# Acanthite Ag2S

# Grandfathered valid species

# Monoclinic Point Group 2/m Nickel-Strunz 2.BA.35

First described in 1855 from an occurrence in the Jáchymov (St Joachimsthal) District, Krušné Hory Mts ([Erzgebirge](https://en.wikipedia.org/wiki/Erzgebirge)), Karlovy Vary Region, [Bohemia](https://en.wikipedia.org/wiki/Bohemia), [Czech Republic](https://en.wikipedia.org/wiki/Czech_Republic). The name is from the Greek "akantha" meaning thorn or arrow, in reference to its crystal shape.

It is the stable form of silver sulphide below 173°C (343°F). [Argentite](https://en.wikipedia.org/wiki/Argentite) is the stable form above that temperature. The tarnish on sterling silver is chemically the same as acanthite.

Primary acanthite crystals are rare and typically occur as small, distorted prismatic crystals, elongated along (001) producing the common thorn-shaped monoclinic crystals. It exhibits an uneven fracture. More usual are the pseudo-cubic and pseudo-octahedral pseudomorphs after argentite.

It is an opaque mineral, dark grey to black in colour with a metallic lustre, a Mohs hardness of 2 – 2.5 and a sectile tenacity. Specific gravity is in the range of 7.2 to 7.4.

Acanthite is a common silver mineral in moderately low-temperature hydrothermal sulphide veins, and in zones of secondary supergene enrichment. It is widespread in silver deposits.

There are six recorded occurrences from Western Australia.

**Kimberley Basin**

**Shangri La mine**

**15o46’40”S 128o34’10”E Kununurra (4666)**

The abandoned Shangri La lead-silver-gold mine is situated approximately 18 km west of Kununurra and comprises a polymetallic hydrothermal quartz vein system hosted by the Proterozoic Hart Dolerite that intrudes the Valentine Siltstone, part of the Paleoproterozoic Speewah Group.

Primary sulfides comprise galena, sphalerite, chalcopyrite, bornite and tetrahedrite. Secondary mineralization, including acanthite, generally occurs as fine-grained coatings on fracture surfaces and small vugs in the quartz veins.

*Reference*: Downes et al., 2011

**Pilbara Craton**

**Moxom Well mine**

**21°5'50''S 121°2'56''E Braeside (3155)**

The Braeside lead field is located near the eastern margin of the Pilbara Craton and lies some 129 km east of Marble Bar. The lead mineralization is hosted by a siliceous vein system that cuts the Kylena and Maddina Formations basalts of the Fortescue Group, the lowest unit of the Neoarchean to Paleoproterozoic Mount Bruce Supergroup.

Historic workings over auriferous galena in quartz veins extend over about 34 km, from the Ragged Hills mine in the south to Barker Well mine in the north. The Moxom Well (Lightning Ridge) mines lie about 21 km north of Ragged Hills and have produced pseudo-octahedral acanthite crystals, up to 0.1 mm across, found in association with chrysocolla and pyromorphite.

*Reference*: Hancock et al., 2007

**Big Stubby (Duffer Creek)**

**21o12'59"S 119o45'10"E Marble Bar (2855)**

This deposit is located approximately 6 km south of Marble Bar and consists of six subvertical stacked sulfide lenses hosted by felsic to intermediate volcanic and volcaniclastic rocks of the Neoarchean Duffer Formation situated on the southwest margin of the Mount Edgar granitic complex.

The ores are simple, consisting of low-Fe sphalerite, pyrite and galena, with minor chalcopyrite and trace tetrahedrite and acanthite.

*Reference*: Ferguson, 1999.

**Elizabeth Hill**

**21°3'40''S 116°57'7''E Pindari (2255)**

The Elizabeth Hill silver mine is a small underground mine located in the extreme northwestern corner of the Pilbara Craton, lying about 40 km south of the town of Karratha. The silver mineralization is associated with the Munni Munni Fault at the point where it intersects the contact between the Neoarchean Munni Munni Intrusion and the Cherratta Granite.

Native silver occurs in veinlets, sheets, crystals, globules and dendrites, and as silver sulfides and sulfosalts; supergene minerals like marcasite, violarite, millerite and mckinstryite are present. Acanthite is noted as being widespread.

*Reference*: Ferguson, 1999

**Gold Show Hill (Quartz Circle)**

**21°40'14''S 120°11'44''E Nullagine (2954)**

Located 35 km north-northeast of Nullagine.

Several small Cu–Au and Zn–Pb–Cu–Ag–Au prospects are localized in the Quartz Circle area within about 1.5 km from a small tonalitic stock. The most significant of these is the Igloo prospect, and about 2 km to the north is the Gold Show Hill gold prospect.

Within the auriferous quartz veins, pyrite and arsenopyrite are the dominant ore minerals, with pale sphalerite, tetrahedrite, chalcopyrite, acanthite and galena present in varying amounts.

*Reference*: Huston et al., 2007

**Yilgarn Craton**

**Paynes Find**

**29o13'30"S 117o39'10"E Maranalgo (2439)**

The unnamed mine is reported to be situated some 5 km north-northwest of Paynes Find Homestead.

Sulfidic quartz veins in shears in amphibolite (gabbro) / schist contain minor galena in association with gold. The sulfide mineralogy comprises malachite, chalcopyrite, cerussite, galena, acanthite and goethite.

*Reference*: Ferguson, 1999

**References**

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