

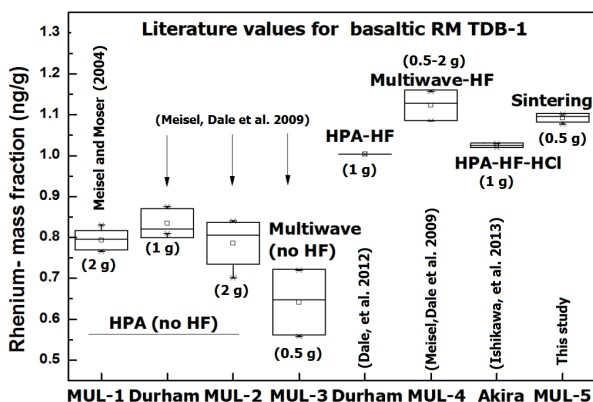
Accurate rhenium determination in basaltic geological reference material

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Accurate $^{187}\text{Re}/^{188}\text{Os}$, $^{187}\text{Os}/^{188}\text{Os}$ data in geochronological and geochemical investigation of Early Earth and subsequent evolution of silicate mantle is important for Re-Os isotope system. HPA acid digestions are complete for peridotites e.g. UB-N, but there has been observations that HNO_3/HCl acid attacks on basaltic material e.g. TDB-1 even with high temperature and pressure are not satisfactory for complete extraction of Re [1]. Only the addition of HF acid in combination with HPA proves to be effective [2&3]. HF acid is hazardous, contact poison and causes MgF_2 precipitation.

Here we undertook a study of basaltic reference material TDB-1 for complete digestion and recovery for accurate Re determination without using HF. We claim to present a simple, safe, effective, and inexpensive digestion technique i.e. Na_2O_2 sintering that leads to clear solutions that can be applied to ID-MS. 500 mg test portions of TDB-1 were digested with Na_2O_2 sintering, spiked with PGE, pre-concentrated with anion exchange column and measured with ICP-MS. Data obtained shows 1.1 ng/g of Re with 1% precision which is in accordance with recent literature data [2]. High procedural blanks are of concern which will be optimised in further PGE-Re study.



- [1] Meisel, T., C. Dale, *et al* (2009). *GCA*. **73**: 867 [2] Ishikawa A, Senda R, Suzuki K & Dale C (2013) *Min Mag*, **77** (5) 1362 [3] Dale, C. W., C. G. Macpherson, *et al* (2012) *GCA* **89** (0): 202-225