

## Heating of quartz gouge and decay of the ESR signals during high-velocity friction experiments

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ESR dating is a method to obtain ages from the natural doses accumulated in the minerals. Efforts have been devoted to establish the method of dating fault movements. One of the issues has been the mechanism of zeroing the ESR signals at the time of faulting. We performed in the present paper experiments of grinding quartz grains at speed high enough to simulate actual faulting where similar grinding experiments so far have been done at relatively low speed. ESR signals of impurity (Al and Ti-Li) centers were reduced by grinding while the intensity of the E1' center, related to oxygen vacancies, was increased, also being consistent with heating during grinding. The temperature of the frictional heating during the experiments was estimated to be 250 to 500 C.

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