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Microwave palaeointensity methods for burnt archaeological material

Mimi Hill, Florian Stark, Neil Suttie, Megan Thomas, Amy Haynes, and Andy Biggin
University of Liverpool, Geomagnetism Lab., School of Environmental Sciences, Liverpool, United Kingdom
(mimi@liv.ac.uk, 01517943460)

Early experiments using high frequency microwave de (re) magnetisation were carried out using ceramic samples; however, in recent years the majority of studies have used geological samples. The motivation for using the microwave method is to inhibit alteration occurring during the experiment which is generally less of a problem for well burnt material (such as bricks from a kiln) but can still be the reason for experimental failure for less well burnt material. There is also, as yet, no clear solution how best to determine any necessary cooling rate correction. There are however other, additional advantages of the microwave method such as the small sample size, the ability to apply the laboratory field in any user specified direction and the fact that once the sample is mounted it remains fixed for the duration of the experiment. Here we present a range of archaeointensity results and comparisons of different archaeointensity methods from a variety of burnt archaeological material (bricks, ceramics, tiles, burnt mud brick) with differing mineralogy. This investigation suggests that ideally a range of methods and experimental protocols should be used in order to check for consistency of results and non ideal behaviour. If non ideal behaviour is present a method / protocol that minimises this behaviour should be employed.