Mereiterite $K_2Fe^{2+}(SO_4)_2 \cdot 4H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are subhedral, strongly etched, to 1 cm.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Very brittle. Hardness = 2.5–3 D(meas.) = 2.36(1) D(calc.) = 2.358 Soluble in H_2O.

Optical Properties: Transparent. *Color:* Pale yellow. *Luster:* Vitreous to greasy. *Optical Class:* Biaxial (+). *Orientation:* $X = b$; $Z \wedge c \simeq 20°$. *Dispersion:* $r > v$, very weak. $\alpha = 1.497(1)$ $\beta = 1.501(1)$ $\gamma = 1.509(1)$ 2V(meas.) = 71° 2V(calc.) = 73°

Cell Data: *Space Group:* $C2/m$. $a = 11.844(1)$ $b = 9.556(1)$ $c = 9.947(1)$ $\beta = 94.90(1)°$ Z = 4

X-ray Powder Pattern: Laurium, Greece.
3.440 (100), 3.505 (52), 3.490 (49), 3.331 (48), 4.778 (30), 2.405 (30), 3.051 (29)

Chemistry:

	(1)	(2)
SO_3	40.22	40.21
FeO	17.88	18.04
K_2O	22.7	23.65
H_2O	18.0	18.10
Total	98.8	100.00

(1) Laurium, Greece; by electron microprobe, average of three crystals, total Fe as Fe^{2+}, H_2O by TGA; corresponds to $K_{1.93}Fe_{1.00}(SO_4)_{2.00} \cdot 4H_2O$. (2) $K_2Fe(SO_4)_2 \cdot 4H_2O$.

Occurrence: A rare secondary mineral imbedded in gypsum, formed by decomposition of sulfides in a hydrothermal Pb–Zn–Cu ore deposit.

Association: Gypsum, smithsonite, goethite.

Distribution: From Laurium, Greece.

Name: Honoring Dr. Kurt Helmut Mereiter (1945–), Professor of Mineralogy, Technical University of Vienna, Vienna, Austria, in recognition of his work on iron sulfates.

Type Material: University of Vienna, Vienna, Austria, 6C/18-035#1; National Museum of Natural History, Washington, D.C., USA, 170971.

References: (1) Giester, G. and B. Rieck (1995) Mereiterite, $K_2Fe[SO_4]_2 \cdot 4H_2O$, a new leonite-type mineral from the Lavrion mining district, Greece. Eur. J. Mineral., 7, 559–566. (2) (1996) Amer. Mineral., 81, 251 (abs. ref. 1).