Goldschmidt 2022 Abstract
https://doi.org/10.46427/gold2022.9591

Dianite, rare Siberian gemstone, - mineralogy, origin, and terminology issues

MAGDALENA ANNA DUMAŃSKA-SŁOWIK[1], TOMASZ POWOLNY[1], LUCYNA NATKANIEC-NOWAK[1] AND KRZYSZTOF STANKIEWICZ[2]

[1]The AGH University of Science and Technology
[2]Gemmological Laboratory
Presenting Author: dumanska@agh.edu.pl

Dianite, rock named after the Princess Diana, was first found and described by Konev et al. (1988). It occurs only in one deposit on the Earth – the Kedrov stock within the alkaline Murun complex in Yakutia (Eastern Siberia). Both deep-blue colour and nephrite-resembling fabrics determine the gem-quality properties of this rock (Fig.1). Dianite has formed in a complex magmatic-hydrothermal system overprinted by a later metasomatic event, as shown by i.e. the presence of combined W- and M-type tetrad effect (Dumańska-Słowik et al., 2022).

It is mainly composed of amphibole-supergroup species represented by: early-magmatic magnesio-hastingsite – pargasite, late-magmatic potassic-magnesio-arfvedsonite, and minor replacive potassic-richterite (Dumańska-Słowik et al., 2022). Among these species, the main component is potassic-magnesio-arfvedsonite, which appears as fine-fibrous crystals that tightly interlock with anhedral K-feldspars. Subordinately, a peculiar mica containing Na in octahedral sites has also been found in this rock. It forms nest-like aggregates, whilst its composition is close to shirokshinite that has been described only in Khibiny massif (Kola Peninsula, Russia) – see Pekov et al. (2003).

In the marketplace, dianite is offered as „blue jadeite" or „Siberian blue nephrite". However, the term jade strictly corresponds to two tough, fine-grained gem materials of strictly metamorphic affinity and mostly muted green colouration: jadeite and nephrite (Hobbs, 1982). Thus, dianite does not follow the basic criterion of jade, even though it shows fibrous-felted micro-texture related to the presence of amphibole-supergroup species.

References:

Dumańska-Słowik, M., Powolny, T., Natkaniec-Nowak, L., Stankiewicz, K., 2022. Mineralogical and geochemical implications on the origin of dianite from the alkaline Murun Complex (Eastern Siberia, Russia). Ore Geol. Rev. 141, 104684. https://doi.org/10.1016/j.oregeorev.2021.104684

Hobbs, B.J.M., 1982. The jade enigma. Gems Gemol. 18, 3–11.

Konev, A.A., Paradina, L.F., Vorobyev, E.I., Malyshonok, Y.V., Lapides, I.L., Ushchapovskaya, Z.F., 1988. Magnesium-strontium potassicrichterite - a new variety of amphibole. Miner. Zhurnal 10, 76–82. https://doi.org/(in Russian)

Pekov, I. V., Chukanov, N. V., Ferraris, G., Ivaldi, G., Pushcharovsky, D.Y., Zadov, A.E., 2003. Shirokshinite, K(NaMg2)Si4O10F2, a new mica with octahedral Na from Khibiny massif, Kola Peninsula: descriptive data and structural disorder. Eur. J. Mineral. 15, 447–454. https://doi.org/10.1127/0935-1221/2003/0015-0447

Fig.1. The polished specimen of dianite.