

**Crystal Data:** Orthorhombic. *Point Group:* 2/m 2/m 2/m. As earthy crusts of flattened prismatic crystals dominated by {011} and {101}, to 20 μm.

**Physical Properties:** *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* n.d. D(meas.) = n.d. D(calc.) = 2.31

**Optical Properties:** Translucent. *Color:* White. *Streak:* White. *Luster:* Earthy (aggregates). *Optical Class:* n.d. n = 1.38 [calculated]  
R<sub>1</sub>-R<sub>2</sub>: (470) 15.3-16.8, (546) 14.1-15.9, (589) 13.8-15.3, (650) 13.4-14.8

**Cell Data:** *Space Group:* Imma. a = 7.055(1) b = 10.117(2) c = 6.813(1) Z = 4

**X-ray Powder Pattern:** Eldfell volcano, Heimaey island, Iceland. 5.66 (100), 3.00 (38), 3.03 (31), 4.92 (29), 3.53 (27), 1.76 (24), 1.77 (19)

Chemistry:	(1)	(2)
Mg	14.66	13.33
Al	16.16	14.80
F	52.98	52.11
O	[15.88]	17.55
H	[1.78]	2.22
Total	101.46	100.00

(1) Eldfell volcano, Iceland; average of 6 electron microprobe analyses, O calculated from the OH required for charge neutrality plus remaining O as H<sub>2</sub>O; corresponding to Mg<sub>1.00</sub>Al<sub>1.00</sub>[F<sub>4.64</sub>(OH)<sub>0.36</sub>]<sub>Σ=5.00</sub>(H<sub>2</sub>O)<sub>1.29</sub>. (2) MgAlF<sub>5</sub>(H<sub>2</sub>O)<sub>2</sub>.

**Occurrence:** A sublimated encrustations from fluorine-rich fumarolic gas.

**Association:** Jakobssonite, anhydrite, ralstonite, jarosite, anhydrous AlF<sub>3</sub>, opal-A, oskarssonite (Heimaey); ralstonite, opal-A, jakobssonite, malladrite, fluorite (Heckla).

**Distribution:** From the northeast rim of the main crater, Eldfell volcano, Heimaey island, and from Heckla volcano, Iceland.

**Name:** Honors Erik Leonardsen (b. 1934), the former leader of the X-ray Diffraction Laboratory of the Geological Institute, University of Copenhagen, Denmark, for his work on the characterization of the fumarolic minerals from Icelandic volcanoes by X-ray diffraction.

**Type Material:** Mineral collection, Icelandic Institute of Natural History, Gardabaer, Iceland (NI 12256) and in the "C.L. Garavelli" Museum, Dipartimento di Scienze della Terra e Geoambientali, Università di Bari, Italy (14/nm-V28).

**References:** (1) Mitolo, D., A. Garavelli, T. Balić-Žunić, P. Acquafredda, and S.P. Jakobsson (2013) Leonardsenite, MgAlF<sub>5</sub>(H<sub>2</sub>O)<sub>2</sub>, a new mineral species from Eldfell volcano, Heimaey island, Iceland. *Can. Mineral.*, 51(3), 377-386. (2) (2015) *Amer. Mineral.*, 100, 661 (abs. ref. 1).