

from the "Purplish Red", and 42.82, 56.72, -0.49 from the "Pinkish Red". It is seen here that when the lightness increases the metric hue tends to shift toward red. The results of the ruby that seems to show a tendency of more intense lightness and redness. The values L^* , a^* and b^* of blue sapphire were 20.54, 16.00, -34.98 from the "Dark Blue", 21.90, 13.67, -35.42 from the "Deep Blue", 23.95, 15.49, -37.21 from the "Vivid Blue", 20.54, 17.94, -41.31 from the "Strong Blue", 21.56, 10.45, -33.64 from the "Purplish Blue" and 20.54, 7.94, -30.53 from the "Greenish Blue" blue sapphire. The results of the blue sapphire that seems to show a tendency towards more intense blueness. On the contrary, the "Purplish Blue" and "Greenish Blue" blue sapphire were found that had a less intense blueness and obtained a green color for a little. In term of the lightness difference, they were found not quite to vary in range at lightness 20.54 to lightness 31.77.

In conclusion, the present investigation showed that the CIELUV color system can used to identify the fine color classification of the ruby and blue sapphire at the same of lightness value, and that the CIELAB color system can be used to classify the color quality classification of the ruby and blue sapphire by color difference at each level of quality.

Suggestion

We used the comparison method to find out the color of the gem in the Munsell Color chips. But it was noticed that the color from the gemstones was always that of light source color, or the color that appears to radiate light itself, while the color from the Munsell color chips was nothing but that of object color. In other words they belong to different color appearance modes. To compare the colors belonging to different color appearance mode is not quite appropriate. The object color normally has blackness, but the light source color does not have the blackness. It was shown by Yuwadee et al that the Munsell color chip can be observed as the light source color if it was observed through an aperture. It might be a good method to employ her technique because we

can compare the colors of gemstones and those of Munsell color chip both in the same color appearance mode, the light source color. ⁽²⁷⁾



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