

Crystal Data: Monoclinic. *Point Group:* 2/m. As aggregates of randomly oriented submicrometer particles.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* = n.d. *D(meas.)* = n.d. *D(calc.)* = 4.72

Optical Properties: n.d. *Color:* Bright white in reflected polarized light, distinguishable from rutile only through its slightly higher brightness and the intense royal blue color of its internal reflections in crossed nicols. *Streak:* n.d. *Luster:* n.d.
Optical Class: n.d.

Cell Data: *Space Group:* P2₁/c. *a* = 4.606(2) *b* = 4.896(3) *c* = 4.933(3) β = 99.17(6)°

X-ray Powder Pattern: Ries meteorite impact crater, Germany.
2.929 (100), 2.626 (91), 2.437 (42), 1.686 (42), 2.017 (40), 1.742 (40), 1.54 (31B)

Chemistry:	(1)
TiO ₂	97.6-97.7
Nb ₂ O ₅	0.15-0.20
FeO	0.11-0.14

(1) Ries meteorite impact crater, Germany; electron microprobe analysis; corresponds to Ti_{0.998}Fe_{0.002}Nb_{0.001}O₂.

Polymorphism & Series: Ultra-dense polymorph of rutile and TiO₂-II.

Occurrence: Within multiphase TiO₂ clusters enclosed in biotite in heavily shocked garnet-cordierite-sillimanite gneiss in the breccia of a meteorite impact crater.

Association: Rutile, TiO₂-II, ilmenite, titanite, graphite.

Distribution: From the Ries meteorite impact crater, Germany.

Name: Honors Masaki *Akaogi*, Professor at the Department of Chemistry, Gakushuin University, Tokyo, Japan, for his contributions to experimental petrology, calorimetry, and mineralogy, including experimental characterization of high-pressure polymorphs of TiO₂ relevant to planetary deep interiors.

Type Material: Collection of the Bayerisches Geoinstitut, Universität Bayreuth, Germany (El Goresy section No. BGI 3).

References: (1) El Goresy, A., L. Dubrovinsky, P. Gillet, G. Graup, and M. Chen (2010) Akaogiite: An ultra-dense polymorph of TiO₂ with the baddeleyite-type structure, in shocked garnet gneiss from the Ries Crater, Germany. *Amer. Mineral.*, 95, 892-895. (2) El Goresy, A., M. Chen, L.S. Dubrovinsky, P. Gillet, and G. Graup (2001) An ultra-dense polymorph of rutile with seven coordinated titanium from the Ries crater. *Science*, 293, 1467-1470.