

**Crystal Data:** Hexagonal. *Point Group:* 6/m. As stout prismatic hexagonal crystals, typically modified by several bipyramids, to 5 mm; massive.

**Physical Properties:** *Cleavage:* Indistinct on {1010}. *Tenacity:* Brittle. *Hardness* = 4-5  
D(meas.) = 3.5-3.8 D(calc.) = 3.67 Fluoresces reddish orange under LW UV and yellow under SW UV.

**Optical Properties:** Transparent to translucent. *Color:* Colorless, yellowish white, gray, grayish green; colorless to pale lilac in transmitted light. *Luster:* Vitreous to subresinous.  
*Optical Class:* Uniaxial (-).  $\omega = 1.706$   $\epsilon = 1.698$

**Cell Data:** Space Group: *P6<sub>3</sub>/m*.  $a = 9.7268(5)$   $c = 6.9820(4)$   $Z = 2$

**X-ray Powder Pattern:** Långban, Sweden.

2.87 (10), 2.79 (9), 1.860 (6), 3.44 (5), 3.94 (4), 2.65 (4), 1.981 (4)

Chemistry:	(1)	(2)	(1)	(2)
SO <sub>3</sub>	0.49		CaO	39.31
P <sub>2</sub> O <sub>5</sub>	0.21		Na <sub>2</sub> O	0.13
V <sub>2</sub> O <sub>5</sub>	0.04		F	2.12
As <sub>2</sub> O <sub>5</sub>	51.21	54.28	Cl	0.08
SiO <sub>2</sub>	0.19		H <sub>2</sub> O	[0.33]
MnO	0.48		$-\text{O} = (\text{F}, \text{Cl})_2$	0.91
SrO	0.03		Total	98.90
PbO	5.19			100.00

(1) Jakobsberg, Sweden; average of 10 electron microprobe analyses supplemented by FTIR spectroscopy, H<sub>2</sub>O calculated; corresponding to (Ca<sub>4.66</sub>Pb<sub>0.16</sub>Mn<sub>0.04</sub>Na<sub>0.03</sub>) $\Sigma=4.89$ (As<sub>2.96</sub>S<sub>0.04</sub>Si<sub>0.02</sub>P<sub>0.02</sub>) $\Sigma=3.04$ O<sub>12</sub>[F<sub>0.74</sub>(OH)<sub>0.24</sub>Cl<sub>0.01</sub>]. (2) Ca<sub>5</sub>(AsO<sub>4</sub>)<sub>3</sub>(F,OH) with F:OH = 1:1.

**Mineral Group:** Apatite supergroup.

**Occurrence:** A rare accessory mineral in calcsilicate contact metamorphic rocks (skarns).

**Association:** Manganoan diopside, brandtite, sarkinite, garnet (Harstigen mine, Sweden); hausmannite (Jakobsberg, Sweden); manganoan diopside, tilasite, manganberzeliite, bergslagite, hematite, calcite, barite (Långban, Sweden).

**Distribution:** In Sweden, found in the Harstigen mine, near Persberg, at Jakobsberg, and at Långban, Värmland; from Kesebol, Dalsland; in the Ultevis district, Jokkmokk, Swedish Lappland. From the Clara Mine, near Oberwolfach, Black Forest, Germany.

**Name:** Honors Anton Svab (1703-1768), Swedish mining official.

**Type Material:** Harvard University, Cambridge, Massachusetts, USA (113494).

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 899-900. (2) Welin, E. (1968) X-ray powder data for minerals from Långban and the related mineral deposits of Central Sweden. *Arkiv Mineral. Geol.*, 4(30), 499-541, esp. 536. (3) Biagioni, C., F. Bosi, U. Hålenius, and M. Pasero (2016) The crystal structure of svabite, Ca<sub>5</sub>(AsO<sub>4</sub>)<sub>3</sub>F, an arsenate member of the apatite supergroup. *Amer. Mineral.*, 101, 1750-1755.