

**MOLDAVITES FROM THE CHEB BASIN, CZECH REPUBLIC.**

R. Skála<sup>1</sup> and M. Čada<sup>2</sup>. <sup>1</sup>Institute of Geology, Academy of Sciences of the Czech Republic, Rozvojová 135, CZ-16502 Praha 6, Czech Republic. E-mail: skala@gli.cas.cz. <sup>2</sup>Minerály Čada, B. Němcové 386, CZ-351 01 Františkovy Lázně, Czech Republic.

**Introduction:** Moldavites were found in the Cheb Basin, Western Bohemia, in 1993 and reported by Bouška et al. [1]. Skála and Čada [2] analyzed three moldavites found about 3 km NW of the place of original moldavite finds reported in [1]. Between 1993 and 2005, by guess 1200-1500 individual moldavite pieces have been collected in the Cheb Basin on 6 different localities in the area of about 12 × 20 km. This identifies local Tertiary and Quaternary sediments as the third most prominent source of central European tektites known next to the Southern-Bohemian and Western-Moravian sub-strewnfields.

**Physical properties and chemical composition:** The hitherto largest moldavite from the Cheb Basin weighs 36 g and was found in the gravel pit near Dřenice. The weight distribution is uneven: more than half of the ~ 300 samples from Dřenice gravel pit (64 %) weigh between 1 and 4 grams. Bulk densities cluster around 2.331 and 2.371 g.cm<sup>-3</sup>. Colors were determined visually based on the scale defined in [3]. Bottle and olive green moldavites prevail, no brown-colored pieces were found. All the moldavites found in the Cheb Basin represent the splash-form tektites; no other primary shapes were reported. The most common shapes, neglecting the fragments, are ellipsoid and droplet; the rarest forms are dumbbell- or rod-shaped.

Chemical composition was measured for nine samples with a JEOL JXA-8200 SuperProbe WD/ED combined electron probe microanalyzer. Major element contents follow (in wt.%): SiO<sub>2</sub>: 77.4-84.3; TiO<sub>2</sub>: 0.15-0.47; Al<sub>2</sub>O<sub>3</sub>: 6.63-10.8; FeO 0.8-2.13; MnO: up to 0.22; MgO: 1.59-3.06; CaO: 2.16-4.99; BaO: up to 0.25; Na<sub>2</sub>O: 0.2-0.59; K<sub>2</sub>O: 2.17-3.77. Major element chemistry defines at least 2 distinct groups differing mutually mainly in the contents of TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, and alkalis.

**Conclusions:** The physical properties (e.g., color and weight distributions) studied indicate that the moldavites from the Cheb Basin are very similar to those from the Southern Bohemia. The microprobe study results significantly expand the compositional range previously reported for Cheb moldavites [1, 2]. The HCa/Mg types of moldavites are by far less rare as supposed in [4]. In addition a group of moldavites exhibiting a transitional composition between 'normal' and HCa/Mg types was identified. A considerable chemical variability among individual moldavites as well as among individual point analyses of the individual moldavites studied was detected.

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**References:** [1] Bouška V. et al. 1995. *Bulletin of Czech Geological Survey* 70:73-80. [2] Skála R. and Čada M. 2003. *Acta Scientiarum Naturalium Musei Moraviae Occidentalis Třebíč* 41:11-17. [3] Bouška V. and Povondra P. 1964. *Geochimica et Cosmochimica Acta* 28:783-791. [4] Delano J.W. et al. 1988. *2<sup>nd</sup> International Conference on Natural Glasses*, Prague: 221-230.