Zircosulfate $Zr(SO_4)_2 \cdot 4H_2O$

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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 H_2O.

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

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)
SO_3	43.80	45.05
ZrO_2	35.30	34.67
H_2O^+	19.00	
H_2O^-	1.75	
H_2O		20.28
Total	99.85	100.00

(1) Korgeredaba massif, Russia; corresponds to $Zr_{0.97}(SO_4)_{2.00} \cdot 3.86H_2O$. (2) $Zr(SO_4)_2 \cdot 4H_2O$.

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.

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