

Nickelblödite

Na₂Ni(SO₄)₂•4H₂O

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. As flat crystallites, to 150 μm; with smooth forms, perhaps rounded by solution, in efflorescences.

Physical Properties: Hardness = n.d. VHN = 104–139 (5 gm load). D(meas.) = 2.43
D(calc.) = 2.432–2.455

Optical Properties: Translucent. *Color:* Pale yellowish green to pale green; in transmitted light, colorless to pale green.

Optical Class: Biaxial (-). α = 1.504–1.513 β = [1.507–1.518] γ = 1.509–1.520

2V(meas.) = 60°–70°

Cell Data: *Space Group:* P2₁/a (by analogy to blödite). a = 10.87 b = 8.07 c = 5.46
β = 100°43' Z = 2

X-ray Powder Pattern: Kambalda, Western Australia.

3.223 (10), 4.466 (9), 3.190 (8), 4.193 (7), 3.720 (6), 2.589 (6), 3.920 (5)

Chemistry:

	(1)	(2)
SO ₃	49.00	43.41
FeO	1.03	
NiO	15.41	20.25
CuO	0.04	
MgO	1.53	
Na ₂ O	16.35	16.80
H ₂ O	[16.64]	19.54
Total	[100.00]	100.00

(1) Kambalda, Western Australia; by electron microprobe, recalculated to 100% from an elemental analysis, H₂O by difference; corresponding to Na_{2.02}(Ni_{0.79}Mg_{0.14}Fe_{0.06})_{Σ=0.99}(SO₄)_{2.00}•3.17H₂O. (2) Na₂Ni(SO₄)₂•4H₂O.

Occurrence: By evaporation of fluids containing Na, Ni, and SO₄.

Association: Violarite, pyrite, siderite, halite (Kambalda, Western Australia); morenosite (Carr Boyd Rocks mine, Western Australia).

Distribution: From the Durkin nickel mine, Kambalda, 56 km south of Kalgoorlie, and in the Carr Boyd Rocks mine, Goongarrie, Western Australia.

Name: For its relation to *blödite*, with Ni > Mg.

Type Material: Western Australian Museum, Perth, Australia, M.63.1991, M.64.1991, MDC5657; The Natural History Museum, London, England, 1976,378; National Museum of Natural History, Washington, D.C., USA, 136207.

References: (1) Nickel, E.H. and P.J. Bridge (1977) Nickelblödite, Na₂Ni(SO₄)₂•4H₂O, a new mineral from Western Australia. *Mineral. Mag.*, 41, 37–41. (2) (1977) *Amer. Mineral.*, 62, 1059 (abs. ref. 1).