

Characteristic features of sulphide mineral DTA

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Abstract

Differential thermal analysis and simultaneous electrical conductivity and evolved gas detection measurements were used to determine temperature intervals and in a number of cases the nature of the recorded transformations of 21 sulphides. For example, along with the thermal dissociation of covellite interaction with copper sulphide impurity is also found. The result of polymorphic pentlandite transformation (610-620°) is vaesite; in the incongruent melting of tennantite (710-735°), lautite and sulphur are formed. Dissociation of sulpharsenides is as follows: cobaltite (885-905°) yields cattierite and sulphur; gersdorffite (800-860°) yields niccolite and pentlandite; and arsenopyrite (670-740°) yields loellingite. Endothermic transformation of pyrite (550-580°) results in destruction of its superficial oxidized film. A thermal change typical for each type of iron monosulphide has been established. A method for the quantitative estimation of sulphides is based upon measurement of the gas evolved during interaction of the sulphide with solid oxidants. © 1975 Wiley Heyden Ltd., Chichester and Akadémiai Kiadó, Budapest.

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