Eitelite $Na_2Mg(CO_3)_2$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}$. As imperfect rhombohedral to pseudo-octahedral crystals, to 17 mm, composed of $\{10\overline{1}1\}$, $\{01\overline{1}2\}$ and $\{0001\}$.

Physical Properties: *Cleavage:* On $\{0001\}$, excellent; and another transverse to $\{0001\}$, conspicuous. Hardness = 3.5 D(meas.) = 2.737 D(calc.) = 2.732

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous. *Optical Class:* Uniaxial (–). $\omega = 1.605$ $\epsilon = 1.450$

Cell Data: *Space Group:* $R\overline{3}$. $a = 4.942(2)$ $c = 16.406(7)$ Z = 3

X-ray Powder Pattern: Synthetic.
2.602 (100), 2.731 (25), 2.469 (25), 2.251 (20), 1.8975 (20), 2.0710 (18), 3.794 (16)

Chemistry:

	(1)	(2)
CO_2	43.94	46.25
FeO	10.93	
MnO	2.07	
MgO	12.20	21.18
Na_2O	31.42	32.57
Total	100.56	100.00

(1) Khibiny massif, Russia; corresponds to $Na_{2.03}(Mg_{0.61}Fe_{0.30}Mn_{0.06})_{\Sigma=0.97}(CO_3)_{2.00}$.
(2) $Na_2Mg(CO_3)_2$.

Occurrence: An authigenic mineral in dolomitic shale and bituminous marlstone (Utah, USA); from an alkaline igneous pluton (Khibiny massif, Russia).

Association: Reedmergnerite, leucosphenite, searlesite, crocidolite, shortite (Kermit Poulson No. 1 well, Utah, USA); trona, nahcolite, shortite, northupite (Mapco Shrine Hospital #1 well, Utah, USA).

Distribution: In the USA, in Utah, from drill core in the Green River Formation, in Duchesne Co., at the Kermit Poulson No. 1 well and abundant in large crystals in the Mapco Shrine Hospital #1 well; in the South Ouray well, Uintah Co. From the Vuonnemiok River Valley, Khibiny massif, Kola Peninsula, Russia.

Name: Honors Wilhelm Hermann Julius Eitel (1891–1979), Director of the Institute of Silicate Research, University of Toledo, Toledo, Ohio, USA, who synthesized the compound.

Type Material: n.d.

References: (1) Milton, C., J.M. Axelrod, and F.S. Grimaldi (1955) New minerals, reedmergnerite ($Na_2O \cdot B_2O_3 \cdot 6SiO_2$) and eitelite ($Na_2O \cdot MgO \cdot 2CO_2$) associated with leucosphenite, shortite, searlesite, and crocidolite in the Green River Formation, Utah. Amer. Mineral., 40, 326–327 (abs.). (2) Pabst, A. (1973) The crystallography and structure of eitelite, $Na_2Mg(CO_3)_2$. Amer. Mineral., 58, 211–217. (3) Khomyakov, A.P., S.M. Sandomirskaya, and Y.A. Malinovskii (1980) Iron eitelite, $Na_2(Mg,Fe)(CO_3)_2$ – a new mineral variety. Doklady Acad. Nauk SSSR, 255, 190–192. (4) Knobloch, D., F. Pertlik, and J. Zemann (1980) Crystal structure refinements of buetschliite and eitelite: a contribution to the stereochemistry of trigonal carbonate minerals. Neues Jahrb. Mineral., Monatsh., 230–236. (5) (1974) NBS Mono. 25, 56.