Depmeierite $Na_8[Al_6Si_6O_{24}](PO_4,CO_3)_{1-x}\cdot 3H_2O$ ($x < 0.5$)

Crystal Data: Hexagonal. *Point Group*: 6. As equant grains, to 1 cm.

Physical Properties: *Cleavage:* Perfect on {100}, 120° angle is distinguishing. *Tenacity:* Brittle. *Fracture:* Stepped. Hardness = 5 D(meas.) = 2.32(1) D(calc.) = 2.313

Optical Properties: Transparent. *Color:* Colorless to light blue (large grains), colorless in transmitted light. *Streak:* White. *Luster:* Vitreous. *Pleochroism:* None.
Optical Class: Uniaxial (+). $\varepsilon = 1.493(2)$ $\omega = 1.497(2)$

Cell Data: Space Group: $P6_3$. $a = 12.744(3)$ $c = 5.187(1)$ $Z = 1$.

X-ray Powder Pattern: Mount Karnasurt, Lovozero alkaline massif, Kola Peninsula, Russia. 3.250 (100), 4.695 (91), 3.681 (37), 2.758 (33), 2.596 (31), 6.380 (30), 2.436 (21), 2.121 (24)

Chemistry:

	(1)
Na_2O	23.04
K_2O	0.54
Fe_2O_3	0.03
Al_2O_3	29.07
SiO_2	36.48
P_2O_5	3.30
SO_3	0.08
CO_2	0.97
H_2O	5.93
Total	99.44

(1) Mount Karnasurt, Lovozero alkaline massif, Kola Peninsula, Russia; average of 10 electron microprobe analyses, volatiles determined by gas selective sorption, OH/H_2O confirmed by I R spectroscopy and ratio calculated for charge balance; corresponds to $(Na_{7.58}K_{0.12})_{\Sigma=7.70}(Si_{6.19}Al_{5.81}O_{24})[(PO_4)_{0.47}(CO_3)_{0.22}(OH)_{0.02}(SO_4)_{0.01}]_{\Sigma=0.72}\cdot 3.35H_2O$.
(2) hypothetical end member formula $[Al_6Si_6O_{24}][Na_2(H_2O)_2][Na_6(PO_4)_{2/3}\cdot 3(H_2O)]$

Mineral Group: Cancrinite group.

Occurrence: In a peralkaline hydrothermal veinlet cross-cutting alternating foyaite, urtite, and lujavrite rocks in an alkaline igneous complex.

Association: Natrolite, steenstrupine-(Ce), epistolite after vuonnemite, sodalite, and minor aegirine, serandite, natisite, and vitusite-(Ce).

Distribution: From Mount Karnasurt, Lovozero alkaline massif, Kola Peninsula, Russia.

Name: Honors Wulf Helmut Heinz Depmeier (b. 1944), professor of mineralogy and crystallography, Christian Albrecht University, Kiel, Germany.

Type Material: A. E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia; 3882/1.

References: (1) Pekov, I.V., L.V. Olysych, N.V. Chukanov, K.V. Van, and D.Yu. Pushcharovsky (2010) Depmeierite $Na_8[Al_6Si_6O_{24}](PO_4,CO_3)_{1-x}\cdot 3H_2O$ ($x < 0.5$)—a new cancrinite group mineral from the Lovozero alkaline massif (Kola Peninsula, Russia). Zap. Ross. Mineral. Obshch., 139(4), 63–74 (in Russian, English abstract), Geol. Ore Deposits (2011) 53(7), 604 (in English).
(2) (2012) Amer. Mineral., 97, 1818-1819 (abs. ref. 1).