Chesterite $(Mg, Fe^{2+})_{17}Si_{20}O_{54}(OH)_6$

Crystal Data: Orthorhombic. *Point Group:* $mm2$. Radiating sprays of prismatic crystals, to 5 cm; as intergrowths ∥ {010} in anthophyllite and cummingtonite.

Physical Properties: *Cleavage:* Perfect on {110}, intersecting at ∼45° and 135°; breakage along {100} and {010} may be due to parting. Hardness = n.d. D(meas.) = n.d. D(calc.) = [3.08]

Optical Properties: Transparent. *Color:* Colorless to very light pinkish brown; in thin section, colorless.
Optical Class: Biaxial (–). *Orientation:* $X = a$; $Y = b$; $Z = c$. *Dispersion:* $r > v$, weak.
$\alpha = 1.617(5)$ $\beta = 1.632(5)$ $\gamma = 1.640(5)$ 2V(meas.) = 71(2)°

Cell Data: *Space Group:* $A2_1ma$. $a = 18.6140(3)$ $b = 45.306(1)$ $c = 5.2966(3)$ $Z = 4$

X-ray Powder Pattern: Calculated.
8.609 (100), 3.076 (66), 3.246 (49), 11.327 (41), 2.554 (36), 3.751 (34), 2.779 (31)

Chemistry:

	(1)
SiO_2	57.95
Al_2O_3	0.25
FeO	14.14
MnO	0.99
MgO	24.24
CaO	0.42
Na_2O	0.03
H_2O	[2.60]
Total	[100.62]

(1) Chester, Vermont, USA; by electron microprobe, H_2O assuming (OH) sites filled by $(OH)^{1-}$.

Occurrence: In black wallrock between chlorite and actinolite zones of a metamorphosed ultramafic body.

Association: Jimthompsonite, clinojimthompsonite, anthophyllite, cummingtonite, talc.

Distribution: In the Carleton talc quarry, near Chester, Windsor Co., Vermont, USA.

Name: For the Chester, Vermont, USA, locality.

Type Material: Royal Ontario Museum, Toronto, Canada, M36083; Harvard University, Cambridge, Massachusetts, 134079; National Museum of Natural History, Washington, D.C., USA, 145869.

References: (1) Veblen, D.R. and C.W. Burnham (1978) New biopyriboles from Chester, Vermont: I. Descriptive mineralogy. Amer. Mineral., 63, 1000–1009. (2) Veblen, D.R. and C.W. Burnham (1978) New biopyriboles from Chester, Vermont: II. The crystal chemistry of jimthompsonite, clinojimthompsonite, chesterite, and the amphibole-mica reaction. Amer. Mineral., 63, 1053–1073.