

## **Water in tektites by proton-proton scattering, IR- and Raman spectroscopy**

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Raman spectroscopy and proton-proton (pp) scattering routines have been developed to determine water contents ranging from a few wt ppm to wt% in glasses and nominally anhydrous minerals (Thomas et al. 2008, 2009).

Those routines are promising examples of quantification tools to determine material specific molar absorption coefficients for infrared (IR) spectroscopy. Material specific absorption coefficients are required because general IR calibrations do not necessarily apply to minerals and silicate glasses with water incorporated in the form of OH groups.

Absorption coefficients and water contents for a set of tektite glasses were independently determined with pp-scattering, IR and Raman spectroscopy. First precise measurements of water content in this material were only reported in the 70s using IR spectroscopy. Accordingly, the water content in tektite glasses is very low, ranging from 2 to 300 wt ppm H<sub>2</sub>O (Beran and Koeberl, 1997) and has been used for debating their origin, terrestrial or lunar. However, independent studies using advanced techniques are not available.

In this study we will present new measurements and test, discuss and review available data, the feasibility of existing IR calibrations and implications for tektite glass origin.

Beran and Koeberl (1997) *Meteoritics & Planetary Science*, 32, 211-216.

Thomas et al. (2008) *American Mineralogist*, 93, 1550-1557.

Thomas et al. (2009) *Physics and Chemistry of Minerals*, 36, 489-509.