Gunterite $Na_4(H_2O)_{16}(H_2V_{10}O_{28})\cdot 6H_2O$

Crystal Data: Monoclinic. *Point Group:* 2/*m*. Crystals tabular on {001} and generally stacked into elongate curved multiple crystals, to 0.5 mm.

Physical Properties: *Cleavage:* {001}, {100}, {010}; imperfect. *Parting:* Perfect on (001). *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = ~1 VHN = 440 (20 g. load). D(meas.) = n.d. D(calc.) = 2.398

Optical Properties: Transparent to translucent. *Color:* Orange-yellow. *Streak:* Yellow. *Luster:* Subadamantine.
Optical Class: Biaxial (+). α = 1.735(5) β = 1.770(5) γ(calc.) = 1.825(5)
2V(meas.) = 77(6)° 2V(calc.) = n.d. *Dispersion:* Strong; $v < r$. *Orientation:* $X = b$; $Y \approx c$. *Pleochroism*: X = yellow; Y = orange; Z = yellow. Absorption: $Y > X > Z$.

Cell Data: *Space Group: C*2/*m*. a = 19.848(2) b = 10.1889(11) c = 13.1184(15) β = 130.187(9)° Z = 2

X-ray Powder Pattern: West Sunday mine, San Miguel County, Colorado, USA.
10.01 (100), 8.44 (72), 8.09 (46), 20997 (29), 2.795 (21), 2.1443 (18), 1.9707 (18)

Chemistry:

	(1)
Na_2O	6.77
K_2O	0.05
CaO	3.34
Al_2O_3	0.02
V_2O_5	62.1
H_2O	27.73
Total	100.01

(1) West Sunday mine, San Miguel County, Colorado, USA; electron microprobe analysis, H_2O from structure analysis, corresponding to $(Na_{3.20}K_{0.02}Ca_{0.87})_{\Sigma=4.09}[H_{1.06}(V_{9.99}Al_{0.01})_{\Sigma=10}O_{28}]\bullet 22H_2O$.

Occurrence: In efflorescencent crusts on mine walls and in fractures in sandstone, formed by the oxidation of montroseite–corvusite assemblages.

Association: Montroseite, corvusite, huemulite, rossite, calcite, hewettite, hughesite, munirite, paramontroseite, pascoite, sherwoodite, rakovanite.

Distribution: At the West Sunday mine, Slick Rock district, San Miguel County, Colorado, USA.

Name: Honors Professor Mickey Eugene Gunter (b. 1953), University of Idaho, Moscow, Idaho, USA, for his studies in optical mineralogy and the mineralogy of asbestos minerals.

Type Material: Natural History Museum of Los Angeles County, California, USA; 63506 and 63507.

References: (1) Kampf, A.R, J.M. Hughes, J. Marty, and B. Nash (2011) Gunterite, $Na_4(H_2O)_{16}(H_2V_{10}O_{28})\cdot 6H_2O$, a new mineral species with a doubly-protonated decavanadate polyanion: crystal structure and descriptive mineralogy. Can. Mineral., 49, 1243-1251. (2) (2013) Amer. Mineral., 98, 1631-1632 (abs. ref. 1).