# DIFFERENTIATION OF NATURAL AND IRRADIATED BLUE TOPAZ BY CATHODOLUMINESCENCE(CL) PROPERTIES

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**Introduction:** Blue topaz is presently one of the gem industry's most commercialized gemstones. Being quite rare in nature, most commercially available blue topazes have been generated during the past thirty years by laboratory treatment with gamma radiation, neutrons or electrons, or with combinations of them. The origin of the blue color in topaz is not well understood, and a method to nondestructively distinguish natural blue topaz from its irradiated counterpart has been widely sought. This investigation showed that natural blue and artificially irradiated blue topaz could be distinguished by their different cathodoluminescence responses.

**Digital Formats:**

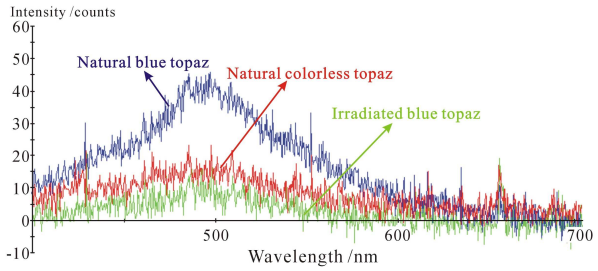
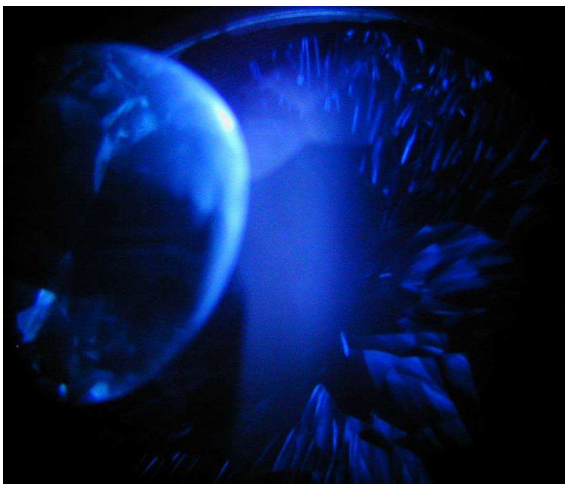



Fig1. CL spectra characteristics of natural blue, natural



colourless and irradiated topaz

Fig2.CL brightness comparison of natural (L)and irradiated blue topaz(R)

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