

TETRAHEDRITES FROM THE BAIJA MARE NEOGENE ORE DISTRICT, ROMANIA

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The tetrahedrites are the most frequent sulphosalts in the base metal and gold ores of the Baia Mare ore district. EPMA allowed several types of tetrahedrites to identify. The Sb rich members are dominant. The contents in Zn and Fe are up to 7–8 % and are characteristic for all the investigated tetrahedrites. An exception is a sample which contains 21.33 % Fe and is rich in As, too. All the tetrahedrites contain up to 2 % Ag. A group has been separated which contains 10–29 % Ag including argentian tetrahedrites and freibergites. The coefficient of Ag in the formula of these tetrahedrites is between 1.5–5.7.

In all the examined samples As and Sb are present together and only in a small part of them is either As or Sb dominant. Bi and Te take one of the positions of As and Sb, Se substitutes for sulphur. The positions of Cu^{2+} are taken by Fe or Zn and only in the intermediate members they substitute for Cu in almost equal quantities. Zn substitutes for Cu in great amounts in the Sb rich tetrahedrites but Fe is a substitute of Cu in the As rich ones and in some Ag rich members, Ag substitutes only monovalent Cu. The substitution of the monovalent Cu with Ag takes place at the same time with the substitution of the bivalent Cu with Fe. These substitutions usually take place in the Sb rich tetrahedrites and are demonstrated by the good correlation of Fe/Ag. The argentian tetrahedrites show a limited substitution of Sb for As.

The cell parameter, calculated after CHARLAT & LEVY (1975), is between $a = 10.172\text{--}10.578 \text{ \AA}$. For tennantite, the a parameter varies between $10.172\text{--}10.240 \text{ \AA}$, which is close to that of pure tennantite ($a = 10.18 \text{ \AA}$). The tetrahedrites have values between $a = 10.358$ and 10.383 \AA and correspond to the value of pure tetrahedrite (10.33). The presence of silver in tetrahedrites increases the cell parameter (CHARLAT & LEVY, 1975), which is of $10.412\text{--}10.578 \text{ \AA}$ for the argentian tetrahedrites and 10.706 \AA for freibergite. According to RILEY (1974), the highest value of the cell parameter is 10.59 \AA when the Ag content is of about 20 wt%.

References

- CHARLAT, M. & LEVY, C. (1975). *Bull. Soc. Mineral. Cristallogr.*, 8: 151–158.
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