Eifelite $KNa_3Mg_4Si_{12}O_{30}$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Crystals platy to prismatic, to 1 mm, with dominant $\{10\bar{1}0\}$ and $\{0001\}$, and $\{11\bar{2}0\}$ and $\{10\bar{1}2\}$; in druses.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.67

Optical Properties: Transparent. *Color:* Colorless to faintly yellow or green. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (+). $\omega = 1.5430–1.5445$ $\epsilon = 1.5443–1.5458$

Cell Data: *Space Group:* $P6/mcc$. $a = 10.155$ $c = 14.223(6)$ $Z = 2$

X-ray Powder Pattern: Bellerberg volcano, Germany; essentially identical with roedderite. 3.26 (10), 3.75 (9), 4.43 (6), 7.07 (5), 5.11 (5), 4.14 (5), 2.91 (5)

Chemistry:

	(1)
SiO_2	71.06
TiO_2	0.06
Al_2O_3	0.79
Cr_2O_3	0.06
FeO	0.48
MnO	0.46
CuO	0.08
ZnO	0.34
MgO	16.25
Na_2O	6.48
K_2O	4.18
Total	100.24

(1) Bellerberg volcano, Germany; by electron microprobe, microchemical analysis showed Li_2O 0.1%; corresponding to $(Na_{2.12}K_{0.90})_{\Sigma=3.02}(Mg_{4.08}Al_{0.14}Fe_{0.07}Mn_{0.07}Zn_{0.04}Cr_{0.01}Ti_{0.01}Cu_{0.01})_{\Sigma=4.43}(Si_{11.98}Al_{0.02})_{\Sigma=12.00}O_{30}$.

Polymorphism & Series: Forms a series with roedderite.

Mineral Group: Milarite group.

Occurrence: In vesicles in contact metamorphosed basement gneiss xenoliths in leucite tephrite.

Association: Tridymite, hematite, pseudobrookite, pyroxene, amphibole, quartz, sanidine.

Distribution: From the Bellerberg volcano, two km north of Mayen, Eifel district, Germany.

Name: For the locality in the Eifel district, Rhineland-Palatinate, Germany.

Type Material: Institute for Mineralogy, Ruhr University, Bochum, Germany; National Museum of Natural History, Washington, D.C., USA, 162496.

References: (1) Abraham, K., W. Gebert, O. Medenbach, W. Schreyer, and G. Hentschel (1980) $KNa_2Mg_{4.5}[Si_{12}O_{30}]$, ein neues Mineral der Milaritgruppe aus der Eifel, mit Natrium in Oktaederposition. Fortschr. Mineral., 58, Beiheft 1, 3–4 (abs., in German). (2) (1981) Amer. Mineral., 66, 218 (abs. ref. 1). (3) Abraham, K., W. Gebert, O. Medenbach, W. Schreyer, and G. Hentschel (1983) Eifelite, $KNa_3Mg_4Si_{12}O_{30}$, a new mineral of the osumilite group with octahedral sodium. Contr. Mineral. Petrol., 82, 252–258.