

Crystal Data: Orthorhombic, pseudocubic. *Point Group:* $2/m\ 2/m\ 2/m$. As pseudo-octahedral or pseudocubic crystals, to 3 mm, and as oblong to rounded grains. *Twinning:* Polysynthetic and interpenetrant, complex but poorly defined.

Physical Properties: *Fracture:* Uneven. Hardness = 4.5 D(meas.) = 3.03(3)
D(calc.) = 3.06

Optical Properties: Transparent to opaque. *Color:* Colorless, cream, pink, red, brown, may be zoned. *Luster:* Vitreous to dull, greasy.

Optical Class: Isotropic, but with birefringence about 0.003. $n = 1.364(2)$

Cell Data: *Space Group:* $Pcmn$. $a = 5.363(1)$ $b = 7.676(1)$ $c = 5.503(1)$ $Z = 4$

X-ray Powder Pattern: South Ouray, Utah, USA.

1.918 (100), 2.71 (50), 3.83 (35), 2.30 (25), 1.556 (25), 2.23 (18), 2.20 (13)

Chemistry:

	(1)	(2)
Fe ₂ O ₃	0.17	
MgO	39.36	38.65
CaO	1.10	
Na ₂ O	27.02	29.71
K ₂ O	0.77	
F	54.76	54.65
H ₂ O	0.25	
-O = F ₂	[23.06]	23.01
Total	[100.37]	100.00

(1) Ural Mountains, Russia; original total given as 100.49%; corresponds to (Na_{0.87}K_{0.02})_{Σ=0.89} (Mg_{0.98}Ca_{0.02})_{Σ=1.00}F_{2.97}. (2) NaMgF₃.

Occurrence: An authigenic mineral, formed under aluminum-deficient conditions in dolomitic oil shale (South Ouray, Utah, USA); in metamorphosed tuff and clayey carbonate sediments (Ural Mountains, Russia); in miarolitic cavities in an alkalic granite (Lake Gjerdingen, Norway); in cavities in pegmatite and in hornfels in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Burbankite, nahcolite, wurtzite, barytocalcite, garrelsite, pyrite, calcite, quartz (South Ouray, Utah, USA).

Distribution: From the South Ouray and Sun Havenstrite wells, about 8 km south-southeast of South Ouray, Uintah Co., Utah, USA. At Mont Saint-Hilaire, Quebec, Canada. From near Lake Gjerdingen, Nordmarka, Norway. In the Lovozero, Khibiny, and Kovdor massifs, Kola Peninsula, the Ural Mountains, and other poorly defined localities in Russia.

Name: Honors Frank Neighbor, district geologist of Sun Oil Co., Salt Lake City, Utah, USA, for his assistance in providing samples.

Type Material: National Museum of Natural History, Washington, D.C., USA, 115216, 162603.

References: (1) Chao, E.C.T., H.T. Evans, Jr., B.J. Skinner, and C. Milton (1961) Neighborite, NaMgF₃, a new mineral from the Green River Formation, South Ouray, Utah. *Amer. Mineral.*, 46, 379–393. (2) Efimov, A.F., E.M. Eskova and S.T. Kataeva (1967) On the first discovery of neighborite in the U.S.S.R. *Doklady Acad. Nauk SSSR*, 174, 5, 1182–1184 (in Russian). (3) Horváth, L. and R.A. Gault (1990) The mineralogy of Mont Saint-Hilaire, Quebec. *Mineral. Record*, 21, 284–359, esp. 325–326.