**Supplemental Figure 1**. Sealed tubes before (left) and after (right) graphitization.

**Supplemental Figure 2**. Comparison of online δ13C values of standards Bulk FIRI Belfast Cellulose (BBC), Bulk TIRI Barleymash (BBM) and Bulk Iceland Spar Calcite (BISC) measured in batches 1-3 on a 5MV AMS. Graphites were run in groups by size (e.g., group 1 for ~0.1 mg C, group 2 for ~0.2 mg C, and so forth) with one BISC of routine size (~1-1.5 mg C) run in each group. Dotted lines mark the scatter observed in all 3 batches for secondary standards BBC and BBM and values outside these lines in batch 2 were excluded from accuracy calculations.