

# ANGLESITE

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*While the mineral might be well known among collectors, its extreme rarity—including no current production of cuttable material—means few in the public or even gem and jewelry trade know about it.*

Anglesite is a mineral species—a lead sulphate with the formula  $\text{PbSO}_4$ . It is formed by the oxidation of galena, a lead sulfide ( $\text{PbS}$ ). Anglesite crystallizes in the orthorhombic system and was named by François Sulpice Beudant in 1832 after the type locality, the Parys Mountain Mines on the Isle of Anglesey in Wales, U.K. It is principally mined as a source for lead used in various industrial products, including rechargeable batteries. It also occurs in beautiful, aesthetic mineral specimens (Figure 1), which are highly prized. Anglesite has a high refractive index, resulting in brilliant gemstones when well cut. The downside is its low hardness and durability coupled with the difficulty in cutting/polishing, making anglesite strictly a collector's gem.

## LOCALITIES/COLORS

Mindat.org lists over 3,000 worldwide occurrences of anglesite, but gem-quality rough is only notable from less than 20 locales. From these, only two are well known and have produced the bulk of the mineral specimens and gem rough to date. The Touissit-Bou Beker mining district in Morocco has produced large gem crystals. The Tsumeb Mine in Namibia is the other important source of gem-quality anglesite. Colors from both localities are colorless to medium yellow. Neither of these two sources is currently producing; Tsumeb shut down for financial reasons in 1996, and it is not clear when the Touissit area ceased working. As is the case with many rarities and exotics, material can only be sourced from old collections or inventories.

## CLARITY

Due to its rarity, small inclusions are acceptable, however it is always the goal to have eye-clean gems, which will command a premium.

## TREATMENTS

Gemstone rarities typically have no treatments. This is the case with most anglesite as well. The exception was a treatment used in the 1980s to bleach colorless and light yellow anglesite to yield a darker yellow to orange-yellow coloration. Similar to the titanium diffusion of sapphire, the bleaching treatment of anglesite produced a surface coloration that did



FIGURE 1. Extremely fine anglesite from Touissit, Morocco. The piece is 5.6 cm high and currently in a private collection. (Photo courtesy of Jeff Scovil, [www.scovilphotography.com](http://www.scovilphotography.com))

not penetrate far into the stone. Recutting or soaking in bromine water would eliminate the surface coloration.

## PROPERTIES

Anglesite has a hardness of 2.5-3 on the Mohs scale. The refractive index is quite high at 1.877-1.894, with a birefringence of 0.017. It is extremely heat sensitive, so the toughness is poor. There are two cleavage planes: one distinct and one good. These can be problematic during cutting and polishing. The specific gravity is 6.30-6.40. The dispersion is the same as diamond at 0.044.

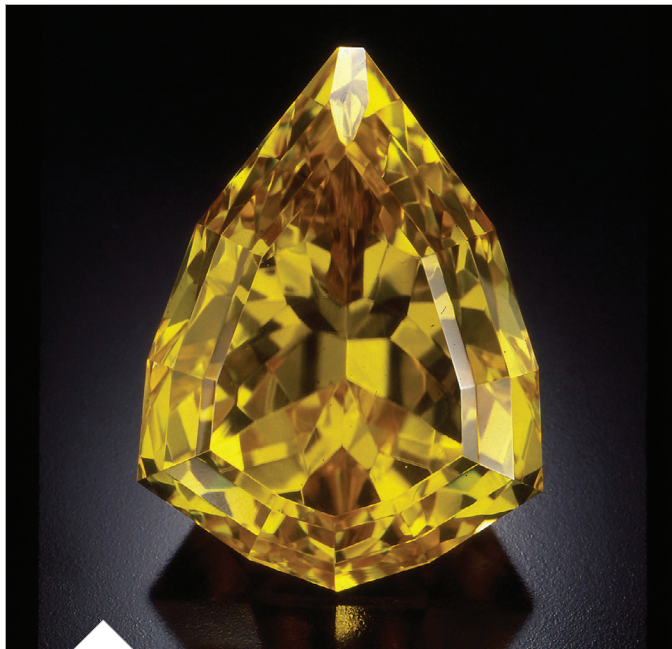


FIGURE 2. Exceptionally large, fine anglesite from Touissit, Morocco. The 270.06-carat stone was faceted by Art Grant. (Photo by Tino Hammid)

### KEY SEPARATIONS

There are very few gems that might be confused with anglesite due to its density, color, and optical properties. The gemstone most commonly confused with anglesite is cerussite. Cerussite is often found with a brown to gray coloration but also occurs as colorless to yellow gems similar to the colors of anglesite. Both are lead minerals, so heavy to heft. Anglesite is biaxial positive while cerussite is biaxial negative, but both have refractive indexes over the limit of the refractometer, so determining optic character from that method is not possible. As stated previously, anglesite has a birefringence of 0.017 while cerussite's is much larger at 0.274, so it may be possible to see more distinct doubling in cerussite. The dispersion is higher for cerussite (0.055) than anglesite.

In fact, an example of this separation was just experienced. The author had acquired an old collection where some of the rarities were already preformed, ready for faceting and labeled as cerussite. As preforms, it is impossible to tell the difference between cerussite and anglesite utilizing optical or physical properties. While putting together a tray of cerussites for opening day of the Tucson gem shows, one of the stones looked distinctly different in its dispersion and was later confirmed by Raman to be anglesite.

### AVAILABILITY

Fine faceted anglesites (Figures 2 and 3) are among the rarest of faceted stones and highly sought after with collectors. As



FIGURE 3. A 14.90-carat rich yellow anglesite from Touissit, Morocco, faceted and photographed by John Bradshaw, [www.rarestone.com](http://www.rarestone.com).

mentioned previously, there is no current production of cuttable material. Both specimen and gem rough from the 1970s through the early 1990s can still be found in old collections or inventories. It is definitely not an "off the shelf" gem.

### PRICING

Anglesite is well known among collectors but not among the general public or even within the gem and jewelry trade. Anglesite is difficult to facet and is usually only seen in well-rounded collections. Based on company cutting and sales over the past 30 years, approximately 80% of faceted anglesite is between 1 and 10 carats. The deeper yellows command a higher price than the paler yellow and colorless gems. For the 1- to 10-carat size range, assuming well-cut and eye-clean stones, the deeper yellow anglesites would range from \$100-\$125 per carat, lighter yellow \$75-\$100 per carat, and colorless \$50-\$75 per carat. Although larger, clean rough for cutting in excess of 10 carats is more difficult to source, the price per carat actually drops a bit—\$60-\$80 per carat for deeper yellows, \$45-\$60 per carat for lighter yellows, and \$30-\$45 per carat for colorless gems. The drop in price per carat in larger sizes is a function of the time involved for faceting smaller sizes. ♦

**About the Author:** John J. Bradshaw is currently a lapidary and wholesaler. He also has served as gemstone curator at the Harvard Mineralogical Museum, traveled extensively for consulting, speaking, and buying, and authored many articles on gems and faceting.

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