

Micromill sampling: an assessment of strengths, limitations, and applications in geochemical and isotopic analysis

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Micromilling, which combines precision drilling with optical microscopy, enables the extraction of small sample volumes at micron-scale resolutions. The precision control allows sampling to be based on petrographic and/or textural observations, preserving spatial information which would be lost in conventional bulk sampling methods. An additional strength of micromilling is that the extracted sample powder can proceed to be dissolved for geochemical and isotopic analysis; this offers an alternative in situations that preclude robust *in-situ* microbeam or laser analysis.

We present a summary of ongoing work on micromill sampling at the Department of Earth and Atmospheric Sciences, highlighting the strengths of the technique while identifying technical limitations. The applicability of micromilling towards analyzing meteorite samples will also be discussed.

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