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PREHNITE – A NEW LAPIDARY MATERIAL

Hammer, V.M.F., Brandstätter, F. & Ponahlo, J.

NHMW, Museum of Natural History, Vienna, Burgring 7, A-1010 Vienna
e-mail: vera.hammer@nhm-wien.ac.at; franz.brandstaetter@nhm-wien.ac.at; ponahlo.lum@aon.at

For more than three years pale green jewellery enters the mineral and gem markets under the erroneous name of garnet with tourmaline inclusions. XRD analyses have identified the material as prehnite. The spectacular green and brown bacillary inclusions were detected by EDS as epidote and amphibole. The prehnite locality is Diakon, Nioro du Sahel, Diakon Arrondissement, Kayes Region, Mali, Africa and it was disposed in Hong Kong.

The orthorhombic rock-forming mineral prehnite was named after the Dutch colonel *Hendrik von Prehn* (*1733 – †1785), who discovered this mineral near the Cape of Good Hope as the first type mineral of the African continent. The ideal formula of this combined sheet and chain silicate is $Ca_2(Al,Fe)[AlSi_3O_{10}](OH)_2$. The EDS analysis gave SiO_2 48.0 wt%, Al_2O_3 26.3 wt%, CaO 23.2 wt%, FeO 1.41 wt%.

Prehnite from Mali has pale grey green colour. Other localities as the Australian ones produce prehnite with a more yellow tint. Good quality prehnite can be semitransparent to translucent in some cases. The physical properties of the semiprecious prehnite from Mali are concordant with the properties from single crystal prehnite given in literature from other localities. The average refractive index n = 1.627, dependent of epidote and amphibole inclusions. Prehnite from Mali has a specific gravity of 2.86-2.98 g/cm^3 and a hardness of about 6-6.5.

Distinct single crystals of prehnite are relatively rare but known from alpine fissures like the famous "Prehnitinsel" in the Austrian Habachtal. More commonly, prehnite occurs as secondary mineral filling in volcanic cavities, like the amygdales of more than 10 cm at Hall's Creek in Western Australia.

As the prehnite of the new find of the Kayes Region in Mali is characterised by numerous inclusions of epidote, dispersed amphibole needles, small idiomorphic garnet and magnetite, the development of this prehnite could be given as low grade metamorphic.

Prehnite is also used as a simulant for jade. It can be distinguished from jadeitites by means of CL-microphotography and CL-microspectrography. Similar textures, which can quickly be made visible by CL, have never been found in all jadeitites investigated so far. Careful measurements of CL spectra might also help. In spite of the close proximity of maxima of CL bands of both species, prehnites can be energized at far lower energies than jadeitites. Both methods are non-destructive.