

Importance of quartz thermoluminescence peak temperature

*Kazumasa Miura¹, Noriko Hasebe¹, Yoshihiro Ganzawa²

1. Kanazawa University, 2. Hokkaido University of Education

The peak temperature and the intensity of the emission signal is necessary for calculation of the dose by the thermo-luminescence (TL) method using quartz.

The shape of the luminescence signal becomes broad when a sample has several luminescence sites, and the apparent peak formed by several luminescence sites with different stability may not be useful for dating of samples with complex thermal history.

In such a case, it is necessary to separate peaks and calculate accumulated dose by single luminescence site. For peak separation, the original peak temperature must be necessary. The peak temperature is estimated by the T-Tmax method (McKeever, 1980). In this method, the peak temperature is observed by erasing the signal below pre heat temperature. Generally, as the heating rate increases, the peak temperature shifts to a higher temperature (Aitken, 1985).

The peak temperature is different depending on the sample. In general, peak temperature is the same for the natural and the regenerative signals. However, they are different in some samples.

In this research, we will discuss the difference in peak temperatures of the natural signal and the regenerative signals.

Keywords: Luminescence, peak temperature, quartz