Rondorfite $Ca_8Mg(SiO_4)_4Cl_2$

Crystal Data: Cubic or Triclinic. *Point Group*: 2/*m* $\bar{3}$ or $\bar{1}$. As anhedral grains to 0.3 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Conchoidal. *Tenacity*: Brittle.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.03

Optical Properties: Transparent to translucent. *Color*: Orange-brown to amber.
Streak: Light amber. *Luster:* Vitreous.
Optical Class: Isotropic. $n = 1.676$

Cell Data: *Space Group*: $F2/d\bar{3}$. $a = 15.0850(3)$ Z = 8 or *Space Group*: $P\bar{1}$. $a = 15.100(2)$
$b = 15.110(2)$ $c = 15.092(2)$ $\alpha = 90.06(1)°$ $\beta = 90.01(1)°$ $\gamma = 89.93(1)°$ Z = 8

X-ray Powder Pattern: Bellerberg volcano lava field, eastern Eifel area, Germany.
2.666 (100), 1.540 (50), 2.901 (40), 1.964 (30), 1.885 (30), 1.777 (30), 1.459 (30)

Chemistry:

	(1)		(1)
Na_2O	0.07	SiO_2	30.51
MgO	4.52	TiO_2	0.13
CaO	57.05	Cl	6.71
FeO	0.54	- O = Cl	1.52
Al_2O_3	0.40	Total	98.41

(1) Bellerberg volcano, eastern Eifel area, Germany; average of 8 electron microprobe analyses; corresponds to $(Ca_{8.09}Na_{0.02})_{\Sigma=8.11}(Mg_{0.89}Al_{0.06}Fe_{0.06})_{\Sigma=1.01}(Si_{4.04}Ti_{0.01})_{\Sigma=4.05}O_{16.20}[Cl_{1.51}(OH)_{0.29}]_{\Sigma=1.80}$.
(2) Northern Caucasus, Kabardino-Balkaria, Russia; triclinic, $Ca_8Mg(Si_{3.5}Al_{0.5})O_{15.5}(OH)_{0.5}Cl_2$.

Occurrence: In metasomatized limestone xenoliths in leucite tephrite lava or ignimibrites. In burned spoil heaps from coal mines (Czech Republic).

Association: Ettringite-thaumasite, mayenite, ternesite, cuspidine, larnite, "calcio-olivine", tobermorite, portlandite, hydrocalumite, a member of the ellestadite series, magnetite, hematite (Bellerberg volcano, Germany); fluorchegemite, larnite, edgrewite, wadalite, eltyubyuite, lakargiite, Th-rich kerimasite (Upper Chegem Caldera, Russia).

Distribution: A quarry at the Bellerberg volcano lava field, near Ettringen, 2 km north of Mayen, Laacher See region, eastern Eifel area, Germany. From the Upper Chegem Caldera, Northern Caucasus, Kabardino-Balkaria, Russia. From Zastávka, Rosice-Oslavany Coalfield, Czech Republic.

Name: Honors Alice and Eugen *Rondorf*, two mineral collectors, who found the mineral with Bernd Ternes in 1979.

Type Material: The Natural History Museum, Vienna, Austria.

References: (1) Mihajlović, T., C.L. Lengauer, T. Ntaflos, U. Kolitsch, and E. Tillmanns (2004) Two new minerals, rondorfite, $Ca_8Mg[SiO_4]_4Cl_2$, and almarudite, $K(\square,Na)_2(Mn,Fe,Mg)_2(Be,Al)_3[Si_{12}O_{30}]$, and a study of iron-rich wadalite, $Ca_{12}[(Al_8Si_4Fe_2)O_{32}]Cl_6$, from the Bellerberg (Bellberg) volcano, Eifel, Germany. Neues Jahrb. Mineral. Abh., 179, 265-294. (2) (2004) Amer. Mineral., 89(10), 1576-1577 (abs. ref. 1). (3) Galuskina, I.O., B. Krüger, E.V. Galuskin, T. Armbruster, V.M. Gazeev, R. Włodyka, M. Dulski, and P. Dzierżanowski (2015) Fluorchegemite, $Ca_7(SiO_4)_3F_2$, a new mineral from the Edgrewite-bearing endoskarn zone of an altered xenolith in ignimbrites from Upper Chegem Caldera, Northen Caucasus, Kabardino-Balkaria, Russia: occurrence, crystal structure, and new data on the mineral assemblages. Can. Mineral., 53, 325-344. (4) Rastsvetaeva, R.K., A.E. Zadov, and N.V. Chukanov (2008) Crystal structure of low-symmetry rondorfite. Crystallography Reports, 53,199-205 [triclinic]. (5) Hršelová, P., J. Cempírek, S. Houzar, and J. Sejkora (2013) S,F,Cl-rich Mineral Assemblages from Burned Spoil Heaps in the Rosice-Oslavany Coalfield, Czech Republic. Can. Mineral., 51, 171-188.