

Chanyakarn Russameekhunarut 2012: Study of Pearl Color Using Visible Absorption Spectroscopy. Master of Science (Metrology), Major Field: Metrology, Department of Physics. Thesis Advisor: Mr. Wiwat Wongkokua, Ph.D. 97 pages.

Color is one of the most important physical properties that determine the value of pearls. Measurements of pearl's colors were carried out using a portable UV-Vis-NIR spectrometer. The standard illuminant source was a D65 tungsten lamp. The measurement configurations were 0/25, 45, and 75 degrees of the light source with respect to the detector. Thirty-one (31) freshwater-, saltwater-, and color-treated pearl samples of various origins were studied. The UV-Vis-NIR spectra of the pearl samples gave rise to CIE L\*a\*b\* color indices. The measurements were repeated 30 times for each sample. Uncertainties of the colors were determined using the mean color difference from the mean (MCDM). The minimum MCDM of the measurement was from the 0/45 configuration. The uncertainty of color measurement was influenced mainly by gloss.

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Student's signature

Thesis Advisor's signature

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