MS14-P28 | NEW CUBIC BORATE $YB_3[BO_3](OH)_6 \cdot 2.1H_2O$ WITH "ANTIZEOLITE" FRAMEWORK AND ISOLATED BO_3-TIANGLES IN CAVITIES

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Single crystals of new borate, $Yb_3[BO_3](OH)_6 \cdot 2.1H_2O$, have been synthesized under hydrothermal conditions in multicomponent system at the temperature 280°C and pressure of 90-100 atm. Symmetry of new structure corresponds to quite rare cubic space group *I*432. Anionic radical is presented by isolated BO_3-tiangles of 32 symmetry and the borate belongs to monoborates. Yb-atom have high coordination number equal to 8 and forms polyhedra with typical for rare earth elements pentagonal caps. They are condensing into cationic framework via common apexes and edges forming channels parallel to coordinate axes *a, b, c* and 3-fold axis. Water molecules and hydroxyl groups fill large channels along crystallographic axes. New borate have structural similarity with tetragonal $ABa_{12}(BO_3)_7F_4$, A = (Li, Na), *I*4/*mcm* [1] and iso-structural $Li_xNa_{1-x}Ba_{12}(BO_3)_7F_4$, $P4_2bc$ [2]. All structures have cationic "antizeolite" framework [2] filled by anionic cluster incuding BO_3-triangles and principally differ from traditional zeolite, in which anions form anionic framework filled by cations.

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[1] Zhao J., Li R.K. (2014) Inorg. Chem., 53, 2501-2505.
[2] Bekker T.B., Rashchenko S.V., Solntsev V.P. et al. (2017). Inorg. Chem., 56, 5411-5419.