MS14-P30 | INSIGHT INTO THE CRYSTALLIZATION AND STRUCTURAL FEATURES OF CAESIUM-BEARING CHAIN-TYPE BOROPHOSPHATES

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Three borophosphates, $CsBP_2O_6(OH)_2$ (I), $CsMn[BP_2O_8(OH)]$ (II) and $Cs_{0.54}Mn_{1.17}BP_2O_8$ $(H_2O)_{2.32}$ (III), were grown under hydrothermal conditions. Their crystal structures were solved using single crystal X-ray diffraction: (I)-monoclinic, *I*2/*a*, *a*=14.5329(3) Å, *b*=7.4869(2) Å, c=13.4002(3) Å, β=90.059(2)°, *V*=1458.03(6) Å^3, *Z*=8; (II)-monoclinic, $P2_1/c$, *a*=9.1446(2) Å, *b*=8.6946(1) Å, *c*=9.6361(2) Å, β=100.139(2)°, *V*=754.19(2) Å^3, *Z*=4; (III)-hexagonal, $P6_122$, *a*=9.6292(3) Å, *c*=15.8051(3) Å, β=100.139(2)°, *V*=754.19(2) Å^3, *Z*=6. The crystal architecture of (I) presents a unique structural type, whereas (II) and (III) are novel cesium-manganese representatives of known families.The structural features of (I)-(III) are infinite anionic chains with tB:tP ratio of 1:2 as main structural building blocks. The chains of (II) consist of alternating corner sharing tetrahedral $BO_3(OH)$ borate and PO_4 phosphate groups with an additional branched phosphate tetrahedron. In the case of (I) and (III) the borate and phosphate tetrahedra share oxygen vertices to form four-ring chains with identical topology. These chains are extended along [010] direction in the crystal structure of (I) and are twisted along 6_1 axes in the structure of (III). The influence of different crystallization conditions on the structure formation of obtained caesium borophosphates will be discussed. The work was supported by the RFBR (№18-03-00908).