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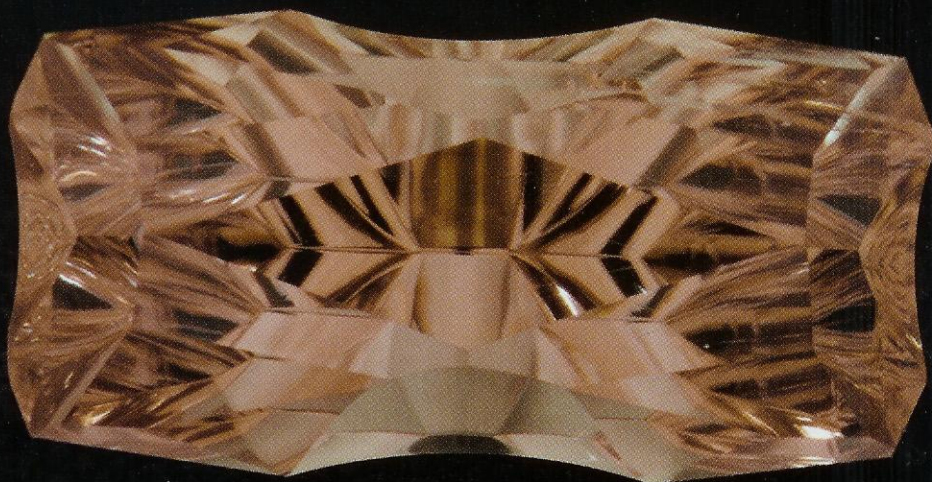
zultanite

This **new rare color-change gem** sports subtle pastel hues that are **difficult to describe – or photograph**

Turkish



Zultanite – or diaspore – from Turkey, in daylight-equivalent lighting.



Zultanite in incandescent-equivalent lighting exhibiting color change.

Delight

BY ROBERT WELDON, G.G.

A few decades can make quite a difference in the debut of a newly discovered gemstone, and Turkish diaspore is a case in point. When first discovered in the late 1970s, the mineral didn't cause much of a stir in the gem field. It was primarily known as a small, fragmented crystal of questionable gem value.

By the 1980s, the mineral was found in large clean crystals of definite gem value, despite the fact that it remained rare. Even today, few gemological references about diaspore exist. *Gems, Their Sources Descriptions and Identification*, by Robert Webster, has a small reference to diaspore in his fourth edition, published in 1989, and a few other characteristics have been noted in Gemological Institute of America's journal, *Gems & Gemology*, over the years, and by enthusiasts on Internet blogs.

Even so, today people are taking note of several of

the gem's remarkable optical characteristics, particularly its "alexandrite effect." The gem changes color in different light sources, ranging from a rich pink to a raspberry color in incandescent light, to a bright green in daylight.

It remains relatively rare today, although the gem mineral has been trademarked as Zultanite™ by Zultanite Gems LLC, based in Fort Lauderdale, FL. Murat Akgun, manager of the new company, aims to make his country's gemstone, particularly the trademarked name, a household word in gemological circles.

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ALL PHOTOS BY ROBERT WELDON

Tricky Color

When I first photographed the Turkish gem mineral diaspore almost a decade ago, I was quickly captivated by its beautiful color. At the time, I only had a chance to see it in my studio for a few minutes while it was being photographed (together with other species and varieties of gem materials). I captured the image quickly so I could return the gem to its waiting owner.

When I picked up the processed film a week later, I remember feeling a tinge of surprise upon seeing a vibrant, orangey-yellow color in the image, though I quickly accepted the color was “correct” given that all other nondiaspore gems on the film appeared with correct hues. This was a mistake – the color of diaspore exhibited on film was nothing like the gem appeared in reality! While other gems’ colors were revealed accurately, diaspore, it turns out, was way off! The gem’s owner sadly pointed this out after the image had already appeared in print.

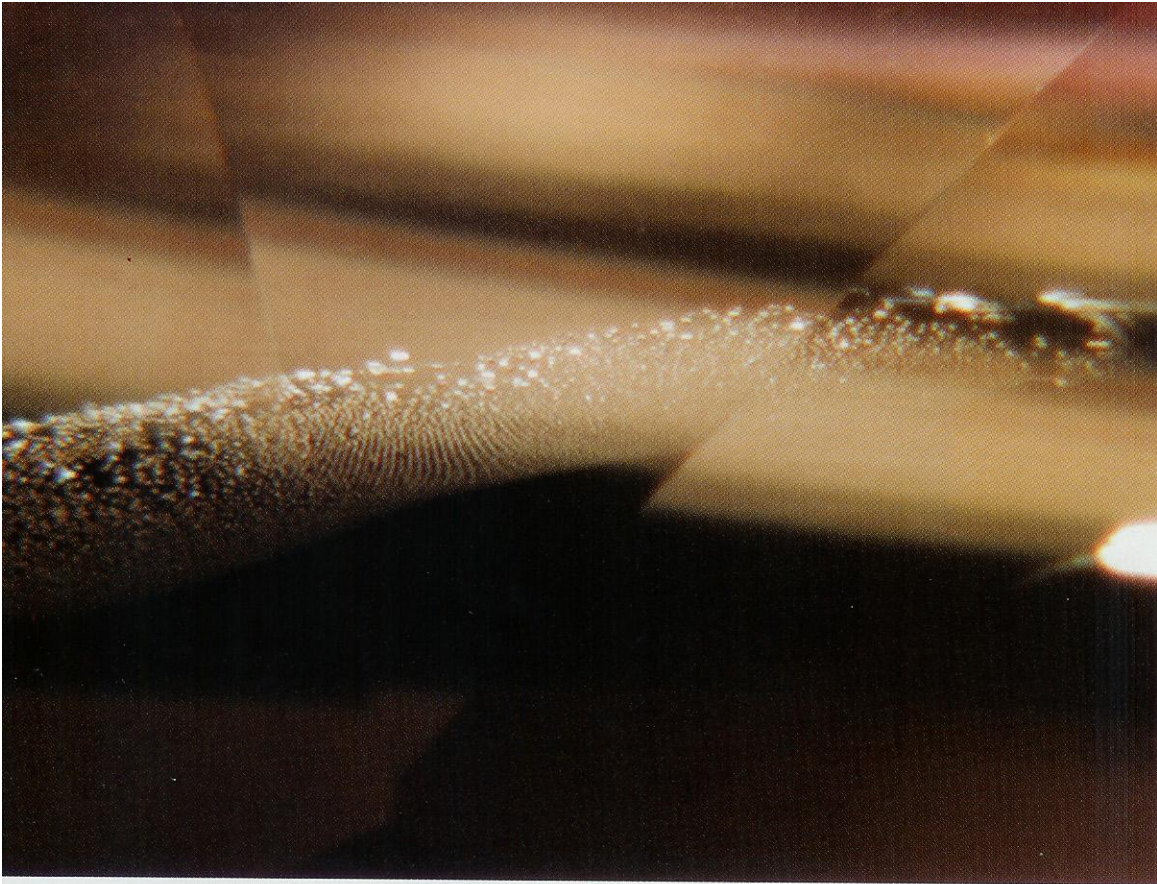
Upon seeing diaspore again, now presented in the market as Zultanite, I was once again captivated by the gem’s lovely pastel hues. These colors, I now saw, changed dramatically when moving the gem from daylight to an

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Group of Zultanite in incandescent light equivalent.

zultanite



Fingerprint inclusion in Zultanite.

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Gemological Identifying Characteristics

Initially, the gem fragments were found in the Anatolian mountains of Turkey in the search for bauxite (a form of aluminum ore). Not surprisingly, the mineral diaspore is an aluminum hydroxide [AlO (OH)]. Its gemological characteristics, should gemologists with necessary instrumentation wish to separate diopside from similar-looking gems (such as quartz, tourmaline or alexandrite), are as follows:

» **MOHS HARDNESS SCALE:** 6.5-7, making the gem a moderately hard and resilient stone, similar to peridot, feldspar and quartz.

» **SPECIFIC GRAVITY:** 3.35 – 3.40.

» **PLEOCHROSIM:** Pale yellow-brown/green.

» **REFRACTIVE INDICES:** a: 1.702 b: 1.722 g: 1.750

» **BIREFRINGENCE:** 0.048 – Considered strong, with “doubling effect” of the back facets commonly seen.

» **INCLUSIONS:** Many gems are eye-clean with a few inclusions visible with 10X magnification. Noted: tiny white needles or hollow tubes, tiny fluid fingerprint inclusions.

» **FRACTURE:** Conchoidal. The gem also has near perfect cleavage, making it one of the most challenging gems to facet. “In many cases nearly 90% of the rough is lost in the process of fashioning a perfect gem,” Akgun says. “In addition, cutters must angle the gem perfectly in order to achieve the best colors,” he says.

» **CARE TIP:** The name diaspore has a somewhat unfortunate connotation. It stems from the Greek word diaspora meaning “to scatter.” The gem is susceptible to disintegration (hence

scattering) if heated by a jeweler’s blowtorch. This is certainly not a likely event, and the gem is considered quite durable otherwise. “Zultanite,” Akgun asserts, “is more appropriate name because it carries no negative connotations.”

Delightfully Turkish

While the mineral has been described in localities as far off as Vietnam and the Ural Mountains of Russia, no locality has yet produced the gem-quality crystals that are found in Turkey’s Anatolia region (Anatolia is the Asiatic portion of contemporary Turkey, extending from the Bosphorus and Aegean coast eastward to the borders of Russia, Iran and Iraq). An exact location for the gem material remains elusive, though Akgun describes the site as being at an altitude of 4000 feet and covering thousands of acres. Akgun adds that 2006 will provide further information from geologists about the gems’ future availability – though he’s optimistic because initial supplies show great promise. Those supplies were shown at the February Tucson gem and mineral shows.

“I think Zultanite has the potential to make it big in the gem world,” Akgun says. “Whoever sees the gems just loves them. Especially women ... they really like the earthy colors. This is before I tell them about its phenomenal properties and rarity.” Akgun points out that the love affair with the renamed gem – Zultanite – can only grow as wearers learn to appreciate the magical effects of color-change. ■

■ Murat Akgun, Zultanite Gems LLC; (888) 804-7074, murat@zultanitegems.com

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incandescent light source. Now I had time to examine the gem under a variety of light and color temperatures, and the color change was dramatic: rose-pink to beige hues in incandescent light, changing to deep olive to forest greens in daylight. Interestingly, none of the colors I see now even remotely resemble the orangey yellow revealed on film a decade earlier.

Today, with the benefit of digital photography, the image colors are revealed instantly so that real-time comparisons can be made with the gemstone. But even with the benefit of digital imaging, capturing the subtle, fleeting pastel hues poses an interesting photographic challenge. Diaspore photographs accurately during daylight, with the camera balanced for daylight color temperature. It does not photograph accurately in a photo studio with the camera balanced for incandescent lights. At this point, for the colors to be revealed as accurately as possible, photo editing comes to the rescue. Very carefully, while closely examining the gems, one can digitally fine-tune colors in the image to best portray what we see in daylight and in incandescent light.

— R.W.



Zultanite Gems LLC says it's having the gems faceted by some of America's top gem cutters to underscore the gems' beauty, as in this group. Daylight-equivalent lighting.