

Not-so-obvious: two surprises in polymorphism of chemical elements and compounds

Wojciech Grochala¹

¹ Centre of New Technologies, University of Warsaw, Warsaw, 02089, Poland

E-mail: w.grochala@cent.uw.edu.pl

Two topics will be addressed in my talk: (i) we will revisit allotropy of carbon, and discuss the recent computational results which call for reinvestigation of the mutual stability of diamond and graphite [1], and (ii) we will focus on two forms of AgSO_4 , namely silver(II) sulphate [2] and silver(I) peroxodisulphate [3]. These two cases of polymorphism will be compared to those of related BN (cubic vs. hexagonal) [4] and $\text{Pb(IV)(S}^{-2}\text{)}_2$ and $\text{Pb(II)(S}_2^{-2}\text{)}$ [5], respectively, where the relative stability of polymorphs is established with somewhat better certainty.

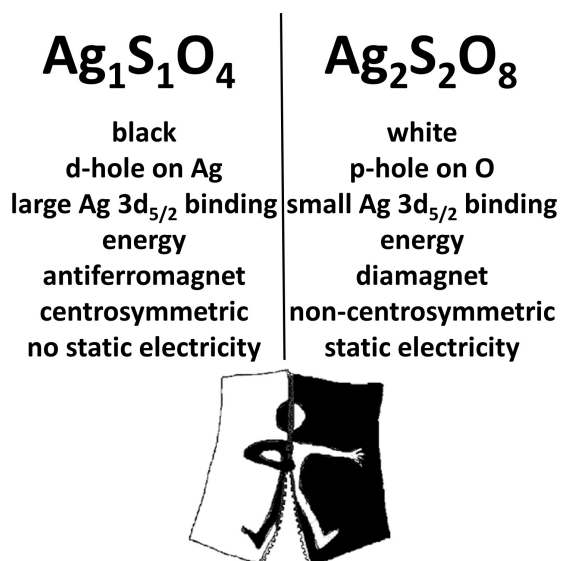


Figure 1. Comparison of several characteristic features of Ag(II)SO_4 and $\text{Ag(I)}_2\text{S}_2\text{O}_8$.

Bibliography

[1] W. Grochala, *Angew. Chem. Int. Ed. Engl.*, **53**, 3680-3683 (2014)

[2] P. J. Malinowski *et al.*, *Angew. Chem. Int. Ed. Engl.*, **49**, 1683-1686 (2010)

[3] T. E. Gilewski, P. J. Leszczyński, A. Budzianowski, Z. Mazej, A. Grzelak, T. Jaroń, W. Grochala, submitted (2016)

[4] M. Halo, *et al.*, *Phys. Rev. B*, **83**, 3680-3683 (2011)

[5] M. S. Silverman, *Inorg. Chem.* **5**, 2067-2069 (1966)