LA VALMALENCO DI “PIETRA”

Tirano, 11 marzo 2014
Lo “Sferlün”
Località Sferlün, Lanzada.
Località Sferlùn, Lanzada. Luglio 2007
Demantoide grezzo rinvenuto in località Sferlün.
Demantoidi della Valmalenco ritrovati in località Sferlün.
Ciondolo realizzato con Demantoide della Valmalenco proveniente dalla località Sferlün
Spilla realizzata con granati Demantoidi grezzi della Valmalenco e montata in oro 750‰
Demantoide Sferlun
Ingrandimento
Mastabia
NEPHRITE JADE FROM VAL MALENCO, SONDrio, ITaly: REVIEW AND NEW DATA

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INTRODUCTION

Nephrite jade, valued for ornamental carvings and gems, is an almost monomineralic rock, mainly a tremolite (Ca,Mg,Na2(Si₄O₁₀)(OH)₂) - amphibole (Ca,Mg,Fe₂Si₂O₆(OH)₂) composite. Major nephrite occurrences were found in China, Russia, South Korea, New Zealand, and Australia. A new deposit producing gem-quality nephrite has been discovered some years ago at Massala, in Val Malenco, Sondrio, northern Italy. Nephrite is found in a talc-tremolite schist, associated with dolomitic marble and calc-silicate rocks (Nicholls and Calas, 2005).

RESEARCH AIM

This study aims to provide a review and an update of the nephrite jade from Massala, Val Malenco, investigating a suite of both cut and rough gem-quality samples by means of X-ray powder diffraction, combined with quantitative phase analysis (XRPD QPA), using the Rietveld method, electron microscopic analysis in wavelength dispersive mode (EMWDS), laser ablation inductively plasma mass spectroscopy (LA-ICP-MS), and mid-infrared (IR) spectroscopy.

RESULTS AND DISCUSSION

XRPD QPA data

The nephrite jade from Val Malenco consists mainly of tremolite (Ca,Mg,Na2(Si₄O₁₀)(OH)₂), with minor amounts of calcite, generally less than 5 wt%, as determined by means of XRPD QPA. An exceptional value of >30 wt% of calcite was found in the most whitish sample, suggesting a correlation between the base and the calcite amount.

Physical properties

Color: The color community ranges from white to white-gray, up to green in a few samples.

Microstructure: The samples show a microstructural texture, characterized by a fibrous microstructure consisting of 10-30 μm long tremolite crystals, occurring together with other accessory minerals, identified by SEM-EDS as calcite, talc, epidote, sphele, and rare iron minerals.

Chemical features

Chemical analyses show almost pure tremolite composition (Loke et al., 1997), with a low concentration of most trace elements. All the elements of the first transition series (Sc, Ti, V, Cr, Mn) and the alkaline earth metals (Sr, Ba) and the alkaline metals (K, Rb, Cs) are always less than 0.1 wt%, with the only exception of Na, ranging from 0.12 to 0.22 wt% as Na₂O.

On the basis of the low Fe/Mg ratio (<0.002) and the low content of CaO (0.07-0.27 ppm), Cr (0.06-0.36 ppm), and Ni (0.02-0.36 ppm), this nephrite can be classified as dolomite-related nephrite (Sugai et al., 2012).

CONCLUSION

The nephrite jade from Val Malenco is composed of almost pure tremolite, with minor amounts of other accessory minerals, mainly calcite. The color variations from white to white-gray are related to the calcite content rather than the concentration of the chromophore elements (i.e., Fe, Mn, Cr, Ni, etc., 2010). The compact and fine-grained microstructure confers to the jade quality an attractive aspect, making it noteworthy as gem material.

References:

AN ITALIAN JADE: 
THE NEPHRITE FROM 
VAL MALENCO (SONDRIJO)

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INTRODUCTION

Jade beads necklaces and ear-pins made by local craftsmen out of Scortaseo Nephrite and local pink marble.

Scortaseo talc mine

Jade beads necklaces and ear-pins made by local craftsmen out of Scortaseo Nephrite and local pink marble.
A deposit of gem-quality nephrite jade has been discovered some years ago at Mastabia, in Val Malenco, some 20 km N-NW of the town of Sondrio, northern Italy. The discovery of the nephrite jade is attributed to Mr. Pietro Nana (Sondrio) who first noticed an attractive green stone in the discarded waste materials of an abandoned talc mine situated at an altitude of 2077 m.
The aim of the present study is a multi-methodological investigation of nephrite jade from Val Malenco, in order to provide a full mineralogical-gemmological characterization of this gem-quality material.

Gemmological standard testing, X-ray diffraction combined with quantitative full-phase analysis using the Rietveld method, EMP and LA-ICP-MS chemical analyses, mid-IR spectroscopic measurements, were used as analytical techniques.

Polished 1cm wide strips of Mastabia Nephrite Jade showing good translucency and the yellowish-green color (A), localized black inclusions (B) and areas with coarse Tremolite crystals (C)
Ingresso franato livello 1.
Vecchia discarica con vista panoramica del gruppo del Bernina.
Varietà di Giada della Valmalenco.
Coppa in Giada di Mastabia.
Sculture in Giada di Mastabia.
Gruppo Tremogge, Malenco, Entova visto dall’alpe Fora.
Filone di Clinothulite della Cengia del Cavallo.
Collana realizzata con Clinothulite del pizzo Tremogge.
Cuore in Serpentino Nobile (Lizardite).
Pizzo Forno
Pizzo Forno, filone Rodonite. Sullo sfondo, il monte Disgrazia.
Abitante del filone di Rodonite.
Un camoscio sulla cresta del filone di Rodonite.
Val di Scerscen vista dalla capanna Marinelli.
Rodonite del Pizzo Forno, collane e grezzo.
I Berilli della provincia di Sondrio
Val Sissone, vista dalla cima del Monte Disgrazia.
Berilli della Val di Mello.
Berilli della Val di Mello.
Berillo Acquamarina proveniente dal Monte Vazzeda.
Berillo montato in oro e diamanti della Val Bodengo.