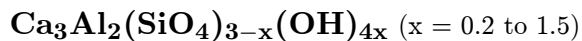


Hibschite



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Crystal Data: Cubic. *Point Group:* $[4/m \bar{3} 2/m.]$ As shells (up to 60 μm thick) replacing andradite or other minerals.

Physical Properties: *Tenacity:* Very brittle. *Hardness* = 6 *D*(meas.) = 3.05–3.08
D(calc.) = [3.05–3.28]

Optical Properties: Semitransparent. *Color:* Colorless or pale yellow.
Optical Class: Isotropic; may be anomalously biaxial. *n* = 1.670–1.677

Cell Data: *Space Group:* $[Ia\bar{3}d.]$ *a* = 12.02–12.22 *Z* = [8]

X-ray Powder Pattern: Mariánská Hora, Czech Republic.
2.736 (s), 3.045 (ms), 2.227 (m), 1.984 (m), 3.263 (mw), 1.634 (mw), 4.994 (w)

Chemistry:

	(1)	(2)
SiO ₂	27.30	21.24
Al ₂ O ₃	23.97	19.38
Fe ₂ O ₃	0.30	4.08
MnO	0.19	
MgO	2.01	0.92
CaO	37.00	39.83
H ₂ O+	9.20	
H ₂ O–	0.20	
H ₂ O		[11.41]
SO ₃		3.14
Total	100.17	[100.00]

(1) Bug River, Russia. (2) Mariánská Hora, Czech Republic; by electron microprobe, H₂O by difference; corresponds to Ca_{3.00}(Al_{1.61}Fe_{0.22}Mg_{0.10})_{Σ=1.93}(Si_{1.50}S_{0.17})_{Σ=1.67}[O_{6.64}(OH)_{5.36}]_{Σ=12.00}.

Polymorphism & Series: Forms a series with grossular and katoite.

Mineral Group: Garnet group.

Occurrence: In a calcareous marl (Mariánská Hora, Czech Republic); in zeolite-calcite rocks and low-grade metamorphosed marls (Hatrum Formation, Israel).

Association: Quartz, tremolite, gypsum (Mariánská Hora, Czech Republic); calcite, aragonite, vaterite, portlandite, ettringite, tobermorite, jennite, afwillite (Hatrum Formation, Israel).

Distribution: At Mariánská Hora (Marienberg), near Ústí nad Lábem (Aussig), Czech Republic. At Aubenas, Ardèche, France. In the Hatrum Formation, Israel. From Nikortzmindia, Caucasus Mountains, Georgia. Along the Bug River, locality not further specified, in Russia. At Crestmore, Riverside Co., California, USA. From Velardeña, Durango, Mexico. From the Tokatoka district, about 150 km north of Auckland, New Zealand.

Name: After Professor Josef Emanuel Hibsch (1852–1940), German Agricultural Academy, Tetschen, Czech Republic.

Type Material: Natural History Museum, Vienna, Austria, J4774.

References: (1) Dana, E.S. and W.E. Ford (1909) Dana's system of mineralogy, (6th edition), app. II, 52. (2) Nalivkina, É.B. (1960) Hibschite from the Bug River. *Zap. Vses. Mineral. Obsch.*, 89, 714–718 (in Russian). (3) (1964) *Mineral. Abs.*, 16, 454 (abs. ref. 2). (4) Gross, S. (1977) The mineralogy of the Hatrum Formation, Israel. *Geol. Sur. Israel Bull.* 70, 32–35. (5) Passaglia, E. and R. Rinaldi (1984) Katoite, a new member of the Ca₃Al₂(SiO₄)₃ – Ca₃Al₂(OH)₁₂ series and a new nomenclature for the hydrogrossular group of minerals. *Bull. Minéral.*, 107, 605–618. (6) Rinaldi, R. and E. Passaglia (1989) Hibschite topotype: crystal chemical characterization. *Eur. J. Mineral.*, 1, 639–644.

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