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# A world-unique association of staročeskéite, izoklakeite and terywallaceite from Kutná Hora ore district, Czech Republic

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## Abstract

A very interesting and world-unique association of Ag-Pb-Bi-Sb sulfosalts staročeskéite, izoklakeite-giessenite and terywallaceite has been found and determined from the Staročeské pásmo Lode of the Kutná Hora ore district, Czech Republic. Associated mineral include Sb-rich gustavite, Sb-rich treasurite, holubite, *schirmerite* (type 2), Bi-rich jamesonite and Ag,Bi-rich galena. The studied mineral association includes sulfosalts constituted by both Bi and Sb (staročeskéite, terrywallaceite, izoklakeite, holubite) as well as Sb-rich varieties of Bi-lillianite homologues and Bi-rich varieties of Sb sulfosalts (Bi-rich jamesonite). Staročeskéite has the empirical formula based on 11 *apfu* $Ag_{0.72}Cu_{0.01}(Pb_{1.59}Fe_{0.02}Cd_{0.01})_{\Sigma 1.62}(Bi_{1.31}Sb_{1.44})_{\Sigma 1.75}S_{5.91}$, in a very good agreement with the ideal formula. The Bi-richest izoklakeite (Bi/(Sb + Bi) = 0.70) found so far anywhere in the world was determined among the compositions of minerals of the izoklakeite - giessenite series. The so far Bi-richest izoklakeite with Bi/(Sb + Bi) = 0.68 was reported from Otome mine, Japan. The observed succession trend progresses from the earliest Bi-richest minerals to youngest Sb-richest members, starting with Ag,Bi-rich galena and ending with Bi-rich jamesonite being the latest, in line with previously reported observations. Empirical formulas of main and associated minerals and degrees of substitutions are discussed.

***Key words**: staročeskéite, terywallaceite, izoklakeite, Ag-Pb-Bi-Sb sulfosalts, chemical composition, associated minerals, Kutná Hora ore district, Czech Republic*

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