

## Crystallochemical Analysis of Halogenides and Chalcogenides of *d*-metals

Maxim V. Peskov, Vladislav A. Blatov, Samara State University, Samara, Russia. E-mail: helmut@sama.ru

A comparative crystallochemical analysis and classification are performed for 35 halogenides, 123 chalcogenides  $M_y[TX_4]$  (T is *d*-metal), and 1573 binary compounds  $A_xB_y$  using the program *IsoTest* of the *TOPOS* package. Two levels of structural relationship are considered: (i) 'grey' isomorphism, when a binary compound  $A_xB_y$  relates to a ternary compound  $M_y[TX_4]$  if some atoms M, T, or X are topologically equivalent; (ii) partial isotypism when a complex salt  $M_y[TX_4]$  is considered as a quasi-binary compound  $M_y[T]$  keeping the connectivity of initial net. The examples of 'grey' isomorphism for ternary compounds are found with  $Tl_2Cl_4$ ,  $In_2Br_4$ , magnetite, cristobalite, and  $C_3N_4$ . Partial isotypism is much more frequent; the following binary compounds participate in such relations: CsCl,  $NdS_2$ , NiAs, FeB,  $BaF_2$ -HP, PtS, sphalerite, fluorite,  $PoCl_2$ ,  $BiF_3$  (gananite),  $ReO_3$ . Many of the found correspondences are typical also for other anhydrous inorganic salts: orthosilicates, orthogermanates, arsenates, sulfates, selenates, molybdates, perchlorates, periodates, nitrates, carbonates, and borates.

Topological analysis of ionic arrays shows that in a half of the halogenides and almost in all the chalcogenides there are arrays related to close packings. Using the data on uniformity of these arrays the conclusions are made about their significant structure-forming role.

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