

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As crystals, to 20 μm . *Twinning:* On (010), polysynthetic.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness* = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 3.906$

Optical Properties: n.d. *Color:* n.d. *Streak:* n.d. *Luster:* n.d. *Optical Class:* n.d. (for terrestrial Fe-rich rhönite) $\alpha = 1.805(7)$ $\beta = 1.815(7)$ $\gamma = 1.845(7)$ $2V(\text{meas.}) = 50(3)^\circ$ *Orientation:* $Z \wedge c = 38\text{--}58^\circ$.

Cell Data: *Space Group:* $P\bar{1}$ (by analogy to rhönite.) $a = 10.513(7)$ $b = 10.887(7)$ $c = 9.004(18)$ $\alpha = 105.97(13)^\circ$ $\beta = 96.00(12)^\circ$ $\gamma = 124.82(04)^\circ$ $Z = 1$

X-ray Powder Pattern: n.d.

Chemistry:	(1)		(1)
SiO ₂	25.55	SrO	0.05
TiO ₂	8.70	ZnO	0.04
Al ₂ O ₃	9.80	MgO	0.01
Cr ₂ O ₃	0.01	CaO	11.86
Y ₂ O ₃	0.03	Na ₂ O	0.04
La ₂ O ₃	0.04	K ₂ O	0.00
Pr ₂ O ₃	0.09	P ₂ O ₅	0.00
Nd ₂ O ₃	0.07	F	0.01
FeO	41.60	Cl	0.02
MnO	0.11	SO ₃	0.08
NiO	0.07	Total	98.38

(1) D'Orbigny angrite meteorite; average of 8 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $(\text{Ca}_{3.88}\text{Na}_{0.02}\text{REE}^{3+}_{0.03}\text{Mn}_{0.03}\text{Mg}_{0.01}\text{Ni}_{0.02}\text{Zn}_{0.01}\text{Sr}_{0.01})_{\Sigma=4.01}(\text{Fe}^{2+}_{9.98}\text{Ti}_{2.00})_{\Sigma=11.98}(\text{Si}_{7.80}\text{Al}_{3.52}\text{Fe}^{3+}_{0.64}\text{P}_{0.05}\text{S}_{0.02})_{\Sigma=12.03}\text{O}_{39.98}\text{F}_{0.01}\text{Cl}_{0.01}$.

Mineral Group: Sapphirine supergroup, rhönite group.

Occurrence: In multiple-phase pockets, located mainly at olivine-augite triple junctions in an angrite meteorite, probably crystallized from an interstitial melt. Terrestrial occurrences include as a component in tephrite glass, basalt and phonolite.

Association: Whitlockite, an Fe sulfide, ulvöspinel, Ca-rich fayalite, Al-Ti-bearing hedenbergite (meteorite).

Distribution: From the D'Orbigny angrite meteorite. At Puy de Saint-Sandoux, Auvergne, France. From Foster Crater, McMurdo Volcanic Group, Antarctica and Saint-Leu, Réunion Island. From the Kaiserstuhl volcanic complex, Upper Rhine Graben, SW Germany.

Name: Honors Professor Gero Kurat (1938-2009), former Head of the Mineralogical-Petrographical Department and Curator of the Meteorite Collection, Natural History Museum, Vienna, Austria.

Type Material: Natural History Museum, Vienna, Austria (Section D'Orbigny C-N1172-NH Wien).

References: (1) Hwang, S.-L., P. Shen, H.-T. Chu, T.-F. Yui, M.-E. Varela, and Y. Iizuka (2016) Kuratite, $\text{Ca}_4(\text{Fe}^{2+}_{10}\text{Ti}_2)\text{O}_4[\text{Si}_8\text{Al}_4\text{O}_{36}]$, the Fe²⁺-analogue of rhönite, a new mineral from the D'Orbigny angrite meteorite. *Mineral. Mag.*, 80(6), 1067-1076. (2) (2017) *Amer. Mineral.*, 102, 696 (abs. ref. 1).