

**Epidote-(Sr)****CaSrAl<sub>2</sub>Fe<sup>3+</sup>(Si<sub>2</sub>O<sub>7</sub>)(SiO<sub>4</sub>)(OH)**

**Crystal Data:** Monoclinic. *Point Group:* 2/m. Crystals prismatic, to 1 cm; as radial aggregates of acicular to columnar crystals. *Twinning on* (100).

**Physical Properties:** *Cleavage:* Perfect on {001}. *Fracture:* n.d. *Tenacity:* n.d.  
Hardness = 6.5 D(meas.) = n.d. D(calc.) = 3.74

**Optical Properties:** Translucent. *Color:* Brown to pale reddish brown. *Streak:* n.d. *Luster:* n.d.  
*Optical Class:* Biaxial (-).  $\alpha = 1.737(2)$   $\beta = 1.780(2)$   $\gamma = 1.792(2)$   $2V(\text{calc}) = 62^\circ$   
*Pleochroism:* X = pale greenish yellow; Y = Z = pale reddish brown to brownish pink.

**Cell Data:** *Space Group:* P2<sub>1</sub>/m.  $a = 8.928(5)$   $b = 5.652(1)$   $c = 10.244(5)$   $\beta = 114.46(4)^\circ$   
Z = 2

**X-ray Powder Pattern:** Nagakawara deposit, Ananai mine, Kochi Prefecture, Japan.  
2.92 (100), 2.58 (49), 3.50 (42), 2.61 (42), 2.72 (41), 2.83 (32), 3.26 (23)

<b>Chemistry:</b>	(1)
CaO	11.72
SrO	17.63
Mn <sub>2</sub> O <sub>3</sub>	2.96
Fe <sub>2</sub> O <sub>3</sub>	13.17
Al <sub>2</sub> O <sub>3</sub>	18.53
SiO <sub>2</sub>	34.32
<u>H<sub>2</sub>O</u>	<u>1.71</u>
Total	100.04

(1) Nagakawara deposit, Ananai mine, Kochi Prefecture, Japan; average of 41 electron microprobe analyses, H<sub>2</sub>O calculated, corresponding to (Ca<sub>1.10</sub>Sr<sub>0.90</sub>) $\Sigma=2.00$ (Al<sub>1.92</sub>Fe<sup>3+</sup><sub>0.87</sub>Mn<sup>3+</sup><sub>0.20</sub>) $\Sigma=2.99$ Si<sub>3.01</sub>O<sub>12</sub>(OH).

**Mineral Group:** Epidote group, clinozoizite subgroup.

**Occurrence:** A late-stage hydrothermal vein mineral in a tinzenite deposit in metachert (Nagakawara deposit) and in piemontite breccias (Hohnomori deposit).

**Association:** Calcite, tinzenite, piemontite-(Sr).

**Distribution:** Nagakawara and Hohnomori deposits, Ananai mine, Kochi Prefecture, Japan.

**Name:** For its chemical composition as a member of the epidote group.

**Type Material:** Hokkaido University museum, Sapporo, Japan (Mineral-07400).

**References:** (1) Minakawa, T., H. Fukushima, D. Nishio-Hamane, and H. Miura (2008) Epidote-(Sr), CaSrAl<sub>2</sub>Fe<sup>3+</sup>(Si<sub>2</sub>O<sub>7</sub>)(SiO<sub>4</sub>)(OH), a new mineral from the Ananai mine, Kochi Prefecture, Japan. *J. Mineral. Petrol. Sci.*, 103, 400–406. (2) (2009) *Amer. Mineral.*, 94, 1078 (abs. ref. 1).