

## Suggested Outline for Synthetic Gemstone Article

You may contact G&G electronically by sending email to Editor [Brendan Laurs](#) or by telephone at 760-603-4503.

We have found that the following outline works well for most synthetic gemstone articles, with more emphasis often placed on some sections than others, depending on the nature of the material, or the author's specific interests and expertise. Depending on the material, authors may choose not to address all the points below, or they may wish to provide additional subject matter. (Note that synthetic material must be called "synthetic" throughout the manuscript.)

**ABSTRACT:** concise statement of what was studied, methods used, and the identifying characteristics

**INTRODUCTION:** significance, production, and distribution, including: when the material was first manufactured, where it is manufactured, size range of rough, range of qualities (color and clarity), approximately how much material has been sold thus far, through whom it is marketed, and where most is cut—the lead photograph should show a range of samples, mounted and/or unmounted

**BACKGROUND:** natural and other synthetic counterparts, history of manufacture, and how this material fills the needs of the gem and jewelry industry

**GROWTH TECHNIQUES:** methods for producing gem-quality material, growth rates; may include a diagram or photo showing the growth apparatus; include treatment steps (e.g., irradiation of synthetic amethyst)

**DESCRIPTION OF THE ROUGH:** where applicable, describe the shape of the crystals, their surface textures, and the relationship of the faces to the seed crystal; may include a diagram and/or photo with the crystal faces labeled

**MATERIALS AND METHODS:** source of samples (e.g., directly from the manufacturer), number of samples and their description (e.g., rough or fashioned, sizes, range of colors—a photo of all or a representative group of samples is appropriate), what tests/analyses were performed on which samples and using what equipment—be specific

**GEMOLOGICAL CHARACTERISTICS:** include a table comparing these properties to those seen in the natural stones

**Visual Appearance:** color and color zoning, diaphaneity; as seen with the unaided eye (specify lighting conditions, e.g., daylight-equivalent fluorescent light, incandescent light, etc.)

**Optic Axis Orientation:** where applicable, effects on appearance and weight retention

**Pleochroism:** according to optic axis direction

**Refractive Indices and Birefringence:** range and typical values

**Luminescence:** note if any dopants are used to produce a distinctive reaction; photos may be helpful  
Luminescence to visible light: e.g., "red transmission," color filter reaction

**Short-wave ultraviolet radiation:** color, intensity, zoning, chalkiness

**Long-wave ultraviolet radiation:** color, intensity, zoning, chalkiness

**Transparency to short-wave ultraviolet radiation:** if applicable; photos may be helpful

**Specific Gravity:** range and typical value

**Spectroscope Spectrum:** describe features and their positions

**Microscopic Characteristics:** fractures; inclusions—types, appearance, phases present; structural properties—growth zoning or other growth features, twinning, color zoning; photomicrographs should be supplied with magnification and lighting conditions specified

**Other Distinguishing Features:** magnetism, etc.

**CHEMISTRY:** EDXRF, SEM-EDS, and/or electron microprobe, etc.: major- and/or trace-element data, zoning, correlation between elements, and concentrations of any possible chromophore elements should be included; data tables and/or graphs are typically supplied

**SPECTROSCOPY:** UV-visible, infrared, and/or fluorescence; graphs are typically supplied

**DISCUSSION:** what can be inferred from the tested properties about the distinctive qualities of this synthetic gem material; identifying characteristics versus natural equivalents and/or other synthetic material; cause of color (if known)

**CONCLUSION:** summary of the main points, including the identifying characteristics, and how important this material is likely to be for the trade

**REFERENCES:** formatted as per G&G style

Note: Figure captions need to be complete sentences.