



1 Determination of $\Delta^{17}\text{O}$ by fluorination of silicates without cryogenic separation of NF_3

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A novel technique is described to determine $\delta^{17}\text{O}$ and $\delta^{18}\text{O}$ with high accuracy and precision by using an IR laser fluorination with F_2 as reaction gas. The technique includes precise monitoring of the intensity ratio of the NF_2 ($m/z = 52$) to O_2 signal. The correlation between intensity of NF_2 and positive error in $\delta^{17}\text{O}$ allows correction of $\delta^{17}\text{O}$ for samples with unknown $\Delta^{17}\text{O}$ (e.g. meteorites) and interference of NF of mass $m/z = 33$. The resultant error in $\Delta^{17}\text{O}_{\text{TFI}}$ of a single measurement is in the range of $\pm 0.06\%$, i.e. sufficiently small for analysis and identification of mass-independent fractionation effects in bulk meteorites or meteorite components