

Crystal Data: Hexagonal. *Point Group:* 3m. As spherical aggregates, to 150 μm, consisting of rhombohedral crystals, some euhedra to 50 μm, showing {10*2} modified by {10*1}.

Physical Properties: *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = >3.9 D(calc.) = 4.42

Optical Properties: Transparent. *Color:* Light green to brownish. *Streak:* n.d. *Luster:* Resinous. *Optical Class:* Uniaxial (-). *n* = 1.97(1) *Pleochroism:* Light green to yellowish.

Cell Data: *Space Group:* $R\bar{3}m$. *a* = 7.260(5) *c* = 16.77(2) *Z* = 3

X-ray Powder Pattern: Hourt quarry, Stavelot massif, Belgian Ardennes. 3.052 (100), 3.636 (40), 2.239 (35), 1.817 (35), 2.792 (30), 5.906 (25), 1.968 (25)

Chemistry:	(1)
CaO	0.03
SrO	0.24
BaO	3.95
PbO	0.07
La ₂ O ₃	2.26
Ce ₂ O ₃	15.73
Nd ₂ O ₃	2.08
Al ₂ O ₃	3.09
Fe ₂ O ₃	30.65
SO ₃	0.06
P ₂ O ₅	0.03
As ₂ O ₅	31.20
H ₂ O (calc.)	[8.37]
Total	97.79

(1) Hourt quarry, Stavelot massif, Belgian Ardennes; average of 33 electron microprobe analyses, H₂O calculated; corresponds to (Ce_{0.67}Ba_{0.18}La_{0.10}Nd_{0.09}Sr_{0.02})_{Σ=1.06}(Fe³⁺_{2.68}Al_{0.42})_{Σ=3.10}[(As_{1.89}S_{0.01}□_{0.10})_{Σ=2.00}O₈][(OH)_{5.57}(H₂O)_{0.43}]_{Σ=6.00}.

Mineral Group: Alunite supergroup, plumbogummite group.

Occurrence: A secondary mineral formed by weathering of arsenopyrite-bearing metaquartzite.

Association: Scorodite, mimetite, goethite, pharmacosiderite, barium-pharmacosiderite.

Distribution: From the Hourt quarry, 2 km north of Vielsalm, Stavelot massif, Belgian Ardennes.

Name: Honors mining engineer Jean-Marie *Graulich* (1920-2001), honorary Director of the Geological survey of Belgium, particularly for his contribution to the geology of the Stavelot Massif.

Type Material: University of Liège (20325) and the Royal Belgian Institute of Natural Sciences (RN 6419), Brussels, Belgium.

References: (1) Hatert, F., P. Lefèvre, M. Pasero, and A.-M. Fransolet (2003) Graulichite-(Ce), a new arsenate mineral from the Stavelot Massif, Belgium. *Eur. J. Mineral.*, 15, 733-739. (2) (2004) *Amer. Mineral.*, 89(2), 468 (abs. ref. 1).