Title : Gemological Properties, Lithology and Petrography of Buddhist Craving Stones from Pornpimolkaesaluk Company Limited

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ABSTRACT

Buddhism is the predominant religion in Thailand, practiced by over 94% of the total population. Sacred icons and Buddha images are traditionally crafted from various materials, including stone, minerals, and wood. This study focused on the identification of 10 stone and mineral samples (coded PJ01 to PJ10) utilized for carving Buddha statues. The investigation encompassed physical and optical properties, including; color, luster, specific gravity (SG), lithology, and petrography. PJ01 was a pale pink rose quartz with a specific gravity of 2.67. Microscopically, the sample consisted layers of microcrystalline fibrous arrangement with sizes gradually range from finer to coarser crystals. PJ02 was a transparent rock crystal quartz with a specific gravity of 2.65. Microscopic observation showed a polycrystalline aggregate structure. PJ03 was a white jade with apple green disseminated, and a specific gravity of 3.32. Petrographic analysis confirmed the presence of elongated to fibrous jadeite as a primary constituent with opaque minerals assemblages. PJ04 was variegated greyish green, dull-vitreous to greasy luster serpentinite with a specific gravity of 2.57. Under microscope, the sample composed entirely of finer to coarser fibrous massive aggregate of serpentine. PJ05 was mottled dark green metabasite that reacted with dilute HCl, indicating

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the presence of carbonate minerals. Microscopic study showed the relict of coarse-grain fabrics of primary minerals like feldspar, pyroxene or amphibole that were replaced by actinolite fibrous, epidote clusters, chlorite, and calcite. PJ06 was dark greenish brown, dull vitreous luster, dense, equigranular lherzolite. Microscopically, the sample showed porphyritic to equigranular texture and composed of 42% olivine, 6.25% orthopyroxene, 14.75% clinopyroxene, and 37% phlogopite. PJ07 was a light yellowish brown oncolitic limestone (algal ball limestone) that strong reacted with HCl. The stone composed of spheroid – ovoid shape of oncoids densely packed in fine carbonate matrix. PJ08 was a milky white matrix with deep blue equant crystals of sodalite. Microscopically, the sample composed of euhedral to subhedral blue sodalite (isotropic) in dolomite/ankerite matrix with minor amount of calcite. PJ09 was a vivid variegated whitish purple-violet, vitreous luster charoite. Microscopic study showed fibrous aggregate of charoite with subordinate amount of aegirine and quartz. Anomalous blue of chlorite alteration was commonly observed. PJ10 was dark grey to black with gold specks, dense, and strong magnetism of Fe-skarn rock. Ore microscopy revealed that the sample consisted of magnetite, pyrite, chalcopyrite (?), and some silicate phase.

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