



# EXPERT OPINION

ITEM NO. 889/21

## DETERMINATION OF AUTHENTICITY OF THE MOLDAVITE COLLECTION FROM BESEDNICE LOCALITY

EXPERT OPINION IN THE FIELD OF PRECIOUS METALS AND MINERALS  
(AUTHENTICITY AND PURITY TESTING)



**Expert: RNDr. Jaroslav Hyršl, F.G.G., E.G.**

**IN: 49345893, with its registered office at Ke kurtům 383, 142 00 Prague 4**

**Contracting authority: Moldavite Group, s.r.o.**

**IN: 11746009, with its registered office at Sokolovská 675/9, Karlín, 186 00  
Prague 8**

**Prague, 27 August 2021 (copy number: 2, total number of copies: 2)**

Research questions submitted by the contracting authority:

- 1) Do the moldavites in the assessed collection have natural origin?
- 2) Do the moldavites in the assessed collection come from the Besednice locality?
- 3) What is the quality of moldavites in the assessed collection (are they somehow damaged, were they somehow modified after their extraction)?

Facts communicated by the contracting authority that may affect the accuracy of the conclusions of the expert opinion: The contracting authority has not communicated any facts that may affect the accuracy of the conclusions of this expert opinion.

Material description: This is a large collection of moldavites that come from the Besednice locality in Southern Bohemia, with the exception of moldavites belonging to the category of jewelry raw material, which may not come from the locality. This locality is famous as a source of the most valuable moldavites, which have more significantly developed morphology of the surface compared to other localities. Therefore they are especially valued by collectors, they are the most used in jewelry and have by far the highest prices per gram. The collection is currently in custody at Moldavite Group, s.r.o., IČ 11746009, with its registered office at Sokolovská 675/9, Karlín, 186 00 Prague 8.

Purpose of the expert opinion: Authentication of the moldavite collection for the assessment of the purchase.

Methodology: Moldavites were studied on August 27, 2021.

Tools used: Scale, 10x magnification lupe, GL Gem Spectrometer, GL Gem Raman, caliper, gemmological refractometer, UV-lamp, dichroscope, polariscope, spectroscope, Chelsea filter, microscope for quantitative evaluation of inclusions, scientific literature.

Due to their huge number, a detailed assessment by these methods is not realistic for each stone separately, but the pieces are classified into five weight categories (up to 2 g, 2-5 g, 5-10 g, 10-20 g and over 20 g).

Fraction	Weight in grams	Number of pieces
under 2 g	10 906,5	6 685
2 – 5 g	62 158,5	18 999
5 – 10 g	42 598,5	6 503
10 – 20 g	20 887,5	1 669
over 20 g	2 339,7	103
Gem material	2 135	354
<b>Total</b>	<b>141 025,7</b>	<b>34 313</b>

*Authentication:* As there are currently counterfeit moldavites originating in China on the market, 25 moldavites from different weight categories (5 pieces in each category) were randomly selected and examined in the author's gemmological laboratory. Their measured density (2.34 - 2.39 g / cm<sup>3</sup>), optical and Raman spectra, missing fluorescence in UV light and the presence of lechatelierite fibers clearly confirmed the natural origin of all investigated moldavites.

*Quality:* Due to the significant morphology of the surface of Besednice moldavites, minor damages and surface smoothing sometimes happened during their extraction. Logically the larger the moldavite, the more susceptible it is to these imperfections. Significantly damaged moldavites do not appear in the collection. Slightly damaged or subsequently repaired (mechanically or chemically) moldavites are present only in two weight categories outside the jewelry raw material:

- over 20 g (approx. 20% of pieces)

- 10 - 20 g (approx. 10% of pieces)

Therefore in total there are 1.8% of slightly damaged or repaired moldavites in the collection outside the jewelry raw material

**The vast majority of moldavites in the collection are therefore undamaged.**



The jewelry raw material category is intended for the production of jewelry and gemstone cuts. Not all moldavites in this category come from Besednice.

Conclusion:

The answer to the research question "1) Do the moldavites in the assessed collection have natural origin?"

Yes, all moldavites in the assessed collection clearly have natural origin.

The answer to the research question "2) Do the moldavites in the assessed collection come from the Besednice locality?"

According to the typical significant morphology of the surface, the moldavites in the assessed collection come from the Besednice area; only the origin of moldavites in the jewelry raw material category can not be verified.

The answer to the research question "3) What is the quality of moldavites in the assessed collection (are they somehow damaged, were they somehow modified after their extraction)?"

Due to the significant morphology of the surface of Besednice moldavites, minor damages and surface smoothing sometimes happened during their extraction. Logically the larger the moldavite, the more susceptible it is to these imperfections. Significantly damaged moldavites do not appear in the collection.

Slightly damaged or subsequently repaired (mechanically or chemically) moldavites are present only in two weight categories outside the jewelry raw material:

- over 20 g (approx. 20% of pieces)
- 10 - 20 g (approx. 10% of pieces)

Thus in total there are 1.8% of slightly damaged or repaired moldavites in the collection outside the jewelry raw material

References:

J. Hyršl (2015) Moldavites: natural or fakes? - Gems and Gemology 51, 1, 103-105.

Annexes:

This expert opinion contains 25 annexes:

Expert opinion of moldavite (889-01/21)

Expert opinion of moldavite (889-02/21)

Expert opinion of moldavite (889-03/21)

Expert opinion of moldavite (889-04/21)

Expert opinion of moldavite (889-05/21)

Expert opinion of moldavite (889-06/21)

Expert opinion of moldavite (889-07/21)

Expert opinion of moldavite (889-08/21)

Expert opinion of moldavite (889-09/21)

Expert opinion of moldavite (889-10/21)

Expert opinion of moldavite (889-11/21)

Expert opinion of moldavite (889-12/21)

Expert opinion of moldavite (889-13/21)

Expert opinion of moldavite (889-14/21)

Expert opinion of moldavite (889-15/21)

Expert opinion of moldavite (889-16/21)

Expert opinion of moldavite (889-17/21)

Expert opinion of moldavite (889-18/21)

Expert opinion of moldavite (889-19/21)

Expert opinion of moldavite (889-20/21)

Expert opinion of moldavite (889-21/21)

Expert opinion of moldavite (889-22/21)

Expert opinion of moldavite (889-23/21)

Expert opinion of moldavite (889-24/21)

Expert opinion of moldavite (889-25/21)

*No consultant to assess specific sub-issues was taken on at preparing of this expert opinion.*

*I submitted the expert opinion as an expert appointed by the decision of the Ministry of Justice of the Czech Republic of 20 November 1995 Ref. No. ZT 2279/95 for the field of precious metals and stones (authenticity and purity testing) and in the field of economics, sector prices and appraisals with special specialization prices and appraisals of precious metals and stones. I am aware of the consequences of a consciously false expert opinion.*

*The expert act is registered under the number ...889/21 of the expert diary.*

*A contractual and expert fees have been agreed and I reimburse costs according to the attached liquidation.*

In Prague, on August 27, 2021



Dr. Jaroslav Hyršl F.G.G. , E.G.

mineralogist, gemmologist, expert

F.G.G. = Fachmitglied der DeutschenGemmologischenGesellschaft (1995)

E.G. = EuropeanGemmologist (1997)



*Hyřel*

