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^{40}Ar-^{39}Ar step heating of Ries impact melts.

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The Nördlinger Ries impact crater is one of the most intensely studied impact crater, but the age of the impact crater (14.59 ± 0.10 Ma (1σ)) was primarily constrained by its ejecta - the Moldavites - using ^{40}Ar-^{39}Ar step heating techniques (see age compilations in e.g. [1], [2]).

Melt glasses ("Flädle") from two locations and melt particles (size c. 1cm) from one location (quarry Otting) were measured in two series by ^{40}Ar-^{39}Ar step heating.

All age spectra (except 1) show a hump shape spectrum typical for samples containing excess argon (e.g. [3]) and have integrated ^{40}Ar-^{39}Ar ages between c. 14.9 and 20.3 Ma. Only one sample with a flat spectrum, with increasing ages at high temperatures, yield a plateau age of 14.6 ± 0.1 (0.2) Ma (1σ) (identical with the Moldavite mean age) and an integrated age of 14.9 ± 0.1 (0.2) Ma (1σ). The other six samples display Ar-Ar age spectra with minimum ages between 14.7 and 18.8 Ma which are commonly considered as upper limit of the real age.

[1] Di Vincenzo G. and Skála R. 2009. GCA 73:493-513.
[2] Buchner E. et al. 2010. MAPS 45:662-674.
[3] McDougall I. and Harrison T.M. 1999. Oxford University Press.

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