

RARE GEMSTONES

How to Identify
Evaluate and
Care for
Unusual Gems



Renée Newman GG

Author of the *Gemstone Buying Guide*

Diaspore (DYE a spore), hydroxides class, diaspore group

Zultanite (ZUL ta nite) gem-grade, color-change variety of diaspore

Chemical formula: $\text{AlO}(\text{OH})$, aluminum oxide hydroxide

RI: 1.69–1.75

Hardness: 6.5–7

Luster: vitreous

Birefringence: .048

Dispersion: .022

Magnetism: nonmagnetic

Crystal shape: elongated plates, acicular needles, massive, foliated

Fluorescence: Inert to long-wave radiation; weak yellow fluorescence to SW UV. Turkish stones fluoresce green in SW.

Absorption spectrum: Not diagnostic: Turkish stones show broad bands at 4710, 4630, 4540 and a sharp line at 7010, similar in position to those of green sapphire

Pleochroism: Moderate to strong— violet-blue, pale yellowish green, rose to dark red or tan
Stable to light; heat may cause it to crack or cleave; avoid acids; clean with warm, soapy water.

Cleavage: perfect in one direction

SG: 3.3–3.5; Turkish material: 3.39

Optic char: DR biaxial positive

Fracture: conchoidal

Crystal system: orthorhombic

Treatments: Normally none, but fracture filling is possible

Diaspore, whose color ranges from light green to yellow, tan, gray or pinkish, was discovered in the Ural Mountains, Russia in 1801. Transparent color-change diaspore was found in the Aydin Mugla district, Turkey, in 1977. Some diaspore crystals have also been found in Hungary, Myanmar, Massachusetts, Pennsylvania's Chester County and at least a dozen other localities around the world, but Turkey is the only commercial source of color-change diaspore.

The name “zultanite” was introduced in 2005. That year Murat Akgun, a Turkish jeweler, acquired the rights to mine diaspore in Turkey. In order to distinguish it from low-grade, non-gem diaspore, Akgun then gave high-quality, color-change diaspore the name zultanite in honor of the Sultans who once ruled the Ottoman (Turkish) Empire.

Zultanite's colors are unique. It can change from pastel golden green in daylight or fluorescent light to a sparkling light gold under traditional light bulbs and to a muted purplish pink under candlelight or low wattage lighting. The larger the zultanite, the easier it is to see the multiple colors, which are natural—not the result of treatment. Zultanite is an expensive stone, which can cost hundreds of dollars per carat. The distinctness of the color change, the quality of the cut, color and size are key price factors.



Fig. Di.1 Visible pleochroism in twinned diaspore from Selcuk, Mugla Province, Turkey. Crystal from Rob Lavinsky of The Arkenstone. *Photo: Joe Budd.*

Designer cuts typically sell at a premium. Although diaspore often has eye-visible inclusions, gems sold as zultanite are generally eye-clean in order to enhance its image as a high-quality gemstone. According to Zultanite Gems LLC, their stones are cut with excellent proportions and finish with a yield of only about 2–3% of the rough. For more information on zultanite, see Chapter 6 in Renée Newman's *Exotic Gems: Volume 1*.



Fig. Di.2 Zultanites viewed in daylight. Zultanite Gems LLC; photo by Jeff Scovil.



Fig. Di.3 Zultanites viewed in incandescent light. Zultanite Gems LLC; Jeff Scovil.



Fig. Di.4 Zultanite earrings by Devon Fine Jewelry.
Photo by Tony Seideman.



Fig. Di.5 Zultanite pendant by Devon Fine Jewelry.
Photo by Tony Seideman.



Fig. Di.6 Zultanite ring. *Jewelry & photo by Gurhan.*

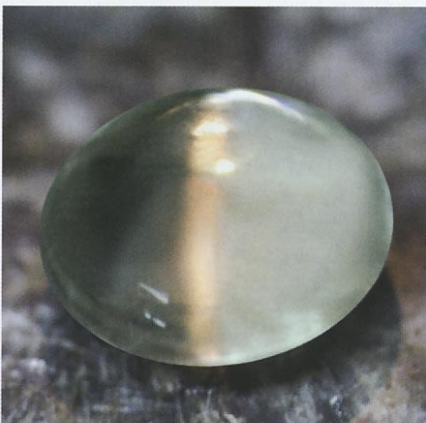


Fig. Di.7 Cat's-eye zultanite. *Gem and photo from Zultanite Gems LLC.*



Fig. Di.8 Zultanite necklace by Erica Courtney.
Photo by Diamond Graphics.

RARE GEMSTONES

Rare Gemstones provides concise, interesting and practical details on uncommon gems that are now being used by designers to create distinctive jewelry. It not only lists the identification properties of the gems, but tells you where they are found, how they are used, why they are unique and how they are priced. High quality photos show the different colors, cutting styles and varieties of each gem and give you ideas on how each can be used creatively in jewelry. The book also explains how to care for rare gemstones and how to keep them from being damaged. Written in a succinct, user-friendly style, *Rare Gemstones* is a companion book to Newman's *Gemstone Buying Guide* and an ideal reference for jewelers, sales associates, appraisers, gem collectors, gemology students, gem dealers and consumers.

Topics in this guide include:

- ◆ Gem identification
- ◆ Quality evaluation
- ◆ Geographic sources
- ◆ Price ranges
- ◆ Gem cleaning & care
- ◆ Gem treatments

Renée Newman GG is a respected gemologist and author of ten gem and jewelry guides. Her books are used worldwide as buying guides, sales-training tools, class texts and references for jewelry professionals.

Other books by Newman include:

Ruby, Sapphire & Emerald Buying Guide

Gem & Jewelry Pocket Guide

Diamond Ring Buying Guide

Gemstone Buying Guide

Exotic Gems: Volumes 1 and 2

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