

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. As prismatic bipyramidal crystals to 0.5 mm.

Physical Properties: *Cleavage:* Imperfect on {10 $\bar{1}$ 1}. *Fracture:* n.d. *Tenacity:* n.d.
Hardness = 3-3.5 D(meas.) = 3.13 D(calc.) = 3.001 Dissolves slowly in H₂O at room temperature but oxidizes quickly on interaction with atmospheric water even at ambient humidity.

Optical Properties: Transparent. *Color:* Green. *Streak:* n.d. *Luster:* n.d.
Optical Class: Anomalously biaxial (+). $\alpha = 1.709(3)$ $\beta = 1.709(3)$ $\gamma = 1.718$
2V(meas.) = 10(5) $^\circ$ *Dispersion:* Noticeable, $r > v$. *Pleochroism:* None.

Cell Data: Space Group: $R\bar{3}$. $a = 6.9521(5)$ $c = 14.5740(11)$ $Z = 3$

X-ray Powder Pattern: Udachnaya kimberlite pipe, Yakutia, Russia.
2.323 (100), 5.566 (67), 1.738 (37), 2.096 (20), 2.829 (18), 2.948 (16), 4.465 (13)

Chemistry:	(1)
CaO	0.01
SiO ₂	0.02
Al ₂ O ₃	0.01
FeO	57.7
MnO	2.26
MgO	9.68
Na ₂ O	0.02
Cl	19.3
F	0.15
P ₂ O ₅	0.02
BaO	0.01
SO ₃	0.01
<u>H₂O</u>	<u>[11.6]</u>
Total	100.8

(1) Udachnaya kimberlite pipe, Yakutia, Russia; average of 40 electron microprobe analyses supplemented by Raman spectroscopy, H₂O calculated from structure, analysis as published without correction for Cl₂; corresponds to (Fe_{2.98}Mn_{0.02})(Mg_{0.91}Mn_{0.09})[(OH)_{5.95}F_{0.03}Cl_{0.02}]Cl₂.

Mineral Group: Atacamite group.

Occurrence: In cavities or veins in weakly serpentinized volcanoclastic and coherent kimberlites of the Udachnaya East kimberlite pipe, Yakutia, Russia.

Association: Iowaite, gypsum, calcite, halite, barite, celestine.

Distribution: From the Udachnaya East kimberlite pipe, Yakutia, Russia.

Name: Honors Sergey Semenovich Kuligin (1961-2014), Russian geologist, Sobolev Institute of Geology and Mineralogy, Novosibirsk, Russia, who studied Yakutian kimberlites, xenoliths, and alluvial diamond deposits and co-discovered the Nicka diamondiferous placer along the Tyung River, Russia.

Type Material: Central Siberian Geological Museum, Sobolev Institute of Geology and Mineralogy, Novosibirsk, Russia (VI-53/1).

References: (1) Mikhailenko, D.S., A.V. Korsakov, S.V. Rashchenko, Y.V. Seryotkin, D.I. Belakovskiy, and A.V. Golovin (2018) Kuliginite, a new hydroxychloride mineral from the Udachnaya kimberlite pipe, Yakutia: Implications for low-temperature hydrothermal alteration of the kimberlites. *Amer. Mineral.*, 103(9), 1435-1444.