 1950) is to be found in NE Hungary, in the neighbourhood of the well-known iron ore deposit of Rudabánya. Although Rudabánya is much richer in mineral species than Martonyi, we are to present now a rare mineral, delafossite, that is new not only for Martonyi, but also for Hungary.

### Physical properties, crystal morphology

The mineral occurs in botryoidal masses, up to 3 mm in diameter. These aggregates consist of individual platy, euhedral crystals of 0.1 mm in diameter as a maximum. The crystals are brownish black with metallic lustre.

Based on SEM observations, three morphological types can be distinguished. The most common is the thin, “specularite like” variety, with traces of narrow rhombohedron faces at the rim of the dominating basis. Less frequent are the thicker plates formed by the combination of the basis and the {10 $\bar{1}$ 1} rhombohedron, just as well as the barrel shape pyramidal crystals, combinations of the {0001}, {11 $\bar{2}$ 1} and {11 $\bar{2}$ 5} crystal forms.

### Chemistry and crystal chemistry

The chemical composition was measured by EDX (quantitative measurement of Fe and Cu by using standards). The results confirm the formula Cu<sup>1+</sup>Fe<sup>3+</sup>O<sub>2</sub> within the analytical error. There is no sign for any crystal chemical anomaly, as the XPD pattern of the hand-picked pure material fits quite well the reference data (JCPDS 12-752). The only minor differences are the increase of the intensity of the 006 reflection (from 30 % to 100 %) and the appearance of the 003 reflection (at 5.75 Å, of low intensity); both can be accounted for by preferred orientation.

### Paragenesis, genetical considerations

Delafossite occurred in the cavities of the brecciated oxidation zone of the ore deposit (“limonitic ore”). Its closest accompanying phases are goethite and cuprite, the latter forms octahedral crystals of mm size, in veinlets. The broader mineral assemblage includes also native copper, pyrolusite, calcite, malachite, azurite and cinnabar.

Delafossite is considered to have formed during the oxidation of the primary Fe-Cu sulphides of the ore body.

### Reference

KOCH, S., GRASSELLY, Gy. & DONÁTH, É. (1950). *Acta Mineralogica Petrographica*, Szeged, 4: 1–41.