

MinIdent-Win - galena

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Formula: PbS

Status: Mineral name is IMA approved or traditional

Level: Species

Parents: sulphides

Symmetry: Cubic

Mean Atomic Number: 72.9

Diffraction Values: 2.970, 3.430, 2.100, 1.790, 1.330

Kretz abbreviation: Gn

First Described in 77

Space Group: Fm-3m

Z number: 4

ICDD (TM) Number: 5-592

	Minimum	Maximum	Average	Std. Dev.
a (A)	5.919	5.940	5.930	
b (A)	5.919	5.940	5.930	
c (A)	5.919	5.940	5.930	
Alpha	90.000	90.000	90.000	
Beta	90.000	90.000	90.000	
Gamma	90.000	90.000	90.000	
Volume	207.370	209.585	208.476	

	Minimum	Maximum	Average	Std. Dev.
n	3.910	3.980	3.945	

Colour  Opaque

Reflectivity	Minimum	Maximum	Average	Std. Dev.
470 nm	45.70	47.90	46.70	
546 nm	42.25	43.80	43.20	
589 nm	41.56	43.10	42.40	
650 nm	41.85	43.70	42.65	

	Minimum	Maximum	Average	Std. Dev.
Mohs	2.5	3.0	3.0	
Vickers	51	116	84	
Density	7.31	7.67	7.54	

	Total Min Wt (%)	Anal. Min Wt (%)	Average Wt (%)	Anal. Max Wt (%)	Total Max Wt (%)	Average Atomic	Coordination
O	0.0000	0.0000	0.0360	0.3276	0.3276	0.0053	
Mg	0.0000	0.0000	0.0064	0.0965	0.0965	0.0006	
Si	0.0000	0.0000	0.0237	0.1870	0.1870	0.0020	
S	7.6000	7.6000	13.3313	14.3000	14.3000	0.9748	6
Ca	0.0000	0.0000	0.0119	0.1787	0.1787	0.0007	
Mn	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6
Fe	0.0000	0.0000	0.0460	0.5200	0.5200	0.0019	6
Cu	0.0000	0.0000	0.1285	1.6000	1.6000	0.0047	6
Zn	0.0000	0.0000	0.0062	0.0500	0.0500	0.0002	6
As	0.0000	0.0000	0.0846	1.0700	1.0700	0.0026	6
Se	0.0000	0.0000	0.2869	11.3000	11.3000	0.0085	6
Ag	0.0000	0.0000	0.3415	1.9300	1.9300	0.0074	6
Cd	0.0000	0.0000	0.0340	0.2700	0.2700	0.0007	6
Sn	0.0000	0.0000	0.0031	0.0400	0.0400	0.0001	6
Sb	0.0000	0.0000	0.1421	0.7000	0.7000	0.0027	6
Te	0.0000	0.0000	0.0291	0.2300	0.2300	0.0005	6
Ba	0.0000	0.0000	0.0006	0.0090	0.0090	0.0000	
Hg	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6
Tl	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6

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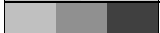
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Pb	76.5000	76.5000	84.7681	86.5000	87.4658	0.9591	6
Bi	0.0000	0.0000	0.9629	6.7600	6.7600	0.0108	6
Total			100.2429			1.9827	

Atomic proportions calculated for S+As+Se+Te+Bi+Sb = 1.0

Compilation based on 10 general and 16 sample records

Values in italics are calculated from the minimum and maximum values. Other data are from the sample and general records.

Lustre	Metallic
Aggregation	Massive, Plumose, Granular
Habit	Cubic, Octahedral, Equant, Anhedral, Trisoctahedral
Tenacity	Brittle
Fracture	Subconchoidal
Cleavage	{100} Perfect
Surface Colour	 Grey, Silvery Grey
Streak	 Grey, Dark Grey, Greyish Black

Comp. Plan.	Comp. Surf.	Twin Plane	Twin Axis	Notes
{111}		{111}	[111]	Penetration, Simple, Contact

Notes on hand specimen data: The principle ore of lead. The high density is immediately apparent in pure material.

Synonyms: galenite, bleiglanz

Remarks: Silvery- to lead-grey cubes, octahedra (and combinations) as well as anhedral masses and sometimes granular or as plumose aggregates. On freshly exposed material, the lustre is bright and metallic but slowly becomes dull and the mineral blackens with long exposure. Galena has a dark lead-grey streak, a perfect cubic cleavage and a subconchoidal fracture. It is the principal ore of lead.

Occurrences: Particularly in stratiform deposits in limestones and dolomites assoc. with sphalerite. Also in medium temperature hydrothermal deposits assoc. with sphalerite, argentite, quartz and fluorite.

Localities of samples used in compilation: Shaba Province, Democratic Republic of the Congo. Mont St. Hilaire, Québec; Highland-Bell silver mine, Beaverdell, British Columbia, Canada. Barrow mine, Newlands, Keswick, Cumbria, England. Arsagan Formation, Central Asia; Akchagyl Formation, Kazakhstan. Sadon Formation, Caucasus, Russia. Ivigtut, Greenland. Tunaberg, southeast of Bergslagen, Sweden. Mittal-Hohtenn, Valais, Switzerland. Ocna de Fier, near Banat, southwest Romania. Agdarreh, Takab geothermal field, northwestern Iran.

References: Eur. J. Min. v.12, p.899-917. Min. Pet. v.44, p.89-106. Can. Min. v.22, p.565-575; v.39, p.1653-1663. Min. Pet. v.44, p.89-106. Min. Deposita v.43, p.383-404. Deer et al. (1962) v.5, p.180-185. QDF for Ore Minerals, B. M. (Nat. Hist), 1986. Mandarino & Anderson (1989). Anthony et al. (1990), p.170. Uytendogaardt & Burke (1971). USGS Bull. 1627.

MinIdent-Win

Galena



Dorian G.W. Smith

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Caption: This specimen of massive galena shows the characteristic colour and lustre of freshly broken material and also the perfect cubic cleavage. A little cream-coloured dolomite is present on one surface.
Locality: Galena, Kansas, U.S.A.

Keywords: galena; sulphides; lead ore; cubic cleavage; perfect cleavage; metallic lustre; Galena; Kansas; U.S.A.

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