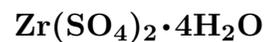


## Zircosulfate



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**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Rounded to rhomboidal forms, to 0.03 mm, powdery to compact massive aggregates.

**Physical Properties:** Hardness = 2.5–3 D(meas.) = 2.85 D(calc.) = 2.833 Soluble in cold  $\text{H}_2\text{O}$ .

**Optical Properties:** Semitransparent. *Color:* Colorless to white. *Luster:* Dull.  
*Optical Class:* Biaxial (+).  $\alpha = 1.620$   $\beta = [1.644]$   $\gamma = 1.674$   $2V(\text{meas.}) = \text{n.d.}$   
 $2V(\text{calc.}) = 75^\circ$

**Cell Data:** *Space Group:*  $Fddd$  (synthetic).  $a = 25.92$   $b = 11.62$   $c = 5.532$   $Z = 8$

**X-ray Powder Pattern:** Korgeredaba massif, Russia.  
4.33 (10), 2.98 (9), 2.33 (6), 6.50 (5), 3.46 (4), 1.97 (4), 1.62 (4)

| Chemistry:             | (1)   | (2)    |
|------------------------|-------|--------|
| $\text{SO}_3$          | 43.80 | 45.05  |
| $\text{ZrO}_2$         | 35.30 | 34.67  |
| $\text{H}_2\text{O}^+$ | 19.00 |        |
| $\text{H}_2\text{O}^-$ | 1.75  |        |
| $\text{H}_2\text{O}$   |       | 20.28  |
| Total                  | 99.85 | 100.00 |

(1) Korgeredaba massif, Russia; corresponds to  $\text{Zr}_{0.97}(\text{SO}_4)_{2.00} \cdot 3.86\text{H}_2\text{O}$ . (2)  $\text{Zr}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}$ .

**Occurrence:** In a cavity in intensely hydrothermally altered nepheline syenite pegmatite, perhaps formed by acid sulfatic solutions attacking eudialyte.

**Association:** Hisingerite, smithsonite, "limonite".

**Distribution:** From the Korgeredaba alkalic massif, Sangilen Upland, southeastern Tuva, Russia.

**Name:** For *zirconium* and *sulfate* in its composition.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72031.

**References:** (1) Kapustin, Y.L. (1965) Zircosulfate – a new mineral. *Zap. Vses. Mineral. Obshch.*, 94, 530–533 (in Russian). (2) (1966) *Amer. Mineral.*, 51, 259 (abs. ref. 1). (3) (1957) *NBS Circ.* 539, 7, 66.