

Weloganite

Na₂Sr₃Zr(CO₃)₆•3H₂O

©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Triclinic, pseudorhombohedral. *Point Group:* 1. Crystals, roughly hexagonal, tapering, the prism faces deeply grooved and striated, with rough pyramidal terminations and a flat pedion, to 10 cm; may be massive. *Twinning:* About [103] repeated at 120°.

Physical Properties: *Cleavage:* Perfect on pseudo-{0001}. *Fracture:* Conchoidal. Hardness = 3.5 D(meas.) = 3.20–3.22 D(calc.) = 3.208 Pyroelectric.

Optical Properties: Transparent to translucent. *Color:* Lemon-yellow, pale yellow, amber, commonly zoned in basal sections; colorless in thin fragments. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (–). $\alpha = 1.558(3)$ $\beta = 1.646(3)$ $\gamma = 1.648(3)$ $2V(\text{meas.}) = \sim 15^\circ$

Cell Data: *Space Group:* P1. $a = 8.966(1)$ $b = 8.980(2)$ $c = 6.730(1)$ $\alpha = 102.72(2)^\circ$ $\beta = 116.65(1)^\circ$ $\gamma = 60.06(1)^\circ$ $Z = 1$

X-ray Powder Pattern: Francon quarry, Canada.

2.809 (10), 4.35 (9), 2.590 (7), 2.227 (7), 2.009 (7), 6.03 (6), 1.961 (6)

Chemistry:

	(1)	(2)
CO ₂	30.72	32.44
SiO ₂	0.25	
ZrO ₂	15.26	15.13
Fe ₂ O ₃	0.03	
MgO	< 0.02	
CaO	1.14	
SrO	36.18	38.18
Na ₂ O	7.75	7.61
K ₂ O	0.02	
H ₂ O ⁺	7.85	
H ₂ O [–]	0.11	
H ₂ O		6.64
Total	[99.29]	100.00

(1) Francon quarry, Canada; by XRF and AA, CO₂ by the Leco method, H₂O by the Penfield method, original total given as 99.20%; corresponds to Na_{2.15}(Sr_{3.00}Ca_{0.18})_{Σ=3.18}Zr_{1.06}(CO₃)₆•3.75H₂O. (2) Na₂Sr₃Zr(CO₃)₆•3H₂O.

Occurrence: In an alkalic sill (Francon quarry, Canada); associated with an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Calcite, quartz, dawsonite (Francon quarry, Canada).

Distribution: In Canada, from the Francon quarry, Montreal Island, Montreal; in a limestone quarry 15 km east; and at Mont Saint-Hilaire, Quebec.

Name: To honor William Edmond Logan (1798–1875), first Director of the Canadian Geological Survey.

Type Material: Canadian Geological Survey, Ottawa, Canada, 17257, 61337.

References: (1) Sabina, A.P., J.L. Jambor, and A.G. Plant (1968) Weloganite, a new strontium zirconium carbonate from Montreal Island, Canada. *Can. Mineral.*, 9, 468–477. (2) (1969) *Amer. Mineral.*, 54, 576 (abs. ref. 1). (3) (1969) *Can. Mineral.*, 9, 654 (correction). (4) Chen, T.T. and G.Y. Chao (1975) X-ray crystallography of weloganite. *Can. Mineral.*, 13, 22–26. (5) Grice, J.D. and G. Perrault (1975) The crystal structure of triclinic weloganite. *Can. Mineral.*, 13, 209–216.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.