

**Tschernichite****CaAl<sub>2</sub>Si<sub>6</sub>O<sub>16</sub>•8H<sub>2</sub>O**

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**Crystal Data:** Tetragonal. *Point Group:*  $4/m\ 2/m\ 2/m$ . Steep dipyramidal {302}, terminated by {001}, striated || {001}, to 1 cm. Also as hemispherical to drusy aggregates. *Twinning:* Common, on {302}, {304}, and {101}, contact and multiple.

**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 4.5  
D(meas.) = 2.02 D(calc.) = 2.12 May show pale yellow fluorescence under SW and LW UV.

**Optical Properties:** Transparent to translucent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous.

*Optical Class:* Uniaxial (-), in part biaxial (-).  $\omega = 1.484(1)$   $\epsilon = 1.483(1)$   
 $2V(\text{meas.}) = 0^\circ\text{--}35^\circ$

**Cell Data:** *Space Group:*  $P4/mm$  (most probable).  $a = 12.880(2)$   $c = 25.020(5)$   $Z = 8$

**X-ray Powder Pattern:** Goble, Oregon, USA.

4.03 (100), 11.6 (32), 3.156 (16), 2.114 (16), 3.062 (15), 4.22 (14), 12.5 (10)

**Chemistry:**

	(1)	(2)
SiO <sub>2</sub>	54.09	65.77
Al <sub>2</sub> O <sub>3</sub>	15.43	14.44
FeO	0.26	n.d.
MgO	0.51	n.d.
CaO	8.27	6.58
Na <sub>2</sub> O	0.22	0.00
K <sub>2</sub> O	n.d.	0.06
H <sub>2</sub> O <sup>+</sup>	22.7	[13.15]
Total	101.48	[100.00]

(1) Goble, Oregon, USA; by electron microprobe, H<sub>2</sub>O by loss of weight on heating; corresponds to (Ca<sub>0.97</sub>Mg<sub>0.08</sub>Na<sub>0.05</sub>Fe<sub>0.02</sub>)<sub>Σ=1.12</sub>Al<sub>2.00</sub>Si<sub>5.95</sub>O<sub>16</sub>•7.96H<sub>2</sub>O. (2) Do.; by electron microprobe, H<sub>2</sub>O by difference; corresponds to (Ca<sub>0.73</sub>Na<sub>0.11</sub>K<sub>0.02</sub>Fe<sub>0.02</sub>)<sub>Σ=0.88</sub>Al<sub>1.69</sub>Si<sub>6.33</sub>O<sub>16</sub>•3.98H<sub>2</sub>O.

**Mineral Group:** Zeolite group.

**Occurrence:** In vesicles in an olivine basalt, formed by hydrothermal action.

**Association:** Zeolites, apophyllite, copper, quartz, aragonite, smectite.

**Distribution:** At Neer Road pit, Goble, Columbia Co., Oregon, USA.

**Name:** Honoring Rudy Warren Tschernich (1945–), amateur mineralogist specializing in zeolites, of Snohomish, Washington, USA.

**Type Material:** National Museum of Natural History, Washington, D.C., USA.

**References:** (1) Boggs, R.C., D.G. Howard, J.V. Smith, and G.L. Klein (1993) Tschernichite, a new zeolite from Goble, Columbia County, Oregon. *Amer. Mineral.*, 78, 822–826.