

Supplementary Material: Background Tests and Improvements at LAC-UFF Aiming at Sample Size Reduction in Foraminifera ^{14}C Measurement

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Table S1: pMC values (uncorrected) for regular-sized CA background samples using graphitization tubes stored in different conditions.

| Sample Code | Lab | Storage Time | pMC | Uncertainty |
|-------------|-----|---------------------------|------|-------------|
| 190104 | ANU | Prebaked/Immediately used | 0.91 | 0.16 |
| 190103 | ANU | Prebaked/Immediately used | 0.86 | 0.16 |
| 190102 | ANU | Prebaked/Immediately used | 0.78 | 0.16 |
| 190101 | ANU | 7 days | 0.95 | 0.16 |
| 190100 | ANU | 7 days | 1.09 | 0.16 |
| 190099 | ANU | 7 days | 0.71 | 0.16 |
| 190098 | ANU | 30 days | 0.99 | 0.16 |
| 190097 | ANU | 30 days | 1.07 | 0.16 |
| 190284 | ANU | Non-prebaked GT | 1.99 | 0.05 |
| 190285 | ANU | Non-prebaked GT | 2.19 | 0.04 |
| 190286 | ANU | Non-prebaked GT | 2.17 | 0.05 |

Table S2: Sample sizes and pMC results for all tested sample materials, using prebaked GT.

| Sample Code | Lab | Type | Initial Mass (mg) | C (mg) | pMC | Uncertainty | Time to Measure |
|-------------|-----|------|-------------------|--------|-----|-------------|-----------------|
|-------------|-----|------|-------------------|--------|-----|-------------|-----------------|

| | | | | | | | |
|--------|---------|----|-------|-------|---------------------------|------|-------------|
| | MPI-BGC | ER | 1.10 | 0.098 | Failed during measurement | | |
| 190385 | LAC-UFF | ER | 1.30 | 0.114 | 1.72 | 0.06 | Immediately |
| 190265 | MPI-BGC | ER | 3.20 | 0.263 | 1.02 | 0.04 | 4 months |
| 190386 | LAC-UFF | ER | 3.30 | 0.225 | 1.02 | 0.03 | Immediately |
| 190266 | MPI-BGC | ER | 4.80 | 0.376 | 0.74 | 0.04 | 4 months |
| 190387 | LAC-UFF | ER | 5.10 | 0.461 | 0.93 | 0.03 | Immediately |
| 190267 | MPI-BGC | ER | 6.90 | 0.574 | 0.89 | 0.04 | 4 months |
| 190388 | LAC-UFF | ER | 6.90 | 0.353 | 0.98 | 0.03 | Immediately |
| 190268 | MPI-BGC | ER | 9.90 | 0.725 | 0.75 | 0.03 | 4 months |
| 190389 | LAC-UFF | ER | 10.60 | 0.851 | 0.84 | 0.03 | Immediately |
| 190269 | MPI-BGC | CA | 1.10 | 0.155 | 2.11 | 0.09 | 2 months |
| 190390 | LAC-UFF | CA | 1.00 | 0.060 | 3.97 | 0.14 | Immediately |
| 190270 | MPI-BGC | CA | 2.80 | 0.215 | 1.53 | 0.07 | 2 months |
| 190391 | LAC-UFF | CA | 3.00 | 0.147 | 1.73 | 0.06 | Immediately |
| 190271 | MPI-BGC | CA | 5.00 | 0.483 | 1.08 | 0.08 | 2 months |
| 190392 | LAC-UFF | CA | 4.80 | 0.364 | 1.17 | 0.04 | Immediately |
| 190272 | MPI-BGC | CA | 6.90 | 0.698 | 0.87 | 0.06 | 2 months |
| 190393 | LAC-UFF | CA | 7.0 | 0.549 | 0.76 | 0.03 | Immediately |
| 190273 | MPI-BGC | CA | 10.10 | 0.880 | 0.74 | 0.03 | 2 months |
| 190394 | LAC-UFF | CA | 10.2 | 0.808 | 0.96 | 0.03 | Immediately |
| 190538 | LAC-UFF | C1 | 1.20 | 0.126 | 1.23 | 0.05 | Immediately |
| 190539 | LAC-UFF | C1 | 3.10 | 0.296 | 0.84 | 0.04 | Immediately |
| 190541 | LAC-UFF | C1 | 5.00 | 0.501 | 0.62 | 0.03 | Immediately |
| 190542 | LAC-UFF | C1 | 7.20 | 0.676 | 0.61 | 0.02 | Immediately |
| 190543 | LAC-UFF | C1 | 10.00 | 0.991 | 0.60 | 0.02 | Immediately |

Table S3: Sample sizes and pMC results for all tested sample materials, using non-prebaked GT.

| Sample Code | Lab | Type | Initial Mass (mg) | C (mg) | pMC | Uncertainty | Time |
|-------------|---------|------|-------------------|--------|------|-------------|-------------|
| 190274 | MPI-BGC | ER | 1.10 | 0.114 | 14.2 | 0.56 | 4 months |
| 190440 | LAC-UFF | ER | 1.40 | 0.149 | 4.01 | 0.06 | Immediately |
| 190275 | MPI-BGC | ER | 3.10 | 0.165 | 4.2 | 0.1 | 4 months |
| 190441 | LAC-UFF | ER | 2.90 | 0.257 | 2.78 | 0.04 | Immediately |
| 190276 | MPI-BGC | ER | 5.00 | 0.334 | 2.36 | 0.06 | 4 months |
| 190442 | LAC-UFF | ER | 5.10 | 0.537 | 1.55 | 0.03 | Immediately |
| 190277 | MPI-BGC | ER | 7.60 | 0.799 | 0.89 | 0.03 | 4 months |
| 190443 | LAC-UFF | ER | 6.90 | 0.717 | 1.14 | 0.02 | Immediately |
| 190278 | MPI-BGC | ER | 10.20 | 0.883 | 0.97 | 0.03 | 4 months |
| 190444 | LAC-UFF | ER | 10.50 | 1.103 | 0.97 | 0.02 | Immediately |
| 190279 | MPI-BGC | CA | 1.20 | 0.088 | 7.1 | 0.20 | 4 months |
| 190445 | LAC-UFF | CA | 1.20 | 0.098 | 6.11 | 0.11 | Immediately |
| 190280 | MPI-BGC | CA | 3.10 | 0.252 | 2.52 | 0.07 | 4 months |
| 190446 | LAC-UFF | CA | 3.10 | 0.303 | 2.01 | 0.03 | Immediately |

| | | | | | | | |
|---------------|-------------|----|-------|-------|------|------|-------------|
| 190281 | MPI- BGC | CA | 5.10 | 0.461 | 1.65 | 0.05 | 4 months |
| 190447 | LAC- UFF | CA | 4.85 | 0.378 | 1.71 | 0.03 | Immediately |
| 190282 | MPI- BGC | CA | 7.10 | 0.683 | 1.20 | 0.04 | 4 months |
| 190448 | LAC- UFF | CA | 6.96 | 0.566 | 1.22 | 0.03 | Immediately |
| 190283 | MPI- BGC | CA | 10.10 | 0.883 | 0.96 | 0.03 | 4 months |
| 190449 | LAC- UFF | CA | 10.14 | 0.676 | 0.91 | 0.02 | Immediately |
