

Komplexe Chalkogenide der IVa Metalle mit niedrigdimensionalen anionischen Partialstrukturen.

Darstellung und Kristallstruktur von K_2ZrTe_3 und Rb_2ZrTe_3

Complex Chalcogenides of the IVa Metals with Low Dimensional Anionic Partial Structures.

Preparation and Crystal Structures of K_2ZrTe_3 and Rb_2ZrTe_3

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The isostructural compounds K_2ZrTe_3 and Rb_2ZrTe_3 were obtained at 1000°C by reacting K_2Te and Rb_2Te with stoichiometric amounts of Zr and Te. The compounds are monoclinic, mP24, space group $P2_1/c$, $Z = 4$ with $a = 9.089(3)$, $b = 14.148(4)$, $c = 6.986(3)$ Å, $\beta = 105.90(1)^\circ$ and $a = 9.735(4)$, $b = 14.300(7)$, $c = 6.952(8)$ Å, $\beta = 108.61(2)^\circ$, respectively. The crystal structure was determined from diffractometer data and refined to $R = 0.030$ for 1452 Fo's for K_2ZrTe_3 and $R = 0.038$ for 1131 Fo's for Rb_2ZrTe_3 . The crystal structure is of a new type, characterized by infinite anionic chains, $^{1}_{\infty} [ZrTe_3]^{2-}$ built up by octahedra sharing opposite faces which run along [001]. The mean Zr-Te bond lengths are 2.921 and 2.920 Å, respectively. The alkali cations separating the chains are characterized by two different - distorted octahedral and pentagonal bipyramidal - chalcogen environments.

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