Details on SIMS analyses: Calibration, background and detection limits.

### Secondary ion intensities (counts/s) on NIST SRM 610 glass

|        | \( ^{7}Li \) | \( ^{8}B \) | \( ^{22}Na \) | \( ^{27}Al \) | \( ^{39}K \) | \( ^{48}Ti \) | \( ^{72}Ge \) |
|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| SRM610-1 | 7.58E+03    | 1.17E+03    | 3.32E+05    | 7.56E+04    | 1.01E+03    | 2.48E+03    | 4.03E+01    |
| SRM610-2 | 7.95E+03    | 1.24E+03    | 3.50E+05    | 8.01E+04    | 1.06E+03    | 2.61E+03    | 4.23E+01    |
| SRM610-3 | 8.00E+03    | 1.23E+03    | 3.47E+05    | 7.92E+04    | 1.05E+03    | 2.61E+03    | 4.18E+01    |
| SRM610-4 | 8.01E+03    | 1.23E+03    | 3.47E+05    | 7.90E+04    | 1.06E+03    | 2.56E+03    | 4.09E+01    |
| SRM610-5 | 8.03E+03    | 1.23E+03    | 3.53E+05    | 8.02E+04    | 1.07E+03    | 2.64E+03    | 4.07E+01    |
| SRM610-6 | 8.00E+03    | 1.23E+03    | 3.51E+05    | 7.98E+04    | 1.05E+03    | 2.62E+03    | 4.15E+01    |
| SRM610-7 | 7.92E+03    | 1.21E+03    | 3.45E+05    | 7.87E+04    | 1.05E+03    | 2.60E+03    | 4.07E+01    |
| Mean    | 7.93E+03    | 1.22E+03    | 3.47E+05    | 7.89E+04    | 1.05E+03    | 2.59E+03    | 4.12E+01    |

### Concentrations in NIST SRM 610 glass (Jochum et al. 2011)

|        | Li (µg/g) | B     | Na     | Al     | K      | Ti     | Ge     |
|--------|-----------|-------|--------|--------|--------|--------|--------|
| c      | 468       | 350   | 99409  | 10320  | 464    | 452    | 447    |

### Background and detection limit (see Marschall & Ludwig 2004 and Currie 1968)

|        | Li | B   | Na   | Al   | K   | Ti | Ge   |
|--------|----|-----|------|------|-----|----|------|
| \( S_{ab} \) (counts s\(^{-1}\) (µg/g\(^{-1}\)) | 16.941 | 3.478 | 3.486 | 7.650 | 2.264 | 5.725 | 0.092 |
| Total integration time (s) | 32 | 64 | 32 | 32 | 32 | 64 | 128 |
| "Well-known" background (counts/s) | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 |
| \( \mu_0 \) (counts) | 0.800 | 1.600 | 0.800 | 0.800 | 0.800 | 1.600 | 3.200 |
| \( S_c \) (counts) | 1.467 | 2.074 | 1.467 | 1.467 | 1.467 | 2.074 | 2.934 |
| \( S_D \) (counts) | 5.653 | 6.872 | 5.653 | 5.653 | 5.653 | 6.872 | 8.595 |
| "Well-known" background (µg/g) | 0.001 | 0.007 | 0.007 | 0.003 | 0.011 | 0.004 | 0.271 |
| \( x_c \) (µg/g) | 0.003 | 0.009 | 0.013 | 0.006 | 0.020 | 0.006 | 0.249 |
| \( x_D \) (µg/g) | 0.010 | 0.031 | 0.051 | 0.023 | 0.078 | 0.019 | 0.729 |

### Test analyses on silica glass Herasil 102 (conc. in µg/g)

|        | Li | B   | Na   | Al   | K   | Ti | Ge   |
|--------|----|-----|------|------|-----|----|------|
| Herasil 102-1 | 0.087 | 0.013 | 0.126 | 7.506 | 0.307 | 0.047 | -0.124 |
| Herasil 102-2 | 0.091 | 0.007 | 0.184 | 8.063 | 0.249 | 0.021 | 0.256 |
| Herasil 102-3 | 0.070 | 0.010 | 0.235 | 8.839 | 0.399 | 0.049 | -0.129 |
| Mean   | 0.083 | 0.010 | 0.182 | 8.136 | 0.319 | 0.039 | 0.001 |
| 1sd    | 0.011 | 0.003 | 0.055 | 0.669 | 0.076 | 0.016 | 0.221 |