

# Effects of Blue Fluorescence on Diamond Appearance, Color Treatment and Brightening of “Edison” Pearls, and a Pioneering Gemstone Market in Pakistan



Welcome to the Summer installment of *Gems & Gemology*! This issue sizzles with new content, including the relationship between fluorescence and diamond appearance, a deep dive into the world of pearls with advances in color treatment detection and a comprehensive classification system, and the evolution of the Namak Mandi gemstone market in Peshawar, Pakistan.

Our lead article looks at the long-debated effects of blue fluorescence on the appearance of diamonds with D-to-Z color

grades. Some argue that colorless to near-colorless diamonds possessing strong or very strong fluorescence will appear hazy or “oily.” Others

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express concern that lower-color diamonds may appear one color grade better depending on

fluorescence intensity. A GIA team led by Yun Luo quantitatively characterizes the effects of fluorescence intensity on perceived transparency and appearance to help reduce biases in the industry and promote consumer confidence.

Advances in freshwater culturing techniques have dramatically improved the quality of freshwater cultured pearl output from China, making color treatment detection a key element of the identification process in gemological laboratories. In the second article of this issue, Chunhui Zhou and fellow researchers study 23 freshwater “Edison” pearls with a mix of natural and treated colors. A combination of various gemological tests and advanced analytical methods presented in this study prove effective in detecting color treatment and optical brightening.

Next, Joyce Wing Yan Ho and Sally Chan Shih present GIA’s comprehensive pearl classification system based on seven value factors—size, shape, color, luster, surface, nacre, and matching. This article is accompanied by an illustrated wall chart intended as a valuable visual reference.

In the final article, Habib Ur Rehman and coauthors journey to the Namak Mandi market in Peshawar, the largest rough gemstone trading hub in Pakistan. They document its transformation over the last 50 years from a salt market to the bustling “intersection of anxiety” engaged in modern gem commerce. The authors also examine the gemstone supply chain, the continued use of traditional cutting tools, and the shift toward ethical pricing and trading practices.

As always, our regular columns provide an array of gemological insights from around the world. Highlights of the *Lab Notes* section include an impressive emerald imitation in the form of dyed beryl, a desirable Melo pearl discovered while preparing a Melo shell for consumption, and an exquisite opal strand displaying bright and vibrant play-of-color. The *Micro-World* section explores the inner landscapes of gemstones, offering a glimpse into Earth’s natural forces, including two high-quality diamonds with noteworthy green chromium-colored diopside and purplish pink pyrope garnet inclusions, respectively, and heavily etched blue beryl from Pakistan. In *Gem News International*, you’ll find a characterization of natural freshwater pearls from Russia, Scotland, and Germany, as well as an examination of 28 non-bead cultured freshwater pearls grown over 14 years in Lake Biwa, Japan (a precursor to a more detailed review), and much more.

We hope you enjoy the latest issue of *Gems & Gemology*!

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