

Title : Mineralogy and Gemological Characteristics of Reddish Brown Scapolites from Madagascar

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Major : Gemology

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Type of presentation* (choose 1) : Oral Presentation (เฉพาะ ตัวแทนศ.ที่สาขาเลือกให้นำเสนอแบบบรรยาย)
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 Cooperative Education (กรณี นำเสนอผลงานสหกิจศึกษา)

ABSTRACT

Scapolite is a tectosilicate mineral that crystallizes in the tetragonal crystal system. Its general chemical formula is $(\text{Na,Ca,K})_4\text{Al}_3(\text{Si,Al})_3\text{Si}_6\text{O}_{24}(\text{Cl,F,OH,CO}_3,\text{SO}_4)_{12}$, representing a solid solution series between the end-members marialite ($\text{Na}_4\text{Al}_3\text{Si}_9\text{O}_{24}\text{Cl}$) and meionite ($\text{Ca}_4\text{Al}_6\text{Si}_6\text{O}_{24}\text{CO}_3$). Based on the Mineralogy and Gemological Characteristics of 30 reddish-brown scapolite samples from Madagascar, can be classified into three color groups: colorless, light brown, and dark brown. The samples range from transparent to translucent, with weights varying from 2.046 to 8.680 grams. Gemological testing revealed a specific gravity (SG) ranging from 2.737 to 2.745, a refractive index (RI) between 1.560 and 1.580, and a birefringence of 0.010 to 0.020. Under ultraviolet (UV) examination, the samples exhibited red fluorescence under long-wave UV (LWUV) and remained inert under short-wave UV (SWUV). Microscopic examination of the internal features revealed various inclusions, including fingerprint inclusions, hollow tubes, and needle-like inclusions. Furthermore, scanning electron microscopy (SEM) analysis indicated an elemental composition consisting of 33.44% oxygen, 8.82% carbon, 11.40% calcium, 27.20% silicon, 12.92% aluminum, and 1.82% iron.

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