GRS GEMRESEARCH SWISSLAB®

For Immediate Release

22 September 2011

Volcanic Host Rock of Tibetan Red Andesine Discovered

Hong Kong – Historically, the finest red feldspar (sunstone) has come from deposits in Oregon (USA). While sunstone has also been found in other places like India and Tanzania, the Oregon deposits have set the gold standard.

In 2002, rich red feldspars from another source appeared on world markets. The source was originally said to be the Congo, but many such stones were actually purchased in China and it was later found that most were artificially diffusion treated with copper.

A second deposit was discovered in Tibet and sparked a controversy because the large amounts of diffusion-treated red andesine were indistinguishable from their natural Tibetan counterparts.

Recent studies (Abduriyim, et al., 2011; Peretti, et al., 2011) have confirmed the authenticity of Tibetan red andesine from the "Zha Lin" collection spot in Southern Tibet. The source rock (matrix) of this Tibetan red andesine was, however, never discovered. This led to speculation that all red Tibetan andesines were diffusion treated.

In response, GRS launched a project to solve the problem. A breakthrough came one month ago (August, 2011) after gemologist and author R.W. Hughes' second visit to the Zha Lin deposit in Tibet. He was able to collect hundreds of additional specimens for research.

Following extensive analyses of the samples by the GRS research department, the original host rock where the andesine formed was discovered; the original matrix was attached to one of the samples. High-tech analyses of the rock layers, minerals and chemistry of that volcanic rock, coupled with fluid inclusion analyses at Swiss universities (Prof. D. Günther, K. Hametner and M. Meier), revealed the nature of the rock type. It was a typical basalt member of the last volcanic activity that took place in South Tibet (10–15 million years ago). The occurrence of known commercially important gold-copper-silver deposits in the regional environment confirmed the availability of the ingredients (namely copper) necessary for the formation of natural red andesine. Based on the age determination of Tibetan red andesine by Prof. I. Villa at the University of Berne, a geological model was established that explains its formation.

Dr. Peretti explained the importance of this discovery: "With many mineral deposits, such as the sapphire in Sri Lanka and Ilakaka, Madagascar, we are never able to find the original host rock, as it has been completely destroyed by natural weathering processes. The fact that we found bits of basalt on this specimen was extremely fortunate."

The discovery of the mother rock along with the availability of a geological model brings closure to the raging controversy about the authenticity of naturally colored red Tibetan andesine. The occurrence is now confirmed as authentic.

A non-destructive test to differentiate the diffusion-treated stones from their untreated counterparts is in the course of being established by GRS and will be shared with other gemological labs for verification.

The International Colored Gemstone Association will hold the Gemstone Industry & Laboratory Conference (GILC) during the Hong Kong Jewelry & Gem Fair at Asia World Expo (AWE) on September 22, 2011. The latest GRS findings will be presented there and will also be available on the GRS website.

Dr. Adolf Peretti
Director of GRS

References

- Abduriyim, A., McClure, S.F., Rossman, G.R., Leelawatanasuk, T., Hughes, R.W., Laurs, B.M., Lu, R., Isatelle, F., Scarratt, K., Dubinsky, E.V., Douthit, T.R. and Emmett, J.L. (2011) Research on gem feldspar from the Shigatse region of Tibet. *Gems & Gemology*, Vol. 47, No. 2, pp. 167–180.
- Peretti, A., Villa, I., Bieri, W., Hametner, K., Dorta, L., Fontaine, G., Meier, M., and Günther, D. (2011) Distinguishing natural Tibetan copper-bearing andesine from its diffusion-treated counterparts using advanced analytical methods. *Contributions to Gemology*, No. 10, May, 105 pp.

Further reading

http://www.gemresearch.ch/journal/No10/No10.htm

http://www.gemresearch.ch/journal/No10/Supplement101.htm

Contact

Dr. A. Peretti adolph@peretti.ch Web www.gemresearch.ch
French/English hotline +852 2376 3888