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The study of gemstone cutting and polishing quality in Chantaburi Province

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Abstract

Gemstones are commonly facet-cut in order to improve their appearance. The knowledge of gemological science and a computer-aided design (CAD) program for faceted gemstones are necessary to create new designs of the stone with accurate angles, indexes and dimensions. The investigation of gemstone cutting and polishing quality were carried out in this study on 32 cut stones from Chantaburi gems market by using the GemCad Version 1.09 computer-aided design program. The result reveals that the Round, Oval, Heart, Marquise, Square, Pear and Octagon with mixed-cut are among the seven most popular shapes of the stones available in the market. It was found that the proportion and angle of facets were not accurately cut and the shape of the stones were based mainly on the original shapes of the rough. By using raytrace function in GemCad program, it appeared the light rays were refracted into the side and bottom of gemstone more than reflected up to the surface. Many stones show colorless area (window) in middle part due to the light loss. These gemstones can be re-designed the angle of facet by using the GemCad program in order to enhance the refraction of light for good brilliance, fire and get more value added.

Key words: Gemstone faceting, Computer-aided design program