Dmisteinbergite $CaAl_2Si_2O_8$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Crystals tabular, crudely hexagonal, to 0.7 mm.

Physical Properties: *Cleavage:* {0001}, perfect. Hardness = 6 D(meas.) = n.d. D(calc.) = 2.747

Optical Properties: Semitransparent. *Color:* Colorless.
Optical Class: Uniaxial (+). $\omega = 1.575$ $\epsilon = 1.580$

Cell Data: *Space Group:* $P6/mmm$. a = 5.122(5) $c = 14.781(5)$ Z = 2

X-ray Powder Pattern: Chelyabinsk coal basin, Russia.
3.73 (100), 2.57 (80), 2.85 (70), 1.847 (70), 4.48 (60), 3.83 (60)

Chemistry:

	(1)
SiO_2	43.89
Al_2O_3	35.39
MgO	0.01
CaO	19.29
Na_2O	0.32
K_2O	0.03
Total	98.93

(1) Chelyabinsk coal basin, Russia; by electron microprobe, average of four analyses; corresponds to $(Ca_{0.96}Na_{0.03})_{\Sigma=0.99}Al_{1.95}Si_{2.05}O_8$.

Polymorphism & Series: Trimorphous with anorthite and svyatoslavite.

Mineral Group: Feldspar group.

Occurrence: On fracture surfaces in blocks from burned coal dumps.

Association: Cordierite, mullite, anorthite, wollastonite, tridymite, fayalite, fassaite, norbergite-chondrodite, graphite, iron sulfides.

Distribution: From Kopeysk, Chelyabinsk coal basin, Southern Ural Mountains, Russia.

Name: For Dmitrii Sergeevich Steinberg (1910–), noted petrologist, Institute of Geology and Geochemistry, Yekaterinberg, Russia.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Chesnokov, B.V., E.V. Lotova, E.N. Nigmatulina, V.S. Pavlyuchenko, and A.F. Bushmakin (1990) Dmisteinbergite $CaAl_2Si_2O_8$ (hexagonal) – a new mineral. Zap. Vses. Mineral. Obshch., 119(5), 43–45 (in Russian). (2) (1992) Amer. Mineral., 77, 446–447 (abs. ref. 1). (3) Takéuchi, Y. and G. Donnay (1959) The crystal structure of hexagonal $CaAl_2Si_2O_8$. Acta Cryst., 12, 465–470.