# Certification Report

# Certified Reference Material

# BAM-M109/109a

# Refined Lead

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## Summary

This report describes preparation, analysis and certification of the lead reference materials BAM-M109 and BAM-M109a.
The certified reference materials (CRM) are available in the form of discs (ca. 40 mm diameter and 40 mm height). They are intended for establishing and checking the calibration of optical emission for the analysis of samples of similar matrix composition. They are also suitable for wet chemical analysis.

The following mass fractions and uncertainties have been certified:

**BAM-M109**

| **Element** | **Mass fraction [1)] in %** | **Uncertainty [2)] in %** |
|---|---|---|
| As | 0.0113 | 0.0006 |
| Bi | 0.0193 | 0.0006 |
| Sb | 0.0098 | 0.0003 |
| Sn | 0.115 | 0.004 |
| | **in mg/kg** | **in mg/kg** |
| Ag | 45.1 | 1.0 |
| Cd | 35.3 | 0.9 |
| Cu | 19.6 | 0.7 |
| Ni | 3.5 | 0.3 |
| Te | 30.6 | 1.5 |
| Tl | 3.0 | 0.5 |
| Zn | 31.8 | 2.1 |

**BAM-M109a**

| Element | Mass fraction [1] in % | Uncertainty [2] in % |
|---|---|---|
| As | 0.0116 | 0.0006 |
| Bi | 0.0198 | 0.0005 |
| Sb | 0.0098 | 0.0006 |
| Sn | 0.119 | 0.009 |
| | **in mg/kg** | **in mg/kg** |
| Ag | 45.7 | 2.1 |
| Cd | 36.0 | 0.9 |
| Cu | 19.5 | 0.9 |
| Ni | 3.7 | 0.7 |
| Te | 30.5 | 1.8 |
| Tl | 3.3 | 0.7 |
| Zn | 35 | 4 |

1 Unweighted mean value of the means of accepted sets of data, each set being obtained by at least 5 laboratories and/or with different methods of measurement. The values are traceable to the SI (Système International d'Unités) by the use of pure substances of known stoichiometry for calibration.

2 Estimated expanded uncertainty *U* with a coverage factor of $k = 2$ corresponding to a level of confidence of about 95%, as defined in the ISO/IEC Guide 98-3:2008 [Uncertainty of measurement -- Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)].

This report contains detailed information on the preparation of the CRMs as well as on homogeneity investigations and on the analytical methods used for certification analysis.
The certified values are based on the results of eleven laboratories which participated in the certification inter-laboratory comparison.

## Content

**List of abbreviations**
(if not explained elsewhere)

| | |
|---|---|
| CRM | certified reference material |
| ETAAS | electrothermal atomic absorption spectrometry |
| FAAS | flame atomic absorption spectrometry |
| ICP-OES | inductively coupled plasma optical emission spectrometry |
| ICP-MS | inductively coupled plasma mass spectrometry |
| SOES | spark optical emission spectrometry |
| $M$ | mean value |
| $n$ | number of accepted data sets |
| $s$ | standard deviation of an individual data set |
| $s_M$ | standard deviation of laboratory means |
| $s_{rel}$ | relative standard deviation |
| $\bar{s}_i$ | square root of mean of variances of data sets under repeatability conditions |
| $M_i$ | single result |
| I | ICP-OES (Tables 3 – 24) |
| I(R) | ICP-OES, revised value (Tables 3 – 24) |
| IMS | ICP-MS (Tables 3 – 24) |
| A | FAAS (Tables 3 – 24) |
| EA | ETAAS (Tables 3 – 24) |

## 1. Introduction

In the metal-producing and metal-working industry mainly spark emission spectrometry (SOES) is used for reception inspection of raw materials, e.g. scrap, for quality control of end products and production control. This time-saving analytical technique require suitable reference materials for calibration and recalibration. The certified reference materials BAM-M109/109a are based on refined lead and will replace BCR-288.

The idea to produce a succeeding reference material for BCR-288 was the outcome of the discussions within the working group „Lead" of the Committee of Chemists within the Society of Metallurgists und Miners (GDMB). The needs are defined by this working group, since the members are potential users of the prepared CRMs. Participating laboratories were recruited from this group. Since all of these laboratories are highly experienced with lead analysis and had participated in earlier interlaboratory comparisons, there was no preceding round robin test for qualification necessary.

Certification was carried out on the basis of the relevant ISO-Guides [1-3], the „Guidelines for the development and production of BAM Reference Materials" [4].

## 2. Companies/laboratories involved

Manufacturing of the material:

– SUS Nell, Oberhausen, Germany

Test for homogeneity:

– Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany
– SUS Nell, Oberhausen, Germany

Participants in the certification inter-laboratory comparison:

– Aurubis AG, Hamburg, Germany
– Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany
– Berzelius Stolberg, Stolberg, Germany
– Hoppecke Batterien GmbH & Co. KG, Brilon-Hoppecke, Germany
– Johnson Controls Sachsen-Batterien GmbH & Co. KG, Zwickau, Germany
– Johnson Controls, VB Autobatterie GmbH & Co. KGaA, Hannover, Germany
– Muldenhütten Recycling und Umwelttechnik GmbH, Freiberg, Germany
– Recyclex Harz-Metall GmbH, Goslar, Germany
– TAB-IPM d.o.o., Žerjav, Slovenia
– ThyssenKrupp Steel Europe, Duisburg, Germany
– WESER METALL GmbH, Nordenham, Germany

Statistical evaluation of the data:

– Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany

## 3. Candidate material

A refined lead was used as basic material for the preparation of the candidate material. This material was milled, melted and doped with the desired impurities by SUS Nell, Oberhausen.
From the melt rods with a length of 330 mm and a diameter of 50 mm were casted. in total 63 rods were casted each giving 10 discs with a diameter of ca. 40 mm and 40 mm height (in total 630 discs). A preliminary homogeneity test showed that the three batches differ slightly in the Sn- and Zn-content. Therefore, 22 rods were summarised to one batch which became BAM-M109 (Rods R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM) and another 17 rods were summarised to another batch which became BAM-M109a (Rods A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q).

In total, 220 discs of BAM-M109 and 170 discs of BAM-M109a with a diameter of ca. 40 mm and 40 mm height were obtained. The remaining discs from the third batch were not used.

## 4. Homogeneity testing

Possible reasons for an inhomogeneous distribution of elements in the raw material may be a change of the composition of the melt during the casting procedure because some elements may volatize or because of possible segregation during the solidification of the material. Since the raw material was produced by casting of a rod, concentration gradients can occur over the length of the rod (axial) as well as over the area of the rod (radial, see Figures 1 and 2):

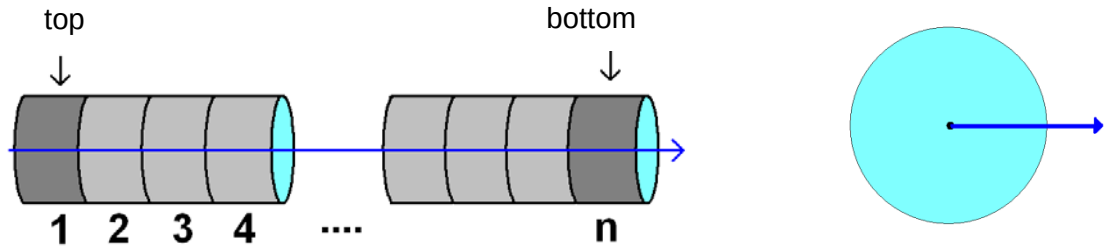



Fig. 2: Axial and radial composition gradient

Therefore, it is necessary to investigate the raw material for both axial and radial inhomogeneities. Radial as well as axial homogeneity testing of the candidate materials using spark emission spectrometry was performed at BAM. In total 40 discs of BAM-M109 and 13 discs of BAM-M109a were investigated.

Tab. 1a: Discs analysed for homogeneity testing of BAM-M109 (SOES), axial

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R1 | U4 | X2 | Z6 | AB3 | AD3 | AF1 | AH4 | AJ3 | AL1 |
| R4 | U7 | X7 | Z10 | AB9 | AD10 | AF6 | AH9 | AJ9 | AL7 |
| T3 | W6 | Y1 | AA4 | AC2 | AE2 | AG1 | AI4 | AK3 | AM7 |
| T9 | W8 | Y3 | AA7 | AC6 | AE8 | AG3 | AI7 | AK6 | AM10 |

Tab. 1b: Discs analysed for homogeneity testing of BAM-M109a (SOES), axial

| | | | | | |
|---|---|---|---|---|---|
| J1 | L8 | N7 | O1 | P3 | Q4 |
| J8 | M4 | N10 | O8 | P9 | Q10 |
| K5 | | | | | |

The estimate of analyte-specific inhomogeneity contribution $u_{bb}$ to be included into the total uncertainty budget was calculated according to ISO Guide 35 [4] using Eq. (1) and Eq. (2):

$$s_{bb} = \sqrt{\frac{MS_{among} - MS_{within}}{n}} \qquad (1)$$

$$u^{*}_{bb} = \sqrt{\frac{MS_{within}}{n}} \sqrt[4]{\frac{2}{N(n-1)}} \qquad (2)$$

where:

| | |
|---|---|
| $MS_{among}$ | mean of squared deviations between discs (from 1-way ANOVA, see Annex 1) |
| $MS_{within}$ | mean of squared deviations within one disc (from 1-way ANOVA) |
| $n$ | number of replicate measurements per disc |
| $N$ | number of discs selected for homogeneity study |

$s_{bb}$ signifies the between-discs standard deviation whereas $u^{*}_{bb}$ denotes the maximum heterogeneity that can potentially be hidden by an insufficient repeatability of the applied measurement method (which has to be considered as the minimum uncertainty contribution). In any case the larger of the two values was used as $u_{bb}(1)$. Eq. (1) does not apply if $MS_{within}$ is larger than $MS_{among}$.

In addition to the tests performed over the length of the rods two discs were tested for homogeneity over the area (possible segregation from the outer part to the centre). To perform this test SOES analysis was carried out in circles (outer circle: 8 sparks, inner circle: 8 sparks; centre: 1 spark). This was performed five times on different days.

The analyte-specific within-disc uncertainty component $u_{bb}(2)$ was calculated in the same way as for the total batch. To calculate the necessary data an unbalanced ANOVA was carried out considering that the number of single measurements is different for the centre, the inner and the outer circle. For technical reasons, at r_0 (centre) only one measurement is possible. An ANOVA requires a minimum of two measurements per factor value. Thus, the value for r_0 should be replaced by a dummy. This dummy is defined as follows:

The two values replacing the one measured have a mean equal to the value measured, and a standard deviation equal to the average within-variation. This resembles the situation where one could take two independent measurements at the same place, with values deviating by the average standard deviation (non-destructive testing method). A first guess for the average standard deviation may be calculated from the data for r_in (inner circle), r_mean (mean circle) and r_out (outer circle). As results from these calculations an inhomogeneity component for the radius of the disc is obtained. From these values, a combined inhomogeneity component is calculated. This component is compared with the within standard deviation calculated from the ANOVA-data. The higher component is used for the uncertainty calculation. For uncertainty calculation the mean of five runs was used.

The results of the calculations are given in the annex.

## 5. Characterisation study

### 5.1 Analytical methods

Eleven laboratories participated in the certification inter-laboratory comparison. For some elements part of the laboratories used more than one analytical method reporting more than one data set.
The laboratories were asked to analyse six subsamples. They were free to choose any suitable analytical method. Table 2 shows the analytical methods used by the participating laboratories.
For all analytical methods where a calibration was necessary this calibration was performed using liquid standard solutions. All participating laboratories were asked to use only standard solutions prepared from pure metals or stoichiometric compounds or well checked commercial calibration solutions.

Table 2: Analytical procedures used by the participating laboratories

| Lab-No. | Element. | Sample mass | Sample pretreatment | Analytical method |
|---|---|---|---|---|
| 1 | As, Bi, Sn, Sb, Ag, Cd, Cu, Ni, Te, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800), | ICP-OES, calibration with commercial solutions (Spex certified) |
| 2 | As, Bi, Sn, Sb, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800) | ICP-OES with matrix matched standards, calibration with monoelemental solutions |
| | Ag, Cd, Cu, Ni, Te | 2 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800) | ICP-OES with matrix matched standards, calibration with monoelemental solutions, prepared from pure metals or substances |
| | Te, Cd, Cu, Ni | 1 g | Dissolution with $HNO_3$/HF | ETAAS, calibration with monoelemental solutions |
| | Sn | 1 g | Dissolution with $HNO_3$/HF | FAAS, calibration with monoelemental solution |
| 3 | As, Bi, Sn, Sb, Ag, Cd, Cu, Ni, Te, Tl, Zn | 0.5 g | Dissolution with $HNO_3$/HF | ICP-OES, with matrix matched standards, calibration with commercial solutions (NIST traceable) |
| 4 | As, Bi, Ag, Cd, Cu, Ni, Te, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800) Precipitation of Pb as sulfate | ICP-OES, calibration with commercial solutions (Merck certipur) |
| | Sb, Sn | 1 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800) | ICP-OES, calibration with commercial solutions (Merck certipur) |
| 5 | As, Bi, Sn, Sb, Ag, Al, Cd, Cu, In, Ni, Te, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ (acc. prEN 13800) | ICP-OES with matrix matched standards, commercial mono-element solutions (Merck) |
| 6 | As, Bi, Sn, Sb, Ag, Al, Cd, Cu, Ni, Te, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ | ICP-OES with matrix matched standards, calibration with commercial solutions (Kraft) |
| 7 | As, Bi, Ag, Al, Cd, Cu, Ni, Te, Tl, Zn | 2 g | Dissolution with tartaric acid/$HNO_3$ | ICP-OES with matrix matched standards, calibration with commercial solutions (Merck, Kraft) |
| | Sn, Sb | 2 g | Dissolution with tartaric acid/$HNO_3$ | ICP-OES, calibration with commercial solutions (Merck, Kraft) |

Table 2 (cont.): Analytical procedures used by the participating laboratories

| Lab-No. | Element. | Sample mass | Sample pretreatment | Analytical method |
|---|---|---|---|---|
| 8 | As, Bi, Sn, Sb, Al, Cd, Cu, Ni, Te, Tl, Zn | 2.5 g | Dissolution with tartaric acid/$HNO_3$ | ICP-OES with matrix matched standards, calibration with monoelemental solutions, prepared from pure metals |
| | Ag | 2.5 g | Dissolution with tartaric acid/$HNO_3$ | FAAS with matrix matched standards, calibration with monoelemental solutions, prepared from pure metals |
| 9 | As, Bi, Sn, Al, Cd, Cu, Ni, Te, Zn | 2 g | Dissolution with $HNO_3$ | ICP-OES with matrix matched standards, commercial mono-element solutions |
| | Sb | 0.1 g | Dissolution with $HNO_3$ | ICP-OES with matrix matched standards, calibration with monoelemental solutions, prepared from pure metals |
| | Ag | 2 g | Dissolution with $HNO_3$ | FAAS with matrix matched standards, commercial mono-element solutions |
| 10 | As, Bi, Sn, Sb, Ag, Al, Cd, Cu, In, Ni, Te, Zn | 1 g | Dissolution with $HNO_3$/Tetraborate fusion | ICP-OES with matrix matched standards, commercial mono-element solutions |
| | Sn | 1 g | Dissolution with $HNO_3$/Tetraborate fusion | ICP-OES with matrix matched standards, calibration with monoelemental solutions, prepared from pure metal |
| | Tl | 1 g | Dissolution with $HNO_3$/Tetraborate fusion | ICP-MS with matrix matched standards, commercial mono-element solutions |
| 12 | As, Bi, Sn, Sb, Ag, Al, Cd, Cu, In, Ni, Te, Zn | 5 g | Dissolution with tartaric acid/$HNO_3$/HCl | ICP-OES, calibration with commercial solutions (J.T. Baker, Carlo Erba) |

### 5.2 Analytical results and statistical evaluation

The analytical results of the certification inter-laboratory comparison are listed in Tables 3 to 24. These tables show the single results ($M_i$) of each laboratory, the respective laboratories' mean values (M), absolute and relative intra-laboratory standard deviation ($s$ and $s_{rel}$, respectively), the standard deviation of laboratory means ($s_M$), and in addition the square root of mean of variances of data sets under repeatability conditions ($\overline{s}_i$) where $n$ is the number of accepted data sets. The continuous line marks the certified value (mean of the laboratories' means), the broken lines mark the standard deviation, calculated from the laboratories' means.
In the related figures for each laboratory its mean value and single standard deviation is given. Outliers which have been excluded are highlighted in yellow.

Table 3: Results for As in BAM-M109

| Lab./Meth. | 4/I | 10/I | 12/I | 8/I(R) | 3/I(R) | 5/I | 2/I | 7/I | 1/I | 9/I | 6/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0106 | 0.0106 | 0.0101 | 0.0112 | 0.0112 | 0.0111 | 0.0116 | 0.0116 | 0.011 | 0.0120 | 0.013 | | *n* |
| | 0.0109 | 0.0109 | 0.0101 | 0.0112 | 0.0105 | 0.0108 | 0.0117 | 0.0117 | 0.012 | 0.0118 | 0.012 | | 11 |
| | 0.0107 | 0.0106 | 0.0109 | 0.0105 | 0.0110 | 0.0113 | 0.0117 | 0.0118 | 0.012 | 0.0120 | 0.012 | | |
| | 0.0108 | 0.0107 | 0.0112 | 0.0111 | 0.0112 | 0.0114 | 0.0117 | 0.0117 | 0.012 | 0.0122 | 0.012 | | |
| | 0.0104 | 0.0107 | 0.0113 | 0.0110 | 0.0112 | 0.0113 | 0.0116 | 0.0118 | 0.012 | 0.0116 | 0.012 | | |
| | 0.0105 | 0.0109 | 0.0110 | 0.0111 | 0.0113 | 0.0114 | 0.0117 | 0.0118 | 0.012 | 0.0118 | 0.012 | | |
| ***M* [%]** | **0.0107** | **0.0107** | **0.0108** | **0.0110** | **0.0110** | **0.0112** | **0.0117** | **0.0117** | **0.0118** | **0.0119** | **0.0122** | | **0.0113** |
| *s* [%] | 0.0002 | 0.0001 | 0.0005 | 0.0003 | 0.0003 | 0.0002 | 0.0000 | 0.0001 | 0.0004 | 0.0002 | 0.0004 | $s_M$ [%] | 0.00054 |
| | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00029 |
| $s_{rel}$ | 0.018 | 0.011 | 0.049 | 0.024 | 0.027 | 0.021 | 0.004 | 0.006 | 0.034 | 0.018 | 0.034 | | 0.04751 |

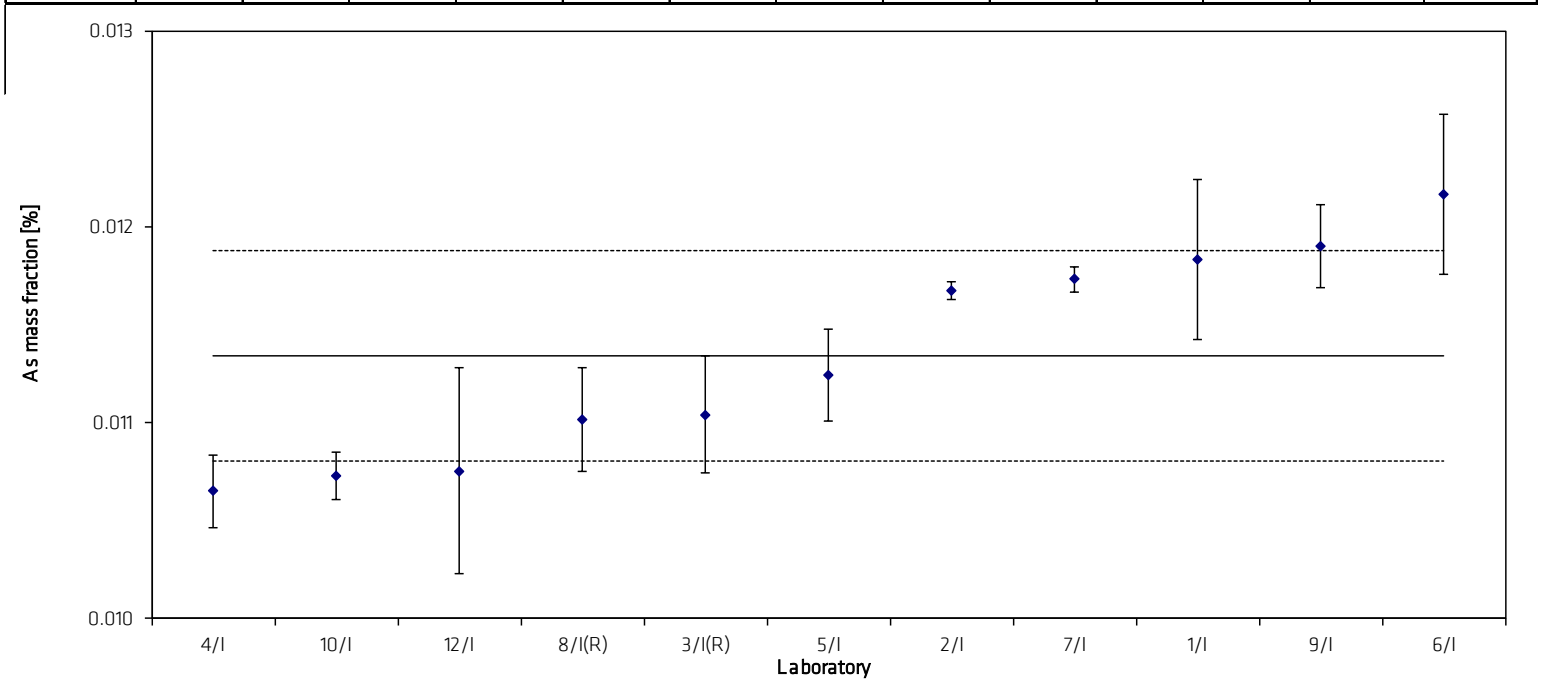


Table 4: Results for Bi in BAM-M109

| Lab./Meth. | 12/I | 4/I | 8/I(R) | 1/I | 5/I | 2/I | 3/I | 9/I | 6/I | 7/I | 10/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0168 | 0.0191 | 0.0188 | 0.019 | 0.0191 | 0.0193 | 0.0199 | 0.0196 | 0.0210 | 0.0201 | 0.0205 | | *n* |
| | 0.0165 | 0.0185 | 0.0187 | 0.019 | 0.0186 | 0.0193 | 0.0198 | 0.0193 | 0.0198 | 0.0202 | 0.0205 | | 11 |
| | 0.0181 | 0.0181 | 0.0176 | 0.019 | 0.0193 | 0.0193 | 0.0197 | 0.0196 | 0.0198 | 0.0202 | 0.0208 | | |
| | 0.0179 | 0.0176 | 0.0186 | 0.019 | 0.0193 | 0.0193 | 0.0195 | 0.0199 | 0.0195 | 0.0206 | 0.0210 | | |
| | 0.0181 | 0.0178 | 0.0185 | 0.019 | 0.0192 | 0.0193 | 0.0197 | 0.0205 | 0.0198 | 0.0206 | 0.0208 | | |
| | 0.0180 | 0.0184 | 0.0186 | 0.019 | 0.0192 | 0.0193 | 0.0193 | 0.0203 | 0.0199 | 0.0206 | 0.0206 | | |
| ***M* [%]** | **0.0176** | **0.0182** | **0.0185** | **0.0190** | **0.0191** | **0.0193** | **0.0197** | **0.0199** | **0.0200** | **0.0204** | **0.0207** | | **0.0193** |
| *s* [%] | 0.0007 | 0.0005 | 0.0004 | 0.0000 | 0.0003 | 0.0000 | 0.0002 | 0.0005 | 0.0005 | 0.0002 | 0.0002 | $s_M$ [%] | 0.00094 |
| | | | | | | | | | | | | $\overline{s}_i$ [%] | 0.00039 |
| $s_{rel}$ | 0.041 | 0.029 | 0.024 | 0.000 | 0.014 | 0.002 | 0.011 | 0.023 | 0.026 | 0.012 | 0.009 | | 0.04896 |

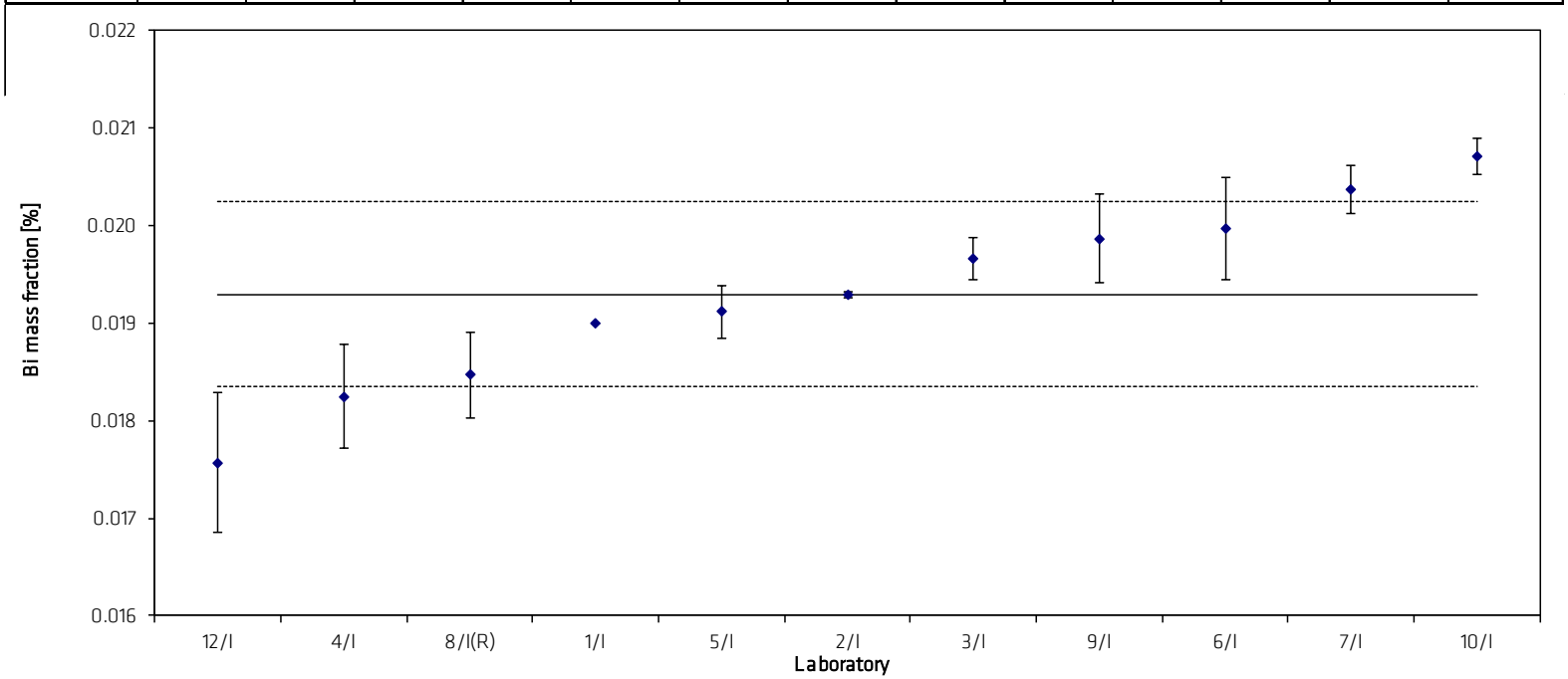


Table 5: Results for Sb in BAM-M109

| Lab./Meth. | 12/I | 10/I | 3/I | 6/I | 8/I(R) | 4/I(R) | 7/I | 1/I | 5/I(R) | 9/I | 2/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0088 | 0.0098 | 0.0095 | 0.0101 | 0.0099 | 0.0095 | 0.0095 | 0.01 | 0.0101 | 0.0101 | 0.0104 | | *n* |
| | 0.0089 | 0.0094 | 0.0095 | 0.0095 | 0.0099 | 0.0098 | 0.0096 | 0.01 | 0.0101 | 0.0105 | 0.0104 | | 11 |
| | 0.0096 | 0.0089 | 0.0094 | 0.0096 | 0.0093 | 0.0099 | 0.0096 | 0.01 | 0.0101 | 0.0102 | 0.0104 | | |
| | 0.0096 | 0.0098 | 0.0095 | 0.0094 | 0.0098 | 0.0099 | 0.0099 | 0.01 | 0.0101 | 0.0104 | 0.0104 | | |
| | 0.0099 | 0.0093 | 0.0097 | 0.0096 | 0.0098 | 0.0097 | 0.0100 | 0.01 | 0.0101 | 0.0102 | 0.0103 | | |
| | 0.0093 | 0.0093 | 0.0095 | 0.0096 | 0.0097 | 0.0096 | 0.0100 | 0.01 | 0.0101 | 0.0105 | 0.0103 | | |
| ***M*** **[%]** | **0.0093** | **0.0094** | **0.0095** | **0.0096** | **0.0097** | **0.0097** | **0.0098** | **0.0100** | **0.0101** | **0.0103** | **0.0104** | | **0.0098** |
| *s* [%] | 0.0004 | 0.0004 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | $s_M$ [%] | 0.00034 |
| | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00022 |
| $s_{rel}$ | 0.046 | 0.037 | 0.009 | 0.024 | 0.023 | 0.017 | 0.022 | 0.000 | 0.002 | 0.017 | 0.003 | | 0.03485 |

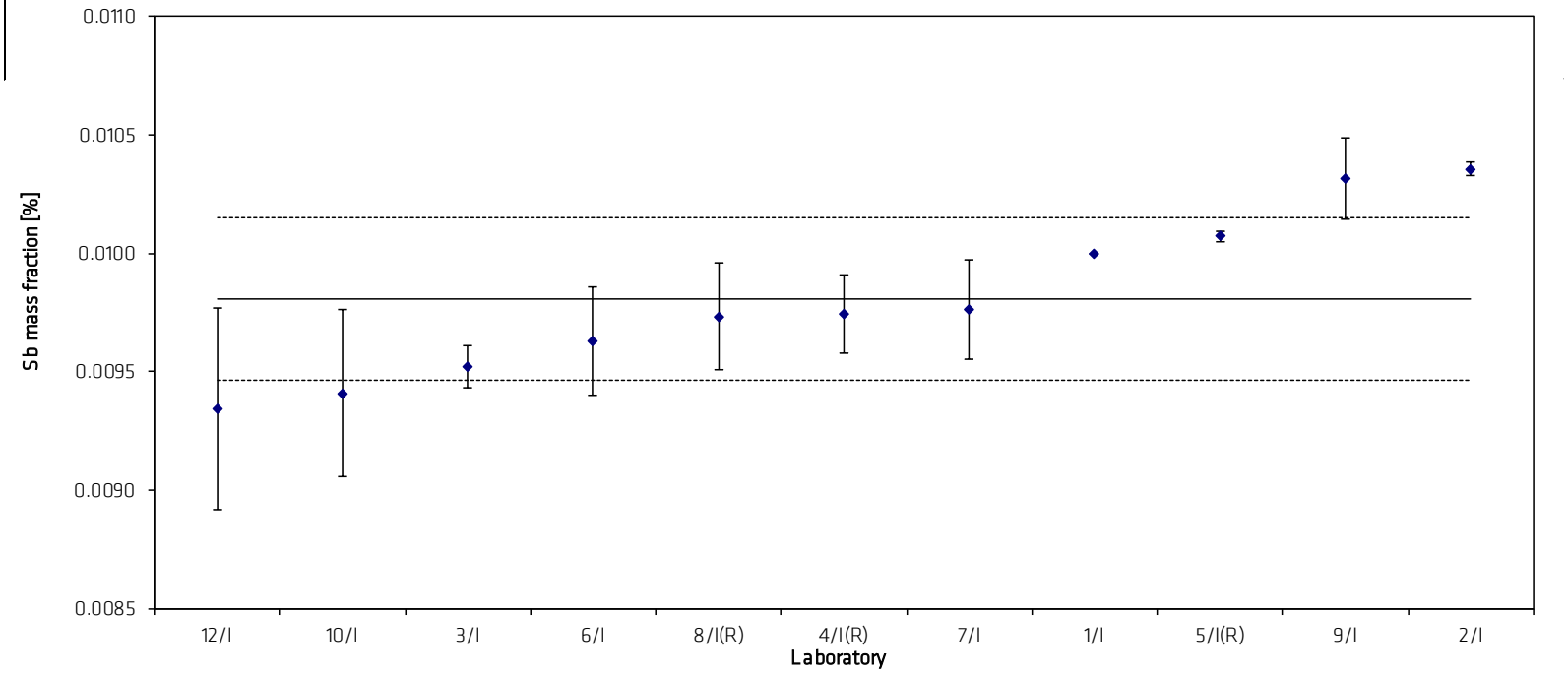


Table 6: Results for Sn in BAM-M109

| Lab./Meth. | 6/I(R) | 12/I | 9/I | 8/I(R) | 10/I | 2/A | 3/I | 2/I | 5/I(R) | 7/I(R) | 1/I | 4/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.1021 | 0.111 | 0.113 | 0.1153 | 0.1158 | 0.1130 | 0.1156 | 0.1152 | 0.1190 | 0.1189 | 0.1170 | 0.1218 | | *n* |
| | 0.1026 | 0.110 | 0.111 | 0.1151 | 0.1117 | 0.1130 | 0.1144 | 0.1159 | 0.1168 | 0.1191 | 0.1190 | 0.1242 | | 12 |
| | 0.1072 | 0.111 | 0.110 | 0.1097 | 0.1105 | 0.1140 | 0.1138 | 0.1156 | 0.1158 | 0.1186 | 0.1180 | 0.1261 | | |
| | 0.1079 | 0.109 | 0.114 | 0.1134 | 0.1132 | 0.1150 | 0.1131 | 0.1151 | 0.1186 | 0.1181 | 0.1210 | 0.1259 | | |
| | 0.1063 | 0.108 | 0.112 | 0.1129 | 0.1165 | 0.1140 | 0.1144 | 0.1150 | 0.1167 | 0.1184 | 0.1210 | 0.1254 | | |
| | 0.1072 | 0.112 | 0.112 | 0.1136 | 0.1148 | 0.1140 | 0.1121 | 0.1163 | 0.1152 | 0.1182 | 0.1200 | 0.1237 | | |
| ***M* [%]** | **0.106** | **0.110** | **0.112** | **0.113** | **0.114** | **0.114** | **0.114** | **0.116** | **0.117** | **0.119** | **0.119** | **0.125** | | **0.115** |
| *s* [%] | 0.0025 | 0.0017 | 0.0014 | 0.0020 | 0.0024 | 0.0008 | 0.0012 | 0.0005 | 0.0015 | 0.0004 | 0.0016 | 0.0016 | $s_M$ [%] | 0.0048 |
| | | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.0016 |
| $s_{rel}$ | 0.024 | 0.015 | 0.013 | 0.018 | 0.021 | 0.007 | 0.011 | 0.004 | 0.013 | 0.003 | 0.014 | 0.013 | | 0.04175 |

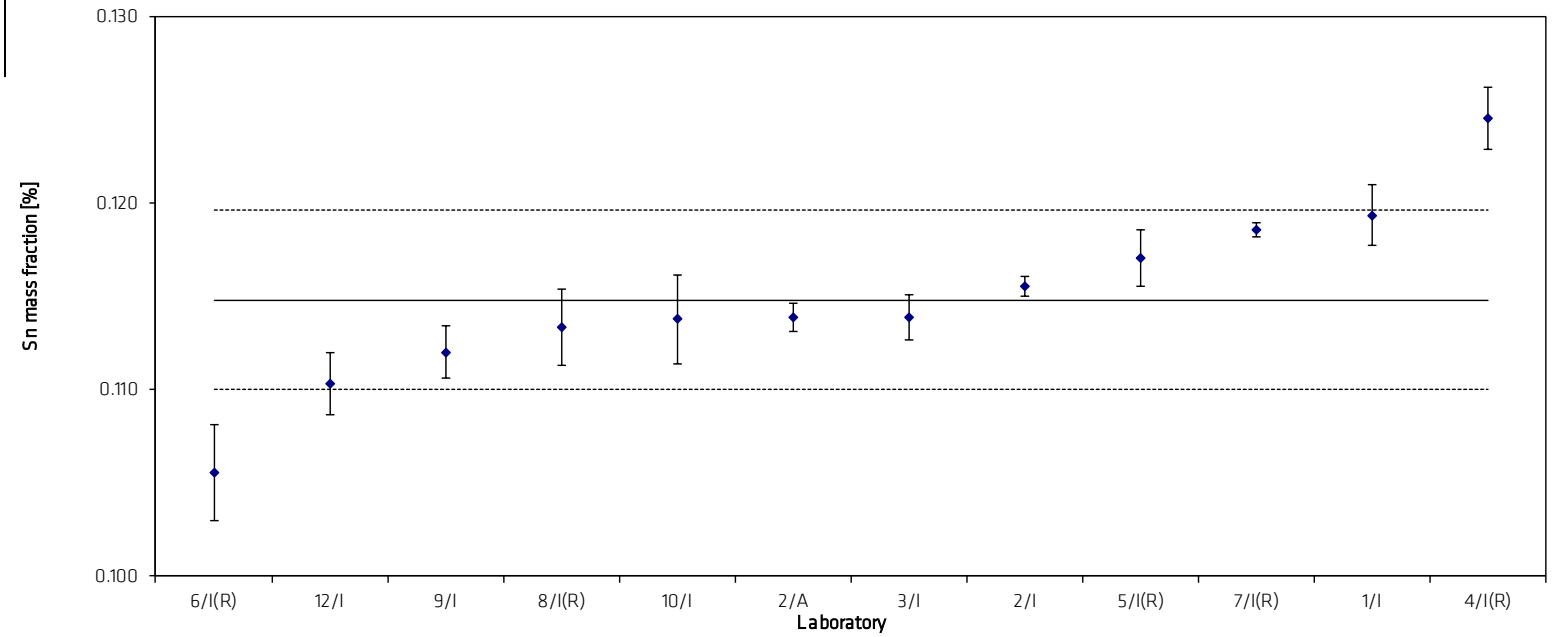


Table 7: Results for Ag in BAM-M109

| Lab./Meth. | 6/I | 8/A(R) | 1/I | 7/I | 2/I | 3/I | 5/I(R) | 10/I | 9/A | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 43.90 | 43 | 44.3 | 44.3 | 44.7 | 43.9 | 45.2 | 45.9 | 47 | | *n* |
| | 44.00 | 45 | 44.7 | 44.6 | 44.9 | 45.2 | 44.8 | 46.0 | 47 | | 9 |
| | 44.09 | 44 | 44.4 | 44.4 | 44.8 | 45.2 | 45.0 | 45.9 | 46 | | |
| | 43.30 | 45 | 44.9 | 45.0 | 44.9 | 45.0 | 45.2 | 46.6 | 47 | | |
| | 44.10 | 45 | 44.6 | 45.1 | 44.8 | 45.9 | 45.3 | 46.2 | 46 | | |
| | 43.84 | 45 | 45.0 | 44.8 | 45.3 | 44.9 | 45.0 | 46.0 | 47 | | |
| ***M*** **[mg/kg]** | **43.87** | **44.50** | **44.65** | **44.70** | **44.90** | **44.99** | **45.09** | **46.09** | **46.67** | | **45.05** |
| *s* [mg/kg] | 0.298 | 0.837 | 0.274 | 0.322 | 0.210 | 0.634 | 0.170 | 0.245 | 0.516 | $s_M$ [mg/kg] | 0.844 |
| | | | | | | | | | | $\overline{s}_i$ [mg/kg] | 0.443 |
| $s_{rel}$ | 0.007 | 0.019 | 0.006 | 0.007 | 0.005 | 0.014 | 0.004 | 0.005 | 0.011 | | 0.019 |

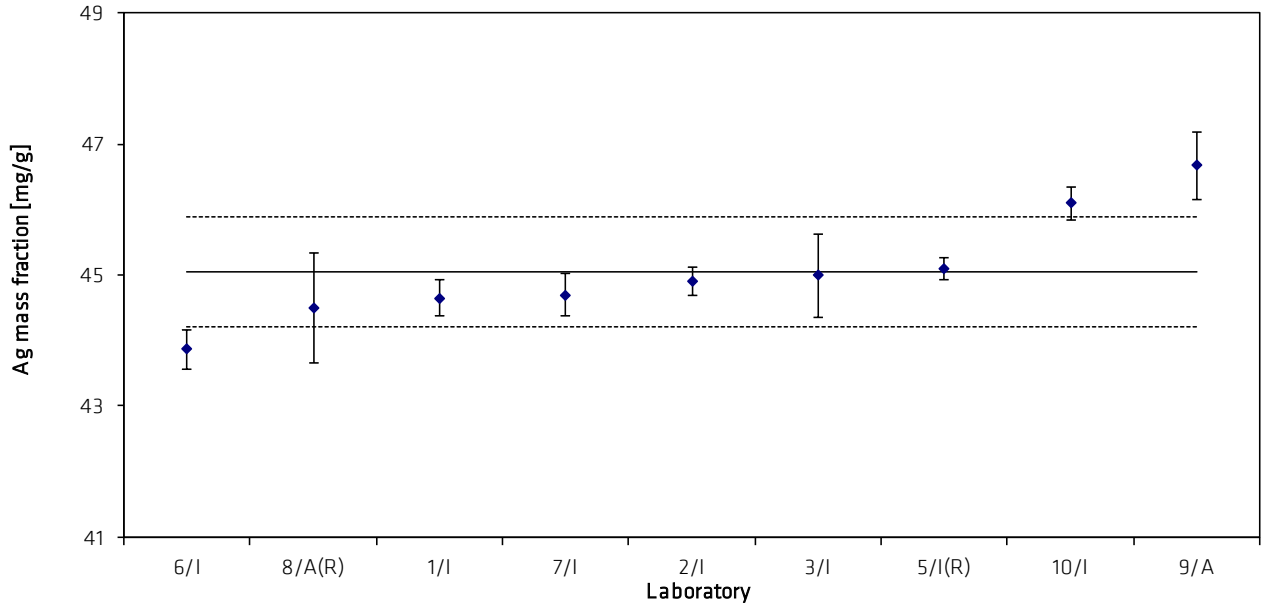


Table 8: Results for Cd in BAM-M109

| Lab./Meth. | 4/I | 12/I | 8/I(R) | 3/I | 1/I | 5/I | 10/I | 2/I | 9/I | 2/EA | 7/I | 6/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 34.1 | 31.6 | 35.0 | 35.07 | 35.1 | 35.3 | 34.9 | 35.3 | 36.9 | 37.11 | 35.9 | 37.8 | | *n* |
| | 33.6 | 32.5 | 35.0 | 34.70 | 35.2 | 33.4 | 35.2 | 35.6 | 36.1 | 36.43 | 36.1 | 36.5 | | 12 |
| | 32.9 | 34.9 | 34.0 | 35.27 | 35.0 | 35.5 | 35.3 | 36.3 | 35.2 | 35.47 | 36.0 | 36.7 | | |
| | 33.6 | 35.3 | 35.0 | 34.93 | 35.0 | 35.8 | 36.1 | 35.4 | 35.0 | 35.80 | 36.5 | 36.1 | | |
| | 33.3 | 36.3 | 35.0 | 35.47 | 35.2 | 35.4 | 35.7 | 35.4 | 35.3 | 34.63 | 36.3 | 36.9 | | |
| | 33.2 | 36.1 | 34.0 | 34.87 | 35.1 | 35.6 | 35.5 | 35.6 | 35.3 | 34.43 | 36.2 | 37.0 | | |
| ***M*** **[mg/kg]** | **33.44** | **34.45** | **34.67** | **35.05** | **35.10** | **35.17** | **35.44** | **35.60** | **35.63** | **35.65** | **36.17** | **36.81** | | **35.26** |
| *s* [mg/kg] | 0.403 | 1.952 | 0.516 | 0.279 | 0.089 | 0.887 | 0.409 | 0.363 | 0.726 | 1.032 | 0.216 | 0.586 | $s_M$ [mg/kg] | 0.857 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.785 |
| $s_{rel}$ | 0.012 | 0.057 | 0.015 | 0.008 | 0.003 | 0.025 | 0.012 | 0.010 | 0.020 | 0.029 | 0.006 | 0.016 | | 0.024 |

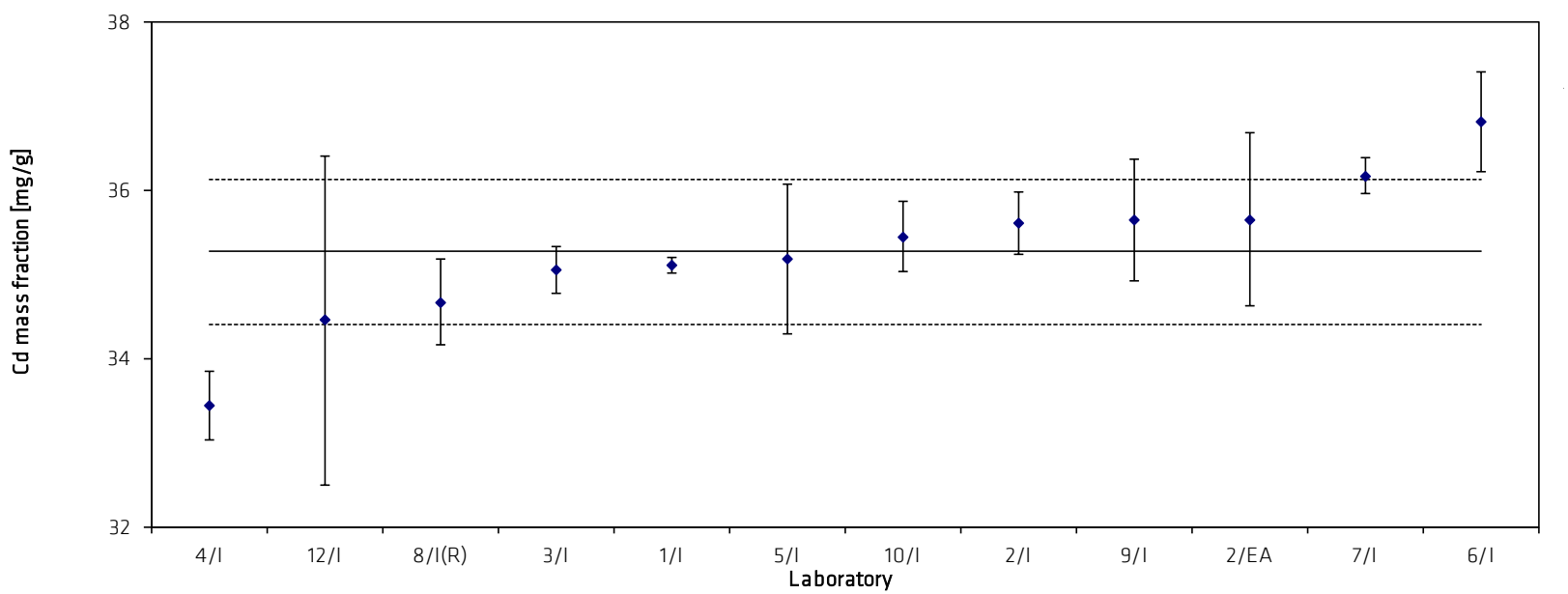


Table 9: Results for Cu in BAM-M109

| Lab./Meth. | 7/I | 12/I | 4/I | 8/I(R) | 6/I | 5/I | 2/EA | 2/I | 1/I | 3/I | 10/I | 9/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 18.2 | 18.5 | 19.17 | 19.0 | 18.9 | 19.5 | 20.3 | 19.8 | 20.0 | 20.8 | 20.8 | 19.9 | | *n* |
| | 18.5 | 18.2 | 18.88 | 19.0 | 19.0 | 19.2 | 20.0 | 20.3 | 20.0 | 20.3 | 20.6 | 21.1 | | 12 |
| | 18.4 | 19.0 | 18.42 | 19.0 | 19.0 | 19.6 | 19.4 | 19.8 | 19.9 | 20.4 | 20.9 | 21.4 | | |
| | 18.6 | 18.7 | 18.95 | 19.0 | 18.5 | 19.5 | 19.6 | 19.8 | 20.0 | 20.1 | 21.2 | 21.6 | | |
| | 18.5 | 18.8 | 18.74 | 19.0 | 18.9 | 19.2 | 20.1 | 19.7 | 20.1 | 19.2 | 20.9 | | | |
| | 18.5 | 18.4 | 18.70 | 18.0 | 19.0 | 19.4 | 20.0 | 19.9 | 20.2 | 20.6 | 21.2 | | | |
| **$M$ [mg/kg]** | **18.45** | **18.61** | **18.81** | **18.83** | **18.88** | **19.40** | **19.87** | **19.88** | **20.03** | **20.25** | **20.93** | **21.00** | | **19.58** |
| $s$ [mg/kg] | 0.138 | 0.295 | 0.253 | 0.408 | 0.182 | 0.158 | 0.352 | 0.214 | 0.103 | 0.550 | 0.236 | 0.762 | $s_M$ [mg/kg] | 0.882 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.355 |
| $s_{rel}$ | 0.007 | 0.016 | 0.013 | 0.022 | 0.010 | 0.008 | 0.018 | 0.011 | 0.005 | 0.027 | 0.011 | 0.036 | | 0.045 |

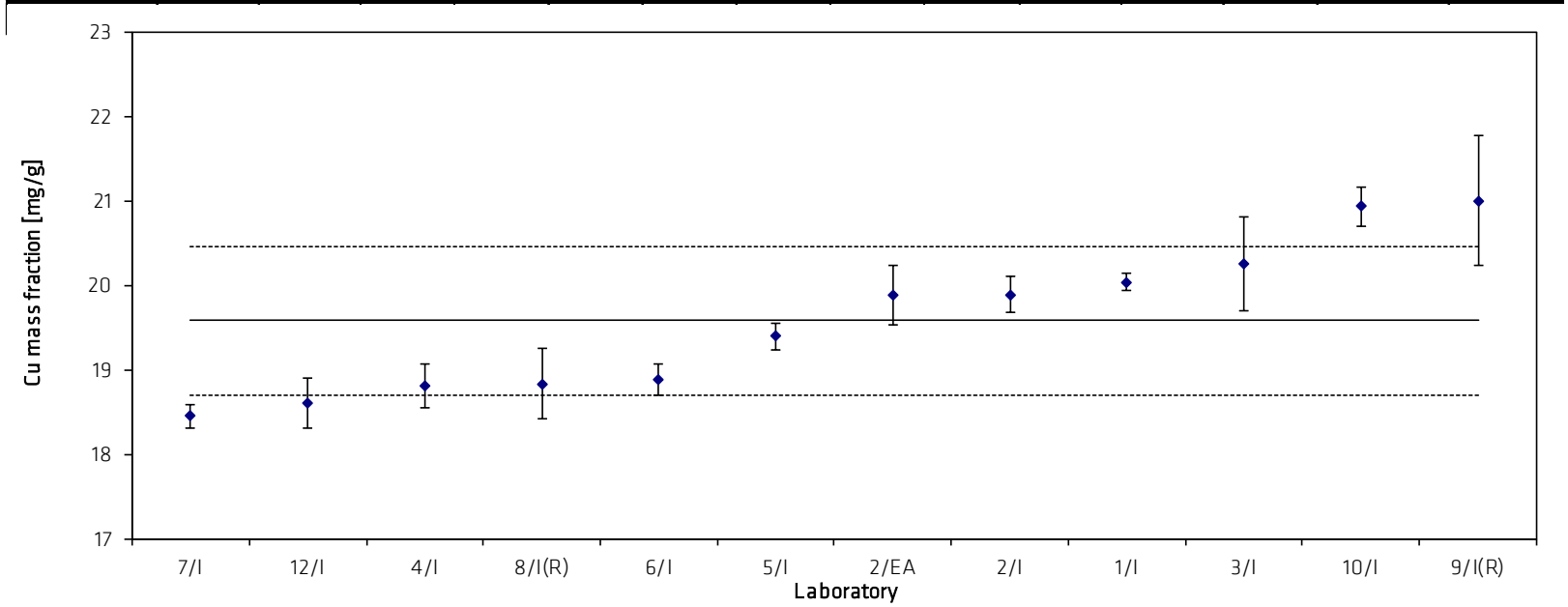


Table 10: Results for Ni in BAM-M109

| Lab./Meth. | 4/I | 8/I(R) | 7/I | 5/I | 12/I | 9/I | 2/I | 6/I | 2/EA | 3/I(R) | 10/I | 1/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 3.1 | 3 | 3.1 | 3.3 | 3.1 | 3.6 | 3.3 | 3.5 | 3.77 | 4.0 | 4.1 | 3.8 | | *n* |
| | 2.9 | 3 | 3.0 | 3.2 | 3.2 | 3.6 | 3.3 | 3.5 | 3.70 | 3.9 | 3.9 | 3.7 | | 12 |
| | 2.9 | 3 | 3.0 | 3.3 | 3.3 | 2.9 | 3.4 | 3.6 | 3.82 | 3.9 | 4.6 | 3.6 | | |
| | 3.0 | 3 | 3.0 | 3.4 | 3.4 | 3.5 | 3.4 | 3.5 | 3.81 | 3.9 | 3.6 | 3.6 | | |
| | 2.9 | 3 | 3.1 | 3.4 | 3.4 | 3.4 | 3.4 | 3.5 | 3.85 | 3.7 | 4.4 | 5.2 | | |
| | 3.0 | 3 | 3.0 | 3.3 | 3.4 | 3.0 | 3.4 | 3.4 | 3.88 | 4.0 | 3.4 | 4.8 | | |
| **$M$ [mg/kg]** | **2.97** | **3.00** | **3.02** | **3.30** | **3.31** | **3.33** | **3.36** | **3.49** | **3.81** | **3.90** | **4.01** | **4.12** | | **3.47** |
| $s$ [mg/kg] | 0.053 | 0.000 | 0.040 | 0.102 | 0.131 | 0.308 | 0.023 | 0.078 | 0.063 | 0.110 | 0.456 | 0.700 | $s_M$ [mg/kg] | 0.400 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.266 |
| $s_{rel}$ | 0.018 | 0.000 | 0.013 | 0.031 | 0.040 | 0.092 | 0.007 | 0.022 | 0.017 | 0.028 | 0.114 | 0.170 | | 0.115 |

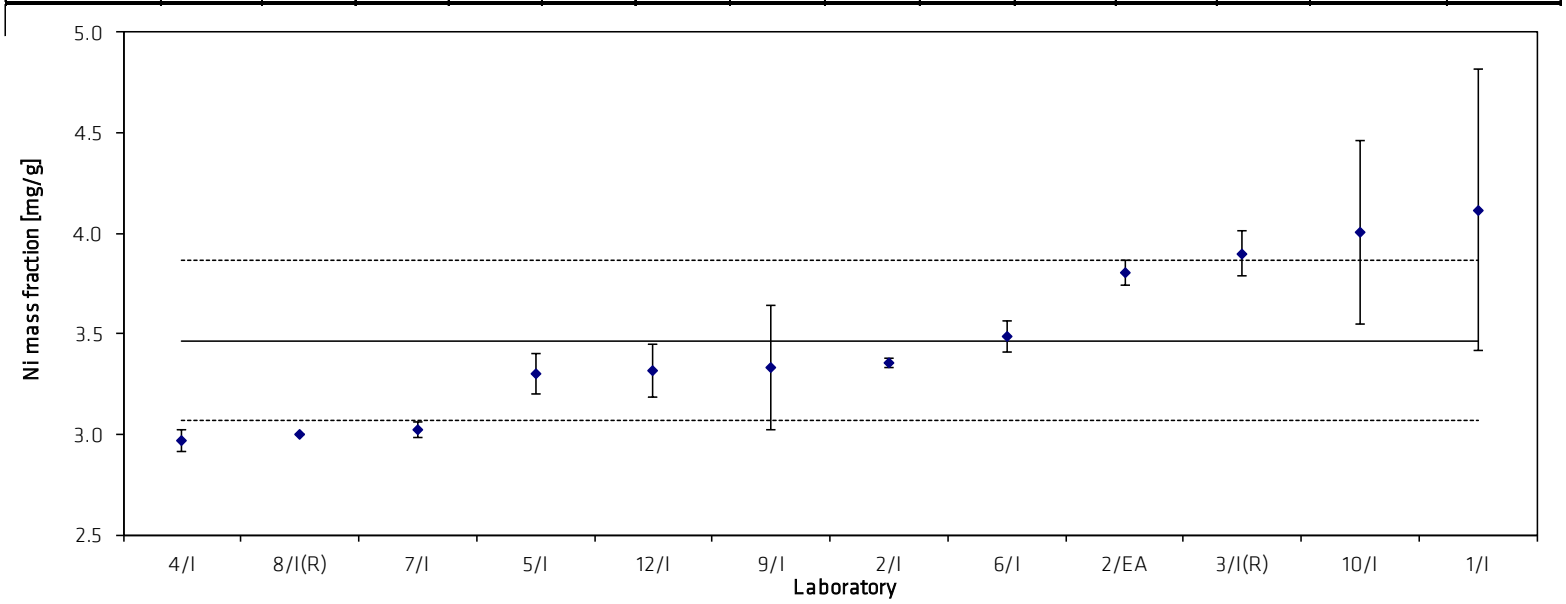


Table 11: Results for Te in BAM-M109

| Lab./Meth. | 12/I | 10/I | 3/I | 8/I(R) | 5/I | 9/I | 1/I | 6/I | 2/I | 7/I | 4/I | 2/EA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 24.2 | 28.2 | 29.5 | 30 | 29.76 | 29.6 | 30.6 | 31.7 | 31.0 | 31.1 | 33.5 | 34,47 | | *n* |
| | 24.2 | 27.7 | 28.7 | 30 | 28.64 | 29.3 | 30.0 | 30.3 | 30.8 | 31.3 | 32.8 | 33.66 | | 11 |
| | 25.9 | 28.4 | 29.1 | 28 | 29.96 | 30.9 | 30.0 | 30.5 | 30.9 | 31.2 | 31.7 | 33.45 | | |
| | 25.1 | 28.3 | 30.1 | 30 | 29.99 | 30.9 | 30.5 | 29.7 | 30.4 | 31.3 | 32.0 | 33.14 | | |
| | 25.8 | 28.4 | 29.8 | 30 | 29.91 | 30.4 | 30.6 | 30.3 | 30.5 | 31.3 | 31.7 | 34.40 | | |
| | 24.9 | 30.5 | 29.4 | 30 | 29.99 | 31.1 | 30.7 | 30.4 | 31.2 | 31.8 | 31.5 | 33.92 | | |
| ***M*** **[mg/kg]** | **25.02** | **28.58** | **29.40** | **29.67** | **29.71** | **30.37** | **30.40** | **30.48** | **30.80** | **31.33** | **32.19** | **33.71** | | **30.60** |
| *s* [mg/kg] | 0.719 | 0.972 | 0.498 | 0.816 | 0.530 | 0.753 | 0.316 | 0.631 | 0.303 | 0.242 | 0.788 | 0.478 | $s_M$ [mg/kg] | 1.418 |
| | | | | | | | | | | | | | $\overline{s}_i$ [mg/kg] | 0.618 |
| $s_{rel}$ | 0.029 | 0.034 | 0.017 | 0.028 | 0.018 | 0.025 | 0.010 | 0.021 | 0.010 | 0.008 | 0.024 | 0.014 | | 0.046 |

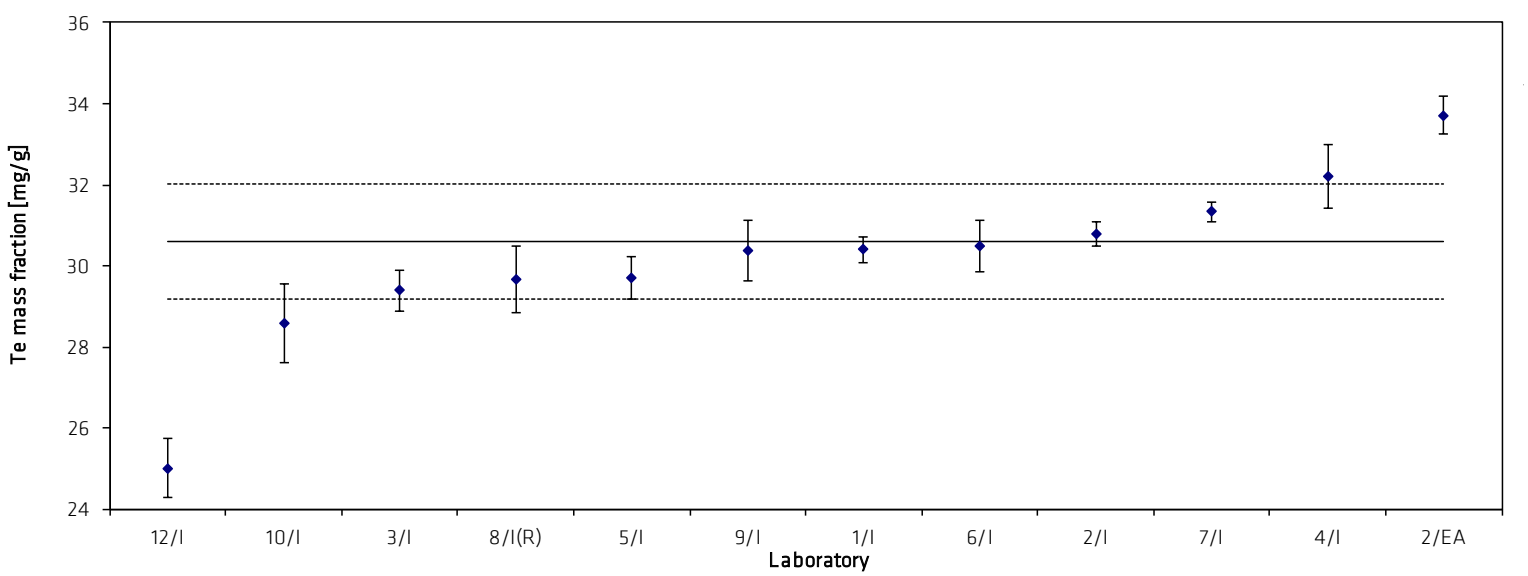


Table 12: Results for Tl in BAM-M109

| Lab./Meth. | 5/I | 2/I | 7/I | 1/I | 3/I | 2/EA | 10/IMS | 12/I | | |
|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 2.2 | 2.7 | 2.80 | 3 | 3.7 | 3.52 | 3.5 | 3.3 | | *n* |
| | 2.1 | 2.5 | 1.86 | 3 | 3.0 | 3.29 | 3.3 | 3.9 | | 8 |
| | 2.0 | 2.5 | 1.87 | 3 | 3.3 | 3.02 | 3.6 | 4.2 | | |
| | 2.2 | 2.5 | 3.27 | 3 | 3.1 | 3.68 | 3.5 | 4.0 | | |
| | 2.2 | 2.5 | 2.61 | 3 | 2.9 | 3.48 | 3.5 | 3.7 | | |
| | 2.0 | 2.4 | 2.76 | 3 | 3.4 | 3.80 | 3.7 | 4.1 | | |
| **$M$ [mg/kg]** | **2.12** | **2.51** | **2.53** | **3.00** | **3.22** | **3.47** | **3.50** | **3.86** | | **3.03** |
| $s$ [mg/kg] | 0.092 | 0.109 | 0.559 | 0.000 | 0.293 | 0.279 | 0.111 | 0.318 | $s_M$ [mg/kg] | 0.598 |
| | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.276 |
| $s_{rel}$ | 0.044 | 0.043 | 0.221 | 0.000 | 0.091 | 0.080 | 0.032 | 0.082 | | 0.198 |

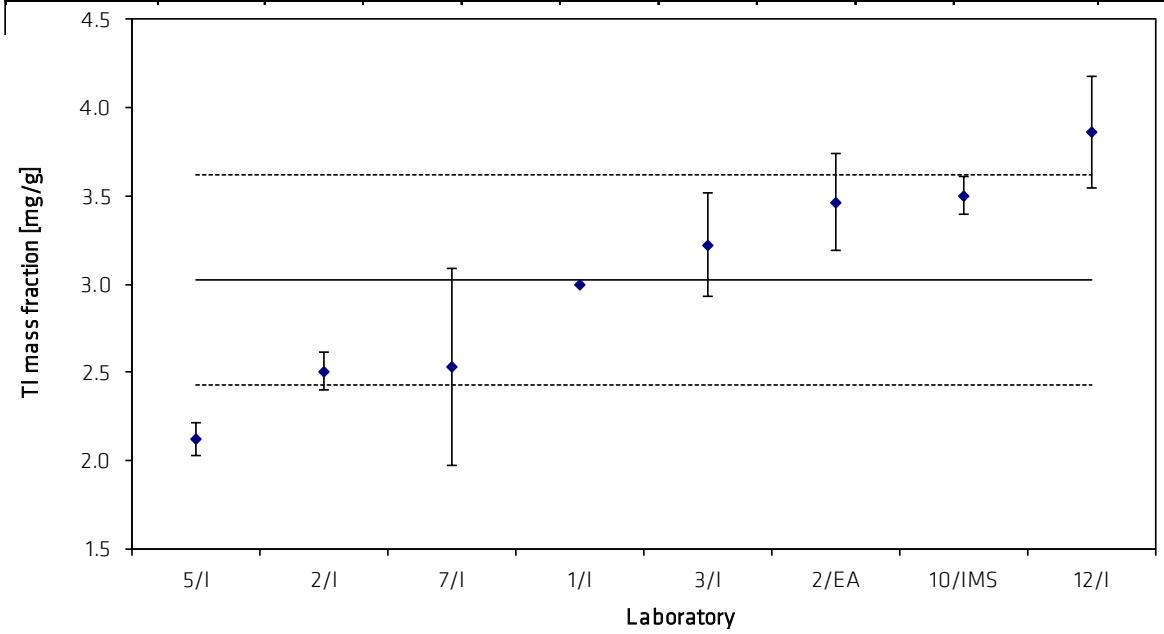


Table 13: Results for Zn in BAM-M109

| Lab./Meth. | 12/I | 6/I | 4/I | 2/I | 3/I(R) | 5/I | 2/A | 1/I | 7/I | 9/I | 10/I | 8/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 27.60 | 31.01 | 31.8 | 31.4 | 31.0 | 32.0 | 31.9 | 32.0 | 32.2 | 31.4 | 32.8 | 38 | | *n* |
| | 27.90 | 30.34 | 31.5 | 31.4 | 33.1 | 29.3 | 32.0 | 32.8 | 32.3 | 34.1 | 32.2 | 37 | | 11 |
| | 29.95 | 30.54 | 31.0 | 32.2 | 31.6 | 32.0 | 31.9 | 32.2 | 32.8 | 33.8 | 33.4 | 34 | | |
| | 30.01 | 29.97 | 31.5 | 31.1 | 30.7 | 32.5 | 32.9 | 32.7 | 32.9 | 32.1 | 32.6 | 37 | | |
| | 30.90 | 30.37 | 31.4 | 31.5 | 29.9 | 32.1 | 34.1 | 32.7 | 32.8 | 34.8 | 34.5 | 35 | | |
| | 30.41 | 30.50 | 31.2 | 31.6 | 33.5 | 33.0 | 31.7 | 32.9 | 33.4 | 30.7 | 35.3 | 33 | | |
| ***M* [mg/kg]** | **29.46** | **30.45** | **31.42** | **31.53** | **31.63** | **31.81** | **32.40** | **32.55** | **32.73** | **32.82** | **33.46** | **35.67** | | **31.84** |
| *s* [mg/kg] | 1.373 | 0.337 | 0.298 | 0.367 | 1.408 | 1.267 | 0.950 | 0.362 | 0.437 | 1.646 | 1.190 | 1.966 | $s_M$ [mg/kg] | 1.143 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 1.007 |
| $s_{rel}$ | 0.047 | 0.011 | 0.009 | 0.012 | 0.045 | 0.040 | 0.029 | 0.011 | 0.013 | 0.050 | 0.036 | 0.055 | | 0.036 |

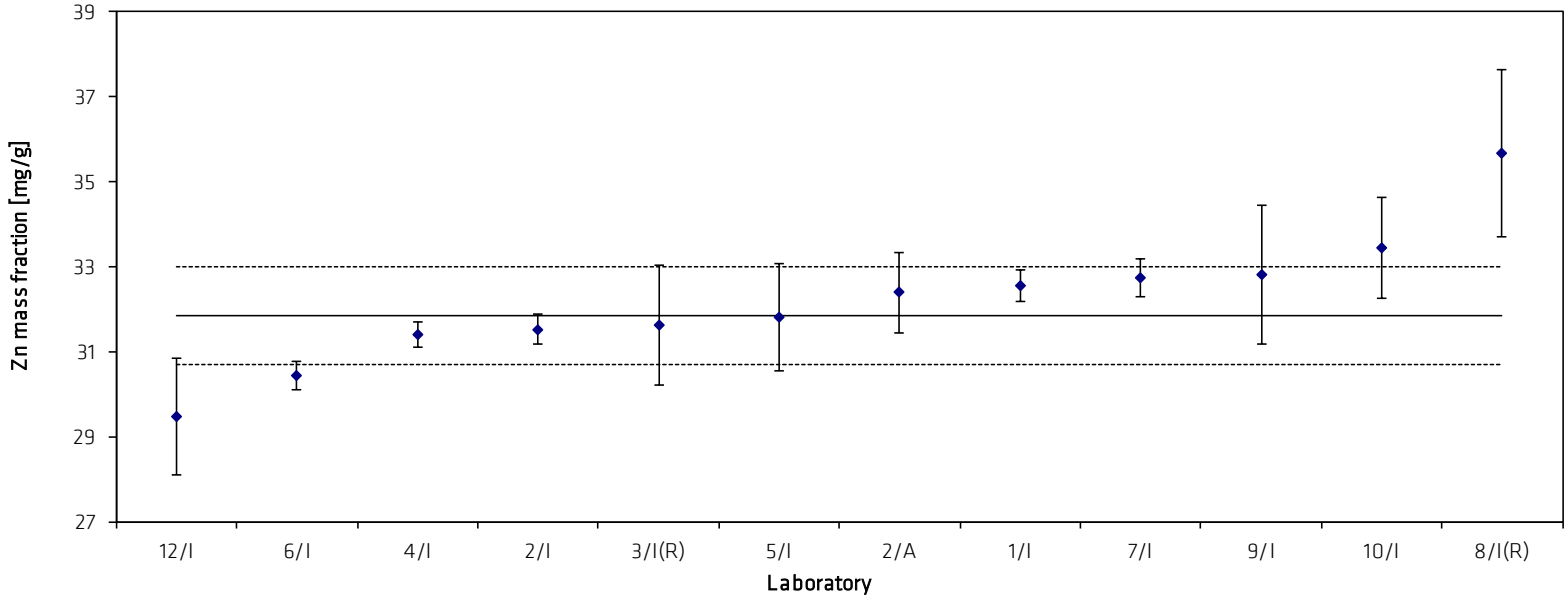


Table 14: Results for As in BAM-M109a

| Lab./Meth. | 12/I | 10/I | 5/I | 4/I | 7/I | 3/I(R) | 2/I | 8/I(R) | 1/I | 9/I | 6/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0100 | 0.0109 | 0.0111 | 0.0110 | 0.0115 | 0.0114 | 0.0116 | 0.0115 | 0.012 | 0.0118 | 0.0119 | | *n* |
| | 0.0097 | 0.0106 | 0.0113 | 0.0118 | 0.0113 | 0.0116 | 0.0117 | 0.0119 | 0.012 | 0.0118 | 0.0120 | | 9 |
| | 0.0113 | 0.0108 | 0.0111 | 0.0113 | 0.0113 | 0.0116 | 0.0117 | 0.0113 | 0.012 | 0.0124 | 0.0120 | | |
| | 0.0107 | 0.0104 | 0.0110 | 0.0113 | 0.0115 | 0.0115 | 0.0115 | 0.0119 | 0.012 | 0.0118 | 0.0120 | | |
| | 0.0109 | 0.0106 | 0.0112 | 0.0115 | 0.0116 | 0.0115 | 0.0116 | 0.0118 | 0.012 | 0.0117 | 0.0120 | | |
| | 0.0101 | 0.0108 | 0.0112 | 0.0112 | 0.0114 | 0.0118 | 0.0116 | 0.0122 | 0.012 | 0.0122 | 0.0121 | | |
| ***M* [%]** | **0.0104** | **0.0107** | **0.0112** | **0.0114** | **0.0114** | **0.0116** | **0.0116** | **0.0118** | **0.0119** | **0.0120** | **0.0120** | | **0.0116** |
| *s* [%] | 0.0006 | 0.0002 | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0003 | 0.0001 | $s_M$ [%] | 0.00029 |
| | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00019 |
| $s_{rel}$ | 0.057 | 0.015 | 0.009 | 0.024 | 0.010 | 0.011 | 0.005 | 0.027 | 0.014 | 0.024 | 0.006 | | 0.02514 |

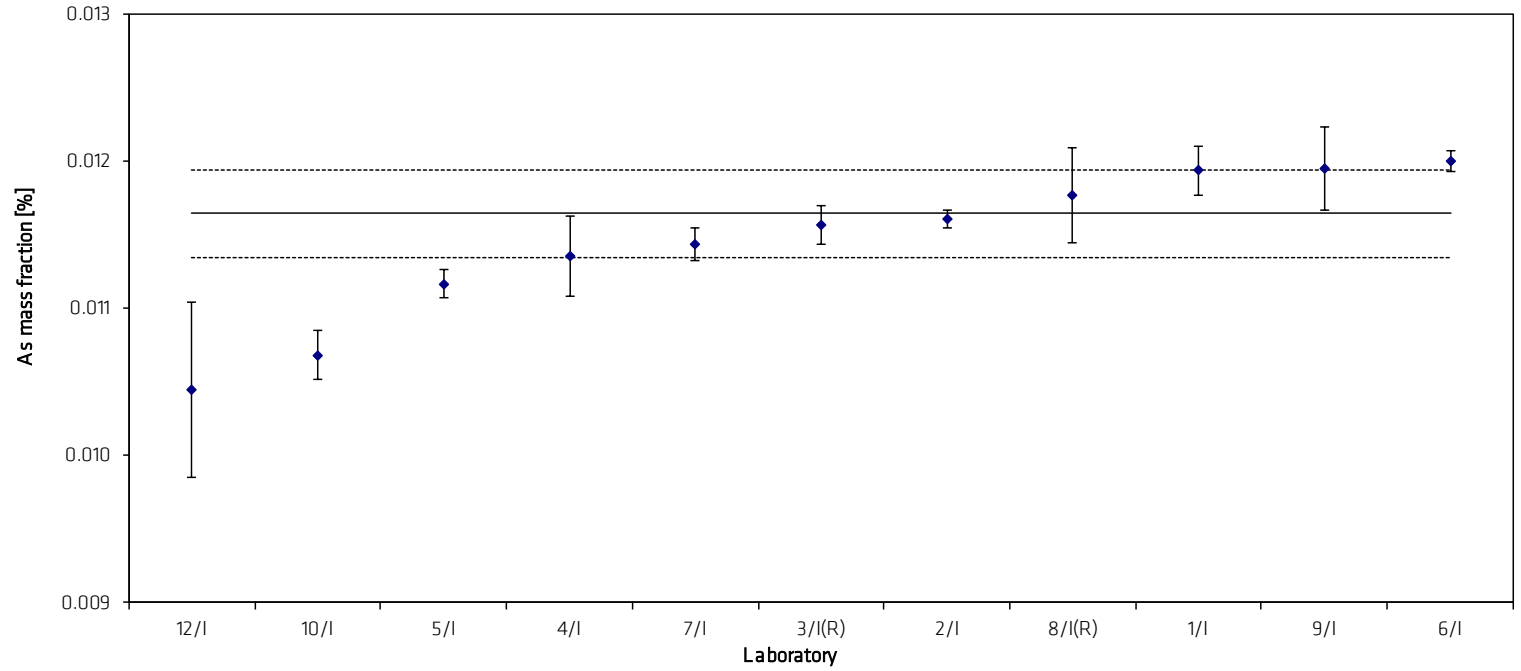


Table 15: Results for Bi in BAM-M109a

| Lab./Meth. | 12/I | 4/I | 1/I | 5/I | 2/I | 6/I | 9/I | 3/I | 8/I(R) | 7/I | 10/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0165 | 0.0180 | 0.0190 | 0.0192 | 0.0192 | 0.0198 | 0.0195 | 0.0201 | 0.0194 | 0.0201 | 0.0200 | | *n* |
| | 0.0162 | 0.0183 | 0.0190 | 0.0194 | 0.0193 | 0.0197 | 0.0200 | 0.0204 | 0.0203 | 0.0199 | 0.0209 | | 9 |
| | 0.0182 | 0.0176 | 0.0190 | 0.0192 | 0.0193 | 0.0198 | 0.0203 | 0.0196 | 0.0197 | 0.0200 | 0.0203 | | |
| | 0.0179 | 0.0185 | 0.0190 | 0.0191 | 0.0192 | 0.0199 | 0.0197 | 0.0201 | 0.0205 | 0.0204 | 0.0208 | | |
| | 0.0180 | 0.0194 | 0.0191 | 0.0190 | 0.0193 | 0.0196 | 0.0201 | 0.0199 | 0.0199 | 0.0204 | 0.0205 | | |
| | 0.0164 | 0.0182 | 0.0190 | 0.0193 | 0.0193 | 0.0200 | 0.0196 | 0.0201 | 0.0206 | 0.0204 | 0.0205 | | |
| ***M* [%]** | **0.0172** | **0.0183** | **0.0190** | **0.0192** | **0.0193** | **0.0198** | **0.0199** | **0.0201** | **0.0201** | **0.0202** | **0.0205** | | **0.0198** |
| *s* [%] | 0.0009 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.0005 | 0.0002 | 0.0003 | $s_M$ [%] | 0.00051 |
| | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00039 |
| $s_{rel}$ | 0.055 | 0.032 | 0.002 | 0.008 | 0.003 | 0.006 | 0.016 | 0.014 | 0.024 | 0.010 | 0.015 | | 0.02564 |

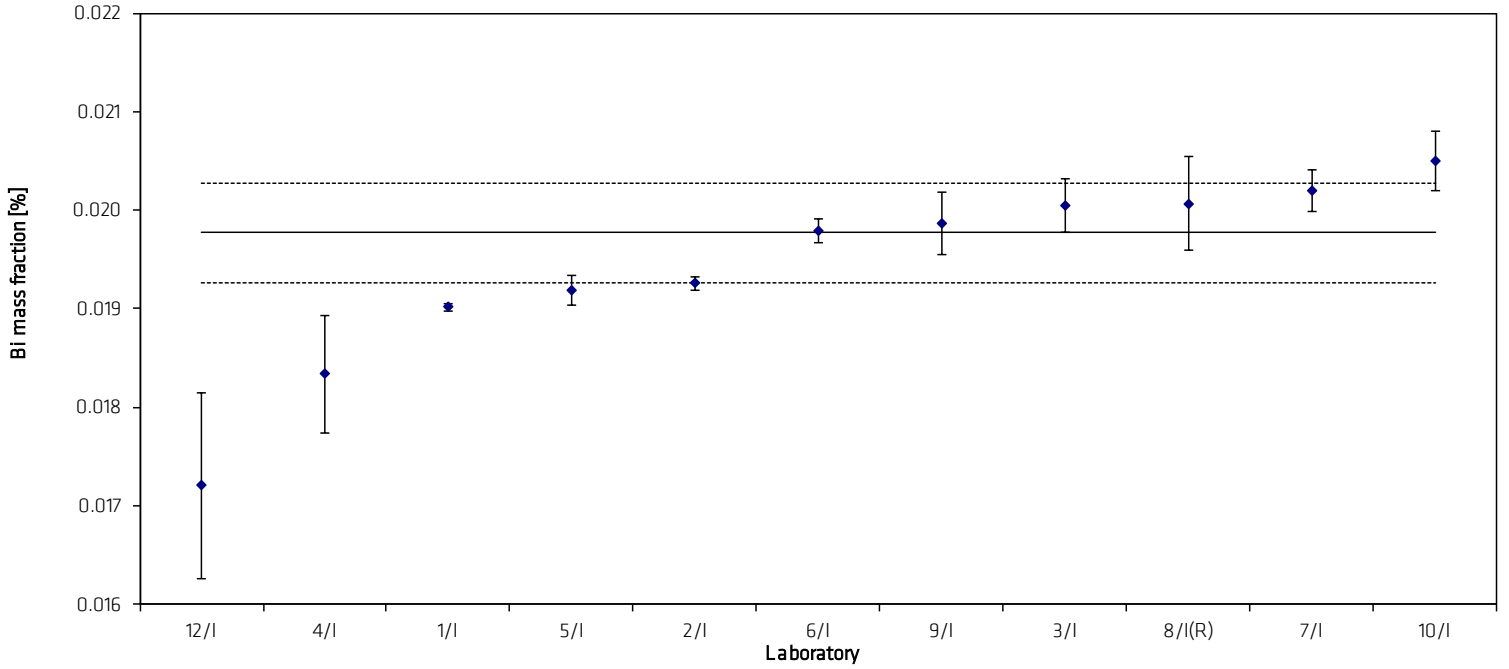


Table 16: Results for Sb in BAM-M109a

| Lab./Meth. | 12/I | 4/I | 3/I | 6/I | 7/I | 10/I | 8/I(R) | 1/I | 5/I(R) | 2/I | 9/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.0088 | 0.0092 | 0.0095 | 0.0095 | 0.0097 | 0.0098 | 0.0098 | 0.0100 | 0.0103 | 0.0103 | 0.0103 | | *n* |
| | 0.0084 | 0.0096 | 0.0097 | 0.0095 | 0.0096 | 0.0097 | 0.0102 | 0.0100 | 0.0103 | 0.0103 | 0.0103 | | 11 |
| | 0.0094 | 0.0093 | 0.0096 | 0.0095 | 0.0096 | 0.0098 | 0.0090 | 0.0100 | 0.0103 | 0.0103 | 0.0105 | | |
| | 0.0094 | 0.0094 | 0.0095 | 0.0096 | 0.0096 | 0.0096 | 0.0102 | 0.0100 | 0.0103 | 0.0102 | 0.0105 | | |
| | 0.0093 | 0.0095 | 0.0095 | 0.0095 | 0.0095 | 0.0096 | 0.0098 | 0.0116 | 0.0103 | 0.0104 | 0.0103 | | |
| | 0.0085 | 0.0092 | 0.0093 | 0.0096 | 0.0097 | 0.0094 | 0.0101 | 0.0100 | 0.0103 | 0.0104 | 0.0101 | | |
| **$M$ [%]** | **0.0090** | **0.0094** | **0.0095** | **0.0095** | **0.0096** | **0.0096** | **0.0099** | **0.0103** | **0.0103** | **0.0103** | **0.0103** | | **0.0098** |
| $s$ [%] | 0.0005 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0005 | 0.0007 | 0.0000 | 0.0001 | 0.0002 | $s_M$ [%] | 0.00046 |
| | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00029 |
| $s_{rel}$ | 0.051 | 0.017 | 0.015 | 0.006 | 0.006 | 0.014 | 0.046 | 0.064 | 0.004 | 0.005 | 0.015 | | 0.04726 |

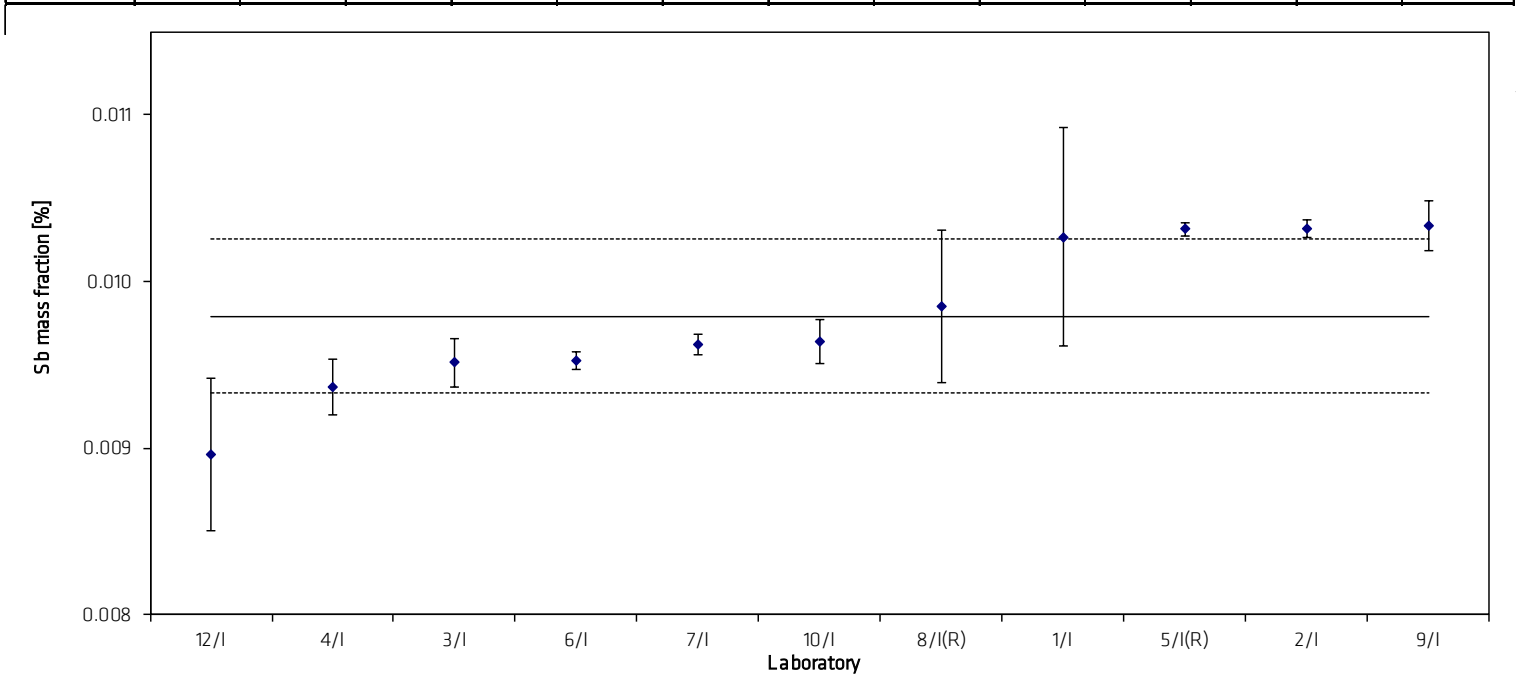


Table 17: Results for Sn in BAM-M109a

| Lab./Meth. | 12/I | 2/A | 2/I | 5/I(R) | 7/I(R) | 10/I | 9/I | 6/I(R) | 1/I | 3/I | 8/I(R) | 4/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [%] | 0.1090 | 0.114 | 0.1151 | 0.1186 | 0.1185 | 0.1221 | 0.1120 | 0.1184 | 0.121 | 0.1191 | 0.1156 | 0.1216 | | *n* |
| | 0.1081 | 0.111 | 0.1151 | 0.1190 | 0.1187 | 0.1206 | 0.1140 | 0.1188 | 0.120 | 0.1211 | 0.1204 | 0.1214 | | 10 |
| | 0.1124 | 0.112 | 0.1154 | 0.1163 | 0.1185 | 0.1183 | 0.1150 | 0.1188 | 0.119 | 0.1178 | 0.1185 | 0.1218 | | |
| | 0.1105 | 0.114 | 0.1148 | 0.1186 | 0.1186 | 0.1175 | 0.1210 | 0.1186 | 0.121 | 0.1195 | 0.1203 | 0.1245 | | |
| | 0.1093 | 0.112 | 0.1153 | 0.1184 | 0.1183 | 0.1170 | 0.1270 | 0.1188 | 0.118 | 0.1180 | 0.1211 | 0.1244 | | |
| | 0.1105 | 0.113 | 0.1154 | 0.1190 | 0.1182 | 0.1159 | 0.1230 | 0.1187 | 0.116 | 0.1198 | 0.1224 | 0.1228 | | |
| ***M* [%]** | **0.1100** | **0.1127** | **0.1152** | **0.1183** | **0.1185** | **0.1186** | **0.1187** | **0.1187** | **0.1192** | **0.1192** | **0.1197** | **0.1228** | | **0.1189** |
| *s* [%] | 0.0015 | 0.0012 | 0.0002 | 0.0010 | 0.0002 | 0.0024 | 0.0059 | 0.0002 | 0.0019 | 0.0012 | 0.0024 | 0.0014 | $s_M$ [%] | 0.00183 |
| | | | | | | | | | | | | | $\bar{s}_i$ [%] | 0.00233 |
| $s_{rel}$ | 0.014 | 0.011 | 0.002 | 0.009 | 0.002 | 0.020 | 0.050 | 0.001 | 0.016 | 0.010 | 0.020 | 0.011 | | 0.01542 |

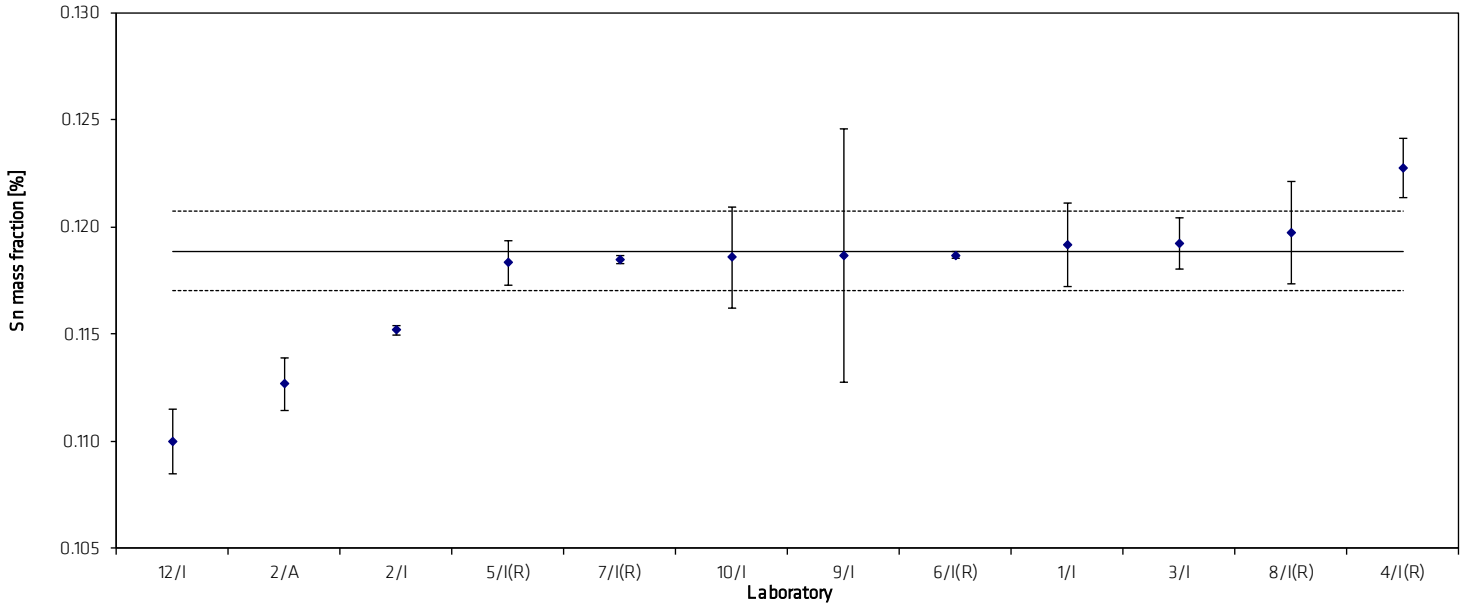


Table 18: Results for Ag in BAM-M109a

| Lab./Meth. | 8/A(R) | 7/I | 6/I | 5/I(R) | 2/I | 10/I | 1/I | 9/A | 3/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 44 | 43.8 | 43.88 | 45.1 | 45 | 46.2 | 47.2 | 48 | 48.65 | | *n* |
| | 43 | 43.5 | 43.56 | 44.3 | 45 | 45.3 | 47.6 | 49 | 50.65 | | 9 |
| | 41 | 43.2 | 43.80 | 44.6 | 45 | 48.1 | 47.5 | 48 | 47.85 | | |
| | 43 | 43.8 | 44.11 | 44.4 | 45 | 45.7 | 47.3 | 50 | 48.45 | | |
| | 43 | 44.0 | 43.38 | 44.8 | 45 | 45.8 | 47.7 | 47 | 47.80 | | |
| | 45 | 43.4 | 43.91 | 44.6 | 45 | 46.0 | 47.6 | 47 | 50.55 | | |
| **$M$ [mg/kg]** | **43.17** | **43.62** | **43.77** | **44.64** | **44.85** | **46.18** | **47.48** | **48.17** | **48.99** | | **45.65** |
| $s$ [mg/kg] | 1.329 | 0.299 | 0.262 | 0.266 | 0.251 | 0.999 | 0.194 | 1.169 | 1.289 | $s_M$ [mg/kg] | 2.140 |
| | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.781 |
| $s_{rel}$ | 0.031 | 0.007 | 0.006 | 0.006 | 0.006 | 0.022 | 0.004 | 0.024 | 0.026 | | 0.047 |

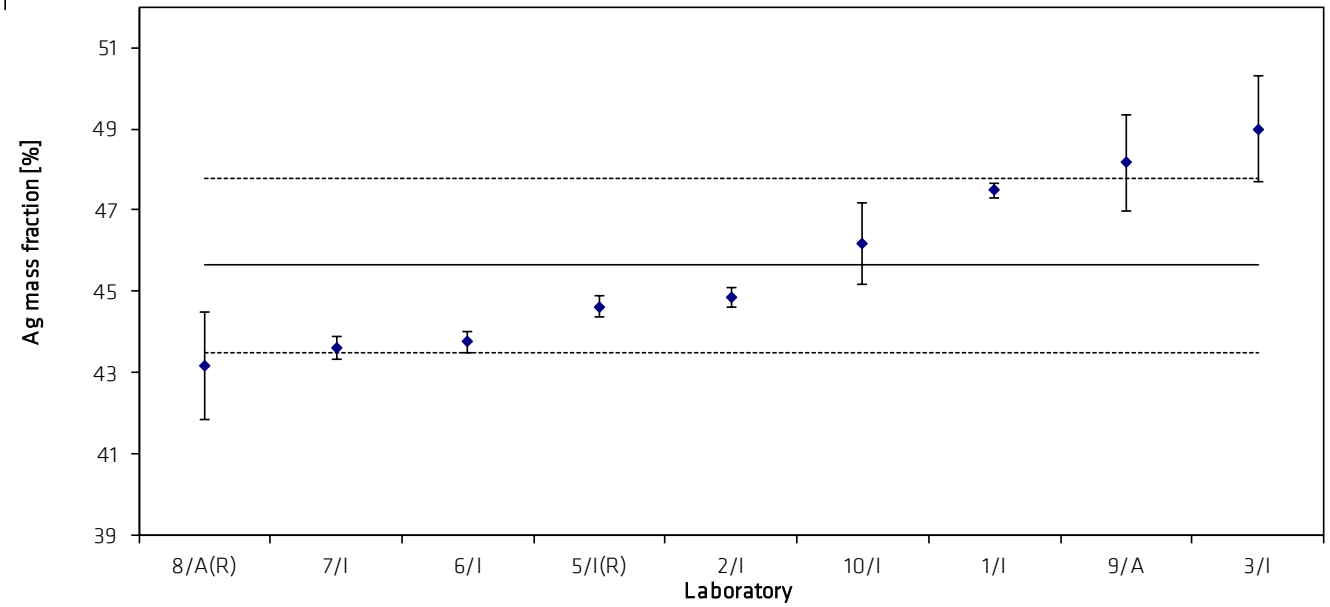


Table 19: Results for Cd in BAM-M109a

| Lab./Meth. | 4/I | 1/I | 2/I | 5/I | 7/I | 10/I | 9/I | 3/I | 12/I | 8/I(R) | 6/I | 2/EA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 33.5 | 35.2 | 35.0 | 35.4 | 35.6 | 35.9 | 35.6 | 36 | 36.0 | 36 | 36.8 | 36.9 | | *n* |
| | 33.0 | 35.2 | 35.1 | 35.7 | 35.4 | 34.7 | 36.2 | 37 | 35.2 | 37 | 36.7 | 37.6 | | 11 |
| | 33.3 | 35.2 | 35.1 | 35.4 | 35.5 | 37.1 | 36.2 | 37 | 36.7 | 36 | 36.8 | 36.7 | | |
| | 33.4 | 34.8 | 35.0 | 35.1 | 35.8 | 35.7 | 35.8 | 37 | 36.2 | 37 | 37.0 | 37.4 | | |
| | 33.6 | 34.9 | 35.2 | 35.2 | 35.9 | 35.5 | 35.9 | 36 | 37.2 | 36 | 36.5 | 37.0 | | |
| | 33.0 | 34.6 | 35.1 | 35.5 | 35.8 | 35.3 | 36.2 | 36 | 36.7 | 37 | 37.1 | 37.1 | | |
| **$M$ [mg/kg]** | **33.29** | **34.98** | **35.08** | **35.35** | **35.67** | **35.71** | **35.98** | **36.30** | **36.32** | **36.50** | **36.84** | **37.12** | | **35.99** |
| $s$ [mg/kg] | 0.247 | 0.256 | 0.075 | 0.213 | 0.197 | 0.794 | 0.256 | 0.436 | 0.705 | 0.548 | 0.221 | 0.349 | $s_M$ [mg/kg] | 0.699 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.427 |
| $s_{rel}$ | 0.007 | 0.007 | 0.002 | 0.006 | 0.006 | 0.022 | 0.007 | 0.012 | 0.019 | 0.015 | 0.006 | 0.009 | | 0.019 |

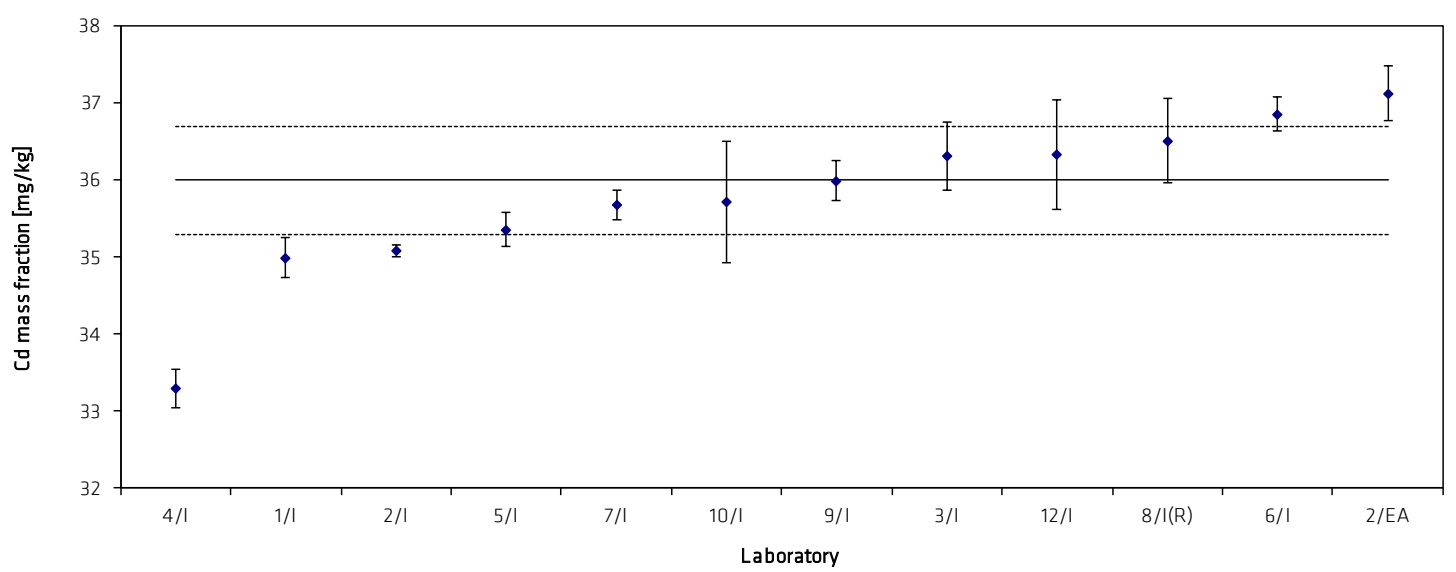


Table 20: Results for Cu in BAM-M109a

| Lab./Meth. | 7/I | 12/I | 6/I | 4/I | 5/I | 8/I(R) | 2/I | 10/I | 2/EA | 3/I | 1/I | 9/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 17.9 | 18.2 | 18.71 | 18.62 | 18.98 | 20 | 19.6 | 20.5 | 21.5 | 20.3 | 21.3 | 20.8 | | *n* |
| | 17.8 | 17.6 | 18.47 | 18.41 | 19.42 | 20 | 19.5 | 20.1 | 21.2 | 21.0 | 21.4 | 24.6 | | 11 |
| | 17.6 | 17.9 | 18.60 | 18.80 | 19.07 | 18 | 19.4 | 21.1 | 20.0 | 21.1 | 21.5 | 27.0 | | |
| | 17.8 | 18.0 | 18.78 | 18.75 | 18.80 | 20 | 20.3 | 20.6 | 20.4 | 20.5 | 21.2 | 22.4 | | |
| | 18.0 | 18.0 | 18.46 | 18.77 | 18.77 | 20 | 19.7 | 20.5 | 20.6 | 21.2 | 21.6 | | | |
| | 17.7 | 17.9 | 18.72 | 18.54 | 19.02 | 20 | 20.0 | 20.4 | 20.3 | 20.8 | 21.5 | | | |
| ***M*** **[mg/kg]** | **17.80** | **17.95** | **18.62** | **18.65** | **19.01** | **19.67** | **19.75** | **20.54** | **20.65** | **20.82** | **21.42** | **23.70** | | **19.53** |
| s [mg/kg] | 0.141 | 0.182 | 0.136 | 0.153 | 0.234 | 0.816 | 0.339 | 0.340 | 0.571 | 0.352 | 0.147 | 2.696 | $s_M$ [mg/kg] | 1.221 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.372 |
| $s_{rel}$ | 0.008 | 0.010 | 0.007 | 0.008 | 0.012 | 0.042 | 0.017 | 0.017 | 0.028 | 0.017 | 0.007 | 0.114 | | 0.063 |

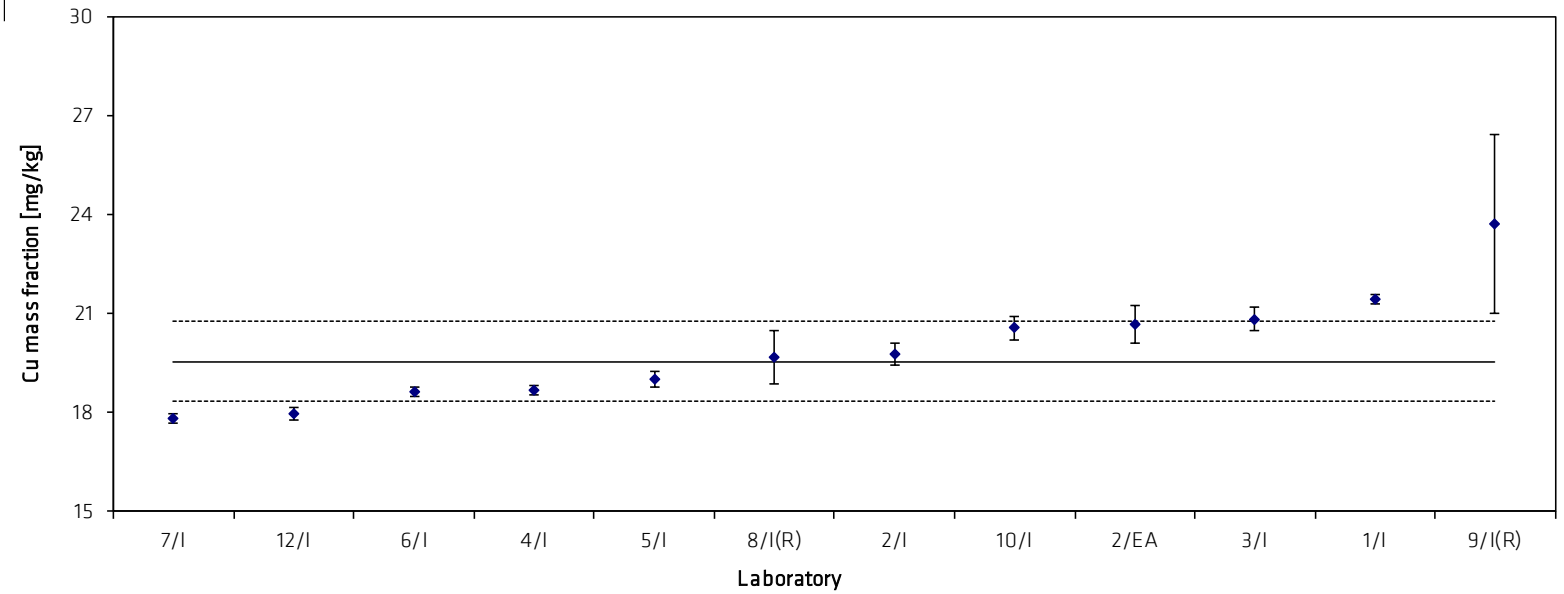


Table 21: Results for Ni in BAM-M109a

| Lab./Meth. | 8/I(R) | 4/I | 7/I | 5/I | 2/I | 6/I | 12/I | 9/I | 10/I | 2/EA | 1/I | 3/I(R) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 3 | 3.2 | 3.4 | 3.4 | 3.4 | 3.5 | 3.9 | 3.7 | 3.9 | 4.09 | 3.8 | 4.4 | | *n* |
| | 3 | 3.2 | 3.3 | 3.4 | 3.5 | 3.5 | 3.8 | 3.8 | 4.0 | 4.05 | 4.5 | 4.5 | | 12 |
| | 3 | 3.1 | 3.3 | 3.4 | 3.5 | 3.5 | 3.8 | 3.9 | 4.2 | 4.08 | 4.5 | 4.5 | | |
| | 3 | 3.2 | 3.3 | 3.4 | 3.5 | 3.5 | 3.8 | 4.0 | 4.0 | 3.97 | 3.7 | 4.4 | | |
| | 3 | 3.2 | 3.3 | 3.4 | 3.5 | 3.5 | 3.9 | 3.9 | 3.8 | 3.97 | 3.7 | 4.4 | | |
| | 3 | 3.2 | 3.2 | 3.3 | 3.5 | 3.5 | 3.8 | 3.8 | 3.9 | 4.03 | 4.2 | 4.3 | | |
| ***M* [mg/kg]** | **3.00** | **3.19** | **3.29** | **3.41** | **3.48** | **3.50** | **3.82** | **3.85** | **3.97** | **4.03** | **4.07** | **4.42** | | **3.67** |
| *s* [mg/kg] | 0.000 | 0.031 | 0.055 | 0.042 | 0.028 | 0.028 | 0.029 | 0.105 | 0.117 | 0.052 | 0.383 | 0.075 | $s_M$ [mg/kg] | 0.422 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.125 |
| $s_{rel}$ | 0.000 | 0.010 | 0.017 | 0.012 | 0.008 | 0.008 | 0.007 | 0.027 | 0.029 | 0.013 | 0.094 | 0.017 | | 0.115 |

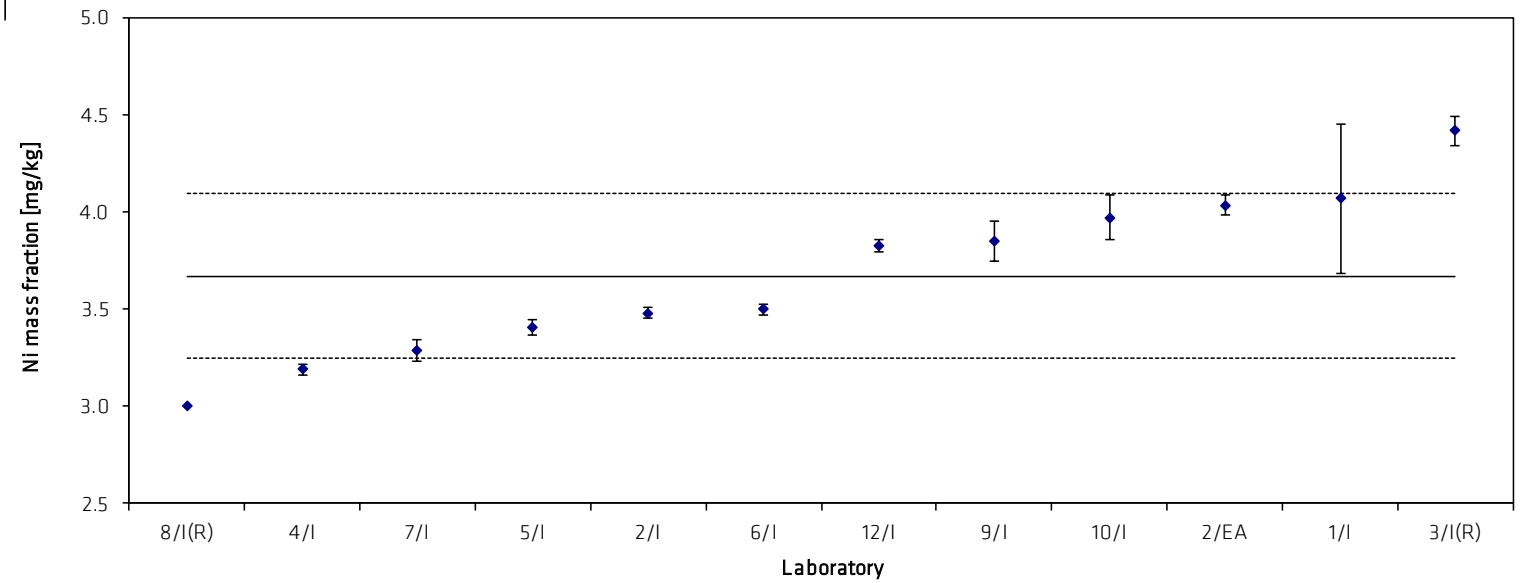


Table 22: Results for Te in BAM-M109a

| Lab./Meth. | 12/I | 8/I(R) | 10/I | 5/I | 6/I | 9/I | 1/I | 2/I | 7/I | 2/EA | 4/I | 3/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 24.4 | 26 | 28.1 | 29.7 | 30.08 | 30.5 | 29.9 | 30.6 | 31.3 | 31.4 | 32.4 | 32.7 | | *n* |
| | 24.7 | 29 | 27.6 | 30.0 | 30.09 | 31.1 | 31.1 | 30.6 | 30.8 | 31.9 | 32.1 | 34.6 | | 11 |
| | 24.8 | 28 | 29.4 | 29.8 | 30.02 | 30.1 | 30.7 | 30.6 | 30.3 | 31.5 | 31.3 | 33.5 | | |
| | 24.8 | 28 | 28.3 | 29.7 | 30.10 | 30.7 | 30.9 | 30.3 | 30.7 | 31.4 | 31.9 | 33.6 | | |
| | 25.1 | 27 | 29.1 | 30.2 | 29.91 | 31.1 | 30.3 | 31.0 | 31.2 | 32.2 | 32.0 | 34.3 | | |
| | 24.9 | 28 | 28.7 | 29.9 | 30.47 | 29.4 | 30.7 | 30.7 | 31.1 | 31.5 | 31.4 | 33.3 | | |
| ***M*** **[mg/kg]** | **24.78** | **27.67** | **28.54** | **29.87** | **30.11** | **30.48** | **30.60** | **30.63** | **30.90** | **31.65** | **31.84** | **33.65** | | **30.54** |
| *s* [mg/kg] | 0.249 | 1.033 | 0.670 | 0.200 | 0.191 | 0.652 | 0.434 | 0.225 | 0.374 | 0.337 | 0.429 | 0.666 | $s_M$ [mg/kg] | 1.600 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.534 |
| $s_{rel}$ | 0.010 | 0.037 | 0.023 | 0.007 | 0.006 | 0.021 | 0.014 | 0.007 | 0.012 | 0.011 | 0.013 | 0.020 | | 0.052 |

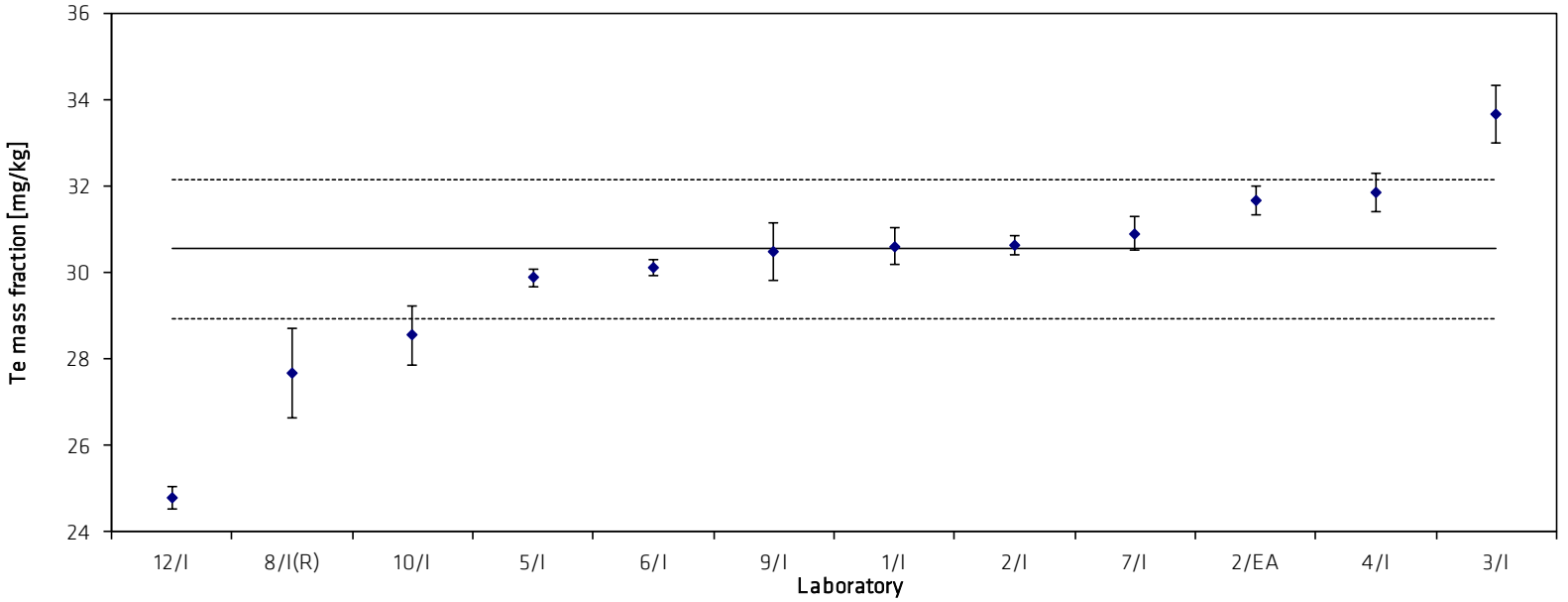


Table 23: Results for Tl in BAM-M109a

| Lab./Meth. | 5/I | 7/I | 2/I | 1/I | 10/IMS | 3/I | 12/I | 2/EA | | |
|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 2.4 | 2.6 | 2.50 | 3.0 | 3.7 | 3.7 | 3.5 | 4.7 | | *n* |
| | 2.1 | 2.6 | 2.59 | 3.0 | 3.5 | 3.6 | 4.0 | 4.7 | | 8 |
| | 2.2 | 2.4 | 2.52 | 3.0 | 3.6 | 3.3 | 4.5 | 4.7 | | |
| | 2.2 | 2.2 | 2.30 | 3.0 | 3.5 | 3.8 | 4.1 | 4.9 | | |
| | 1.9 | 2.5 | 2.46 | 2.8 | 3.5 | 4.3 | 4.4 | 5.0 | | |
| | 2.2 | 2.7 | 2.66 | 3.0 | 3.6 | 3.3 | 3.9 | 5.1 | | |
| ***M* [mg/kg]** | **2.16** | **2.50** | **2.51** | **2.97** | **3.57** | **3.67** | **4.05** | **4.82** | | **3.28** |
| *s* [mg/kg] | 0.158 | 0.177 | 0.123 | 0.082 | 0.083 | 0.377 | 0.364 | 0.173 | $s_M$ [mg/kg] | 0.908 |
| | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.221 |
| $s_{rel}$ | 0.073 | 0.071 | 0.049 | 0.028 | 0.023 | 0.103 | 0.090 | 0.036 | | 0.277 |

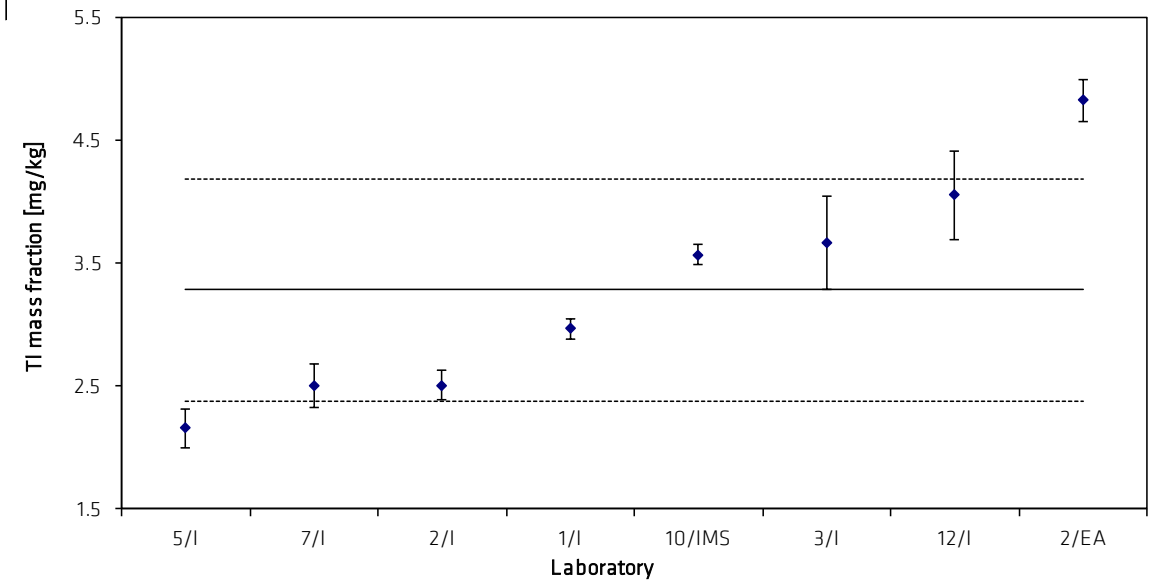
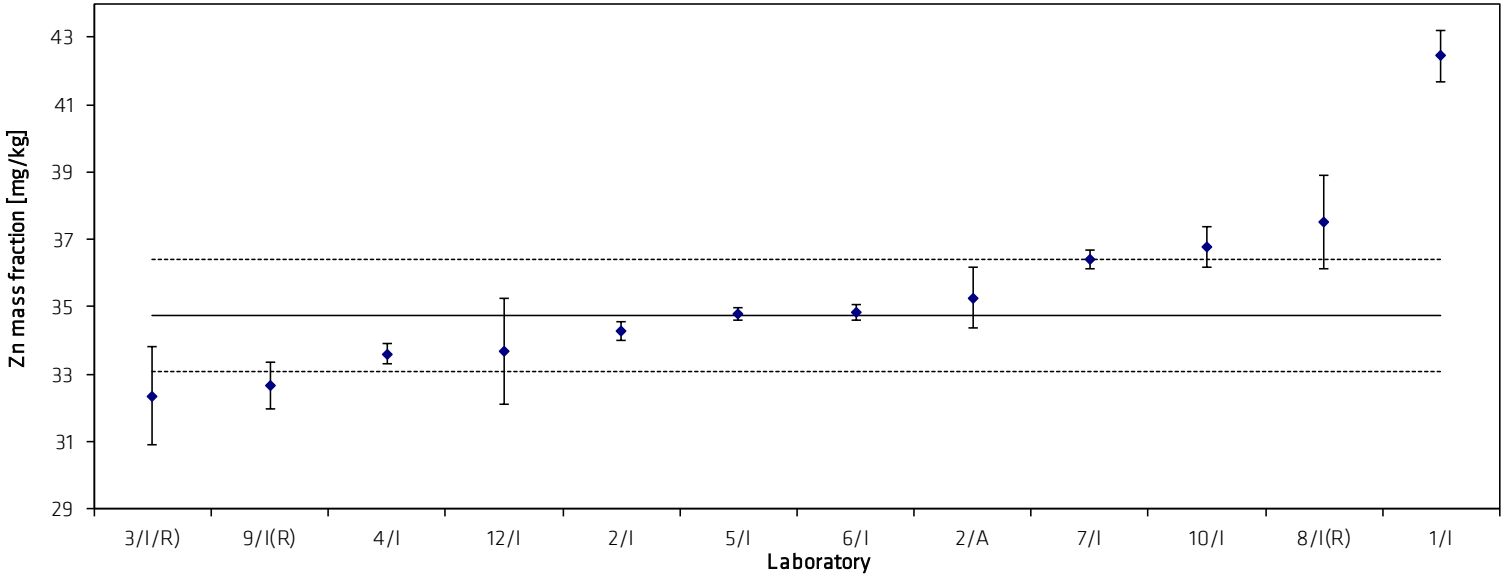


Table 24: Results for Zn in BAM-M109a

| Lab./Meth. | 3/I/R) | 9/I(R) | 4/I | 12/I | 2/I | 5/I | 6/I | 2/A | 7/I | 10/I | 8/I(R) | 1/I | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $M_i$ [mg/kg] | 32.1 | 32.5 | 33.66 | 32.96 | 34.6 | 34.6 | 34.8 | 36.72 | 36.4 | 36.9 | 37 | 41.9 | | *n* |
| | 30.7 | 33.4 | 33.19 | 32.22 | 34.4 | 35.1 | 34.8 | 34.83 | 36.2 | 37.7 | 39 | 42.4 | | 11 |
| | 34.0 | 33.0 | 33.60 | 33.17 | 34.4 | 34.7 | 34.9 | 34.38 | 36.0 | 35.9 | 38 | 42.0 | | |
| | 32.0 | 31.8 | 33.81 | 32.94 | 33.8 | 34.7 | 34.9 | 35.99 | 36.6 | 36.8 | 39 | 41.8 | | |
| | 31.1 | | 34.00 | 36.56 | 34.3 | 35.0 | 34.5 | 35.04 | 36.7 | 37.0 | 36 | 42.6 | | |
| | 34.2 | | 33.40 | 34.26 | 34.2 | 34.7 | 35.2 | 34.61 | 36.6 | 36.5 | 36 | 43.9 | | |
| ***M*** **[mg/kg]** | **32.35** | **32.68** | **33.61** | **33.69** | **34.28** | **34.80** | **34.85** | **35.26** | **36.42** | **36.79** | **37.50** | **42.43** | | **34.75** |
| *s* [mg/kg] | 1.457 | 0.690 | 0.290 | 1.556 | 0.271 | 0.195 | 0.224 | 0.907 | 0.271 | 0.603 | 1.378 | 0.781 | $s_M$ [mg/kg] | 1.658 |
| | | | | | | | | | | | | | $\bar{s}_i$ [mg/kg] | 0.875 |
| $s_{rel}$ | 0.045 | 0.021 | 0.009 | 0.046 | 0.008 | 0.006 | 0.006 | 0.026 | 0.007 | 0.016 | 0.037 | 0.018 | | 0.048 |



The statistical evaluation of the data was performed using the software program SoftCRM 1.2.2. [5]. The following results were obtained:

Table 25: Outcome of statistical tests of results obtained for As in BAM-M109

| | |
|---|---|
| Number of data sets | 11 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

Table 26: Outcome of statistical tests of results obtained for Bi in BAM-M109

| | |
|---|---|
| Number of data sets | 11 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | Lab. 12 |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

The straggler (Lab. 12) was not removed.

Table 27: Outcome of statistical tests of results obtained for Sb in BAM-M109

| | |
|---|---|
| Number of data sets | 11 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | --- |
| Dixon ($\alpha$ = 0.01) | --- |
| Nalimov ($\alpha$ = 0.05) | --- |
| Nalimov ($\alpha$ = 0.01) | --- |
| Grubbs ($\alpha$ = 0.05) | --- |
| Grubbs ($\alpha$ = 0.01) | --- |
| Grubbs Pair ($\alpha$ = 0.05) | --- |
| Grubbs Pair ($\alpha$ = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal |

Table 28: Outcome of statistical tests of results obtained for Sn in BAM-M109

| | |
|---|---|
| Number of data sets | 12 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | --- |
| Dixon ($\alpha$ = 0.01) | --- |
| Nalimov ($\alpha$ = 0.05) | Labs. 4 and 6 |
| Nalimov ($\alpha$ = 0.01) | --- |
| Grubbs ($\alpha$ = 0.05) | --- |
| Grubbs ($\alpha$ = 0.01) | --- |
| Grubbs Pair ($\alpha$ = 0.05) | --- |
| Grubbs Pair ($\alpha$ = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal |

The stragglers (Labs. 4 and 6) were not removed.

Table 29: Outcome of statistical tests of results obtained for Ag in BAM-M109

| | |
|---|---|
| Number of data sets | 9 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | Lab. 9 |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

The straggler (Lab. 9) was not removed.

Table 30: Outcome of statistical tests of results obtained for Cd in BAM-M109

| | |
|---|---|
| Number of data sets | 12 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | Lab. 4 |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

The straggler (Lab. 4) was not removed.

Table 31: Outcome of statistical tests of results obtained for Cu in BAM-M109

| | |
|---|---|
| Number of data sets | 12 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

Table 32: Outcome of statistical tests of results obtained for Ni in BAM-M109

| | |
|---|---|
| Number of data sets | 12 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

Table 33: Outcome of statistical tests of results obtained for Te in BAM-M109

| Number of data sets | 12 (1st run) | 11 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | Lab. 12 | Lab. 2/EA |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 12 | Lab. 2/EA |
| Nalimov (α = 0.01) | Lab. 12 | Lab. 2/EA |
| Grubbs (α = 0.05) | Lab. 12 | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | --- | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: not normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: normal |

The outlier (Lab. 12, 1st run) was removed, the straggler (Lab. 2/EA, 2nd run) was not removed.

Table 34: Outcome of statistical tests of results obtained for Zn in BAM-M109

| Number of data sets | 12 (1st run) | 11 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | Lab. 8 | Lab. 12 |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 8 | Lab. 12 |
| Nalimov (α = 0.01) | Lab. 8 | --- |
| Grubbs (α = 0.05) | --- | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | --- | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: normal |

The outlier (Lab. 8, 1st run) was removed, the straggler (Lab. 12, 2nd run) was not removed.

Table 35: Outcome of statistical tests of results obtained for Tl in BAM-M109

| | |
|---|---|
| Number of data sets | 8 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | --- |
| Dixon ($\alpha$ = 0.01) | --- |
| Nalimov ($\alpha$ = 0.05) | --- |
| Nalimov ($\alpha$ = 0.01) | --- |
| Grubbs ($\alpha$ = 0.05) | --- |
| Grubbs ($\alpha$ = 0.01) | --- |
| Grubbs Pair ($\alpha$ = 0.05) | --- |
| Grubbs Pair ($\alpha$ = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal |

Table 36: Outcome of statistical tests of results obtained for As in BAM-M109a

| | | |
|---|---|---|
| Number of data sets | 11 (1st run) | 9 (2nd run) |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | --- | --- |
| Dixon ($\alpha$ = 0.01) | --- | --- |
| Nalimov ($\alpha$ = 0.05) | --- | --- |
| Nalimov ($\alpha$ = 0.01) | --- | --- |
| Grubbs ($\alpha$ = 0.05) | --- | --- |
| Grubbs ($\alpha$ = 0.01) | --- | --- |
| Grubbs Pair ($\alpha$ = 0.05) | Labs. 10 and 12 | --- |
| Grubbs Pair ($\alpha$ = 0.01) | Labs. 10 and 12 | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal | Distribution: normal |

The outliers (Labs. 10 and 12) were removed.

Table 37: Outcome of statistical tests of results obtained for Bi in BAM-M109a

| Number of data sets | 11 (1st run) | 9 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | Lab. 12 | --- |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 12 | --- |
| Nalimov (α = 0.01) | Lab. 12 | --- |
| Grubbs (α = 0.05) | Lab. 12 | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | Labs. 12 and 4 | --- |
| Grubbs Pair (α = 0.01) | Labs. 12 and 4 | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: normal |

The outliers (Labs. 12 and 4) were removed.

Table 38: Outcome of statistical tests of results obtained for Sb in BAM-M109a

| Number of data sets | 11 |
|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

Table 39: Outcome of statistical tests of results obtained for Sn in BAM-M109a

| Number of data sets | 12 (1st run) | 10 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | Lab. 12 | Labs 2/I and 4 |
| Dixon (α = 0.01) | --- | Labs 2/I and 4 |
| Nalimov (α = 0.05) | Lab. 12 | Labs 2/I and 4 |
| Nalimov (α = 0.01) | --- | --- |
| Grubbs (α = 0.05) | --- | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | Labs. 12 and 2A | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: not normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: not normal | Distribution: not normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: not normal |

The outliers (Labs.12 and 2A, 1st run) were removed.
The stragglers (Labs.2/I and 4, 2nd run) were not removed.

Table 40: Outcome of statistical tests of results obtained for Ag in BAM-M109a

| Number of data sets | 9 |
|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

Table 41: Outcome of statistical tests of results obtained for Cd in BAM-M109a

| Number of data sets | 12 (1st run) | 11 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | --- | --- |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 4 | --- |
| Nalimov (α = 0.01) | Lab. 4 | --- |
| Grubbs (α = 0.05) | Lab. 4 | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | --- | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: normal |

The outlier (Lab. 4, 1st run) was removed.

Table 42: Outcome of statistical tests of results obtained for Cu in BAM-M109a

| Number of data sets | 12 (1st run) | 11 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | --- | --- |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 9 | --- |
| Nalimov (α = 0.01) | Lab. 9 | --- |
| Grubbs (α = 0.05) | --- | --- |
| Grubbs (α = 0.01) | --- | --- |
| Grubbs Pair (α = 0.05) | --- | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | Lab. 9 | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal | Distribution: normal |

The outlier (Lab. 9, 1st run) was removed as Cochran-outlier.

Table 43: Outcome of statistical tests of results obtained for Ni in BAM-M109a

| | |
|---|---|
| Number of data sets | 12 |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | --- |
| Dixon ($\alpha$ = 0.01) | --- |
| Nalimov ($\alpha$ = 0.05) | --- |
| Nalimov ($\alpha$ = 0.01) | --- |
| Grubbs ($\alpha$ = 0.05) | --- |
| Grubbs ($\alpha$ = 0.01) | --- |
| Grubbs Pair ($\alpha$ = 0.05) | --- |
| Grubbs Pair ($\alpha$ = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal |

Table 44: Outcome of statistical tests of results obtained for Te in BAM-M109a

| | | |
|---|---|---|
| Number of data sets | 12 (1st run) | 11 (2nd run) |
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon ($\alpha$ = 0.05) | Lab. 12 | --- |
| Dixon ($\alpha$ = 0.01) | --- | --- |
| Nalimov ($\alpha$ = 0.05) | Lab. 12 | Lab. 3 |
| Nalimov ($\alpha$ = 0.01) | Lab. 12 | --- |
| Grubbs ($\alpha$ = 0.05) | Lab. 12 | --- |
| Grubbs ($\alpha$ = 0.01) | --- | --- |
| Grubbs Pair ($\alpha$ = 0.05) | --- | --- |
| Grubbs Pair ($\alpha$ = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test ($\alpha$ = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.05) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test ($\alpha$ = 0.01) | Distribution: normal | Distribution: normal |

The outlier (Lab. 12, 1st run) was removed, the straggler (Lab. 3, 2nd run) was not removed.

Table 45: Outcome of statistical tests of results obtained for Zn in BAM-M109a

| Number of data sets | 12 (1st run) | 11 (2nd run) |
|---|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed | Pooling not allowed |
| Dixon (α = 0.05) | Lab. 1 | --- |
| Dixon (α = 0.01) | --- | --- |
| Nalimov (α = 0.05) | Lab. 1 | --- |
| Nalimov (α = 0.01) | Lab. 1 | --- |
| Grubbs (α = 0.05) | Lab. 1 | --- |
| Grubbs (α = 0.01) | Lab. 1 | --- |
| Grubbs Pair (α = 0.05) | --- | --- |
| Grubbs Pair (α = 0.01) | --- | --- |
| Cochran | --- | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: not normal | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: not normal | Distribution: normal |

The outlier (Lab. 1) was removed.

Table 46: Outcome of statistical tests of results obtained for Tl in BAM-M109a

| Number of data sets | 8 |
|---|---|
| Snedecor-F-Test and Bartlett-Test | Pooling not allowed |
| Dixon (α = 0.05) | --- |
| Dixon (α = 0.01) | --- |
| Nalimov (α = 0.05) | --- |
| Nalimov (α = 0.01) | --- |
| Grubbs (α = 0.05) | --- |
| Grubbs (α = 0.01) | --- |
| Grubbs Pair (α = 0.05) | --- |
| Grubbs Pair (α = 0.01) | --- |
| Cochran | --- |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.05) | Distribution: normal |
| Kolmogorov-Smirnov-Lilliefors Test (α = 0.01) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.05) | Distribution: normal |
| Skewness & Kurtosis Test (α = 0.01) | Distribution: normal |

The certified mass fractions of all elements were calculated as mean of the accepted data sets. These values are given in Tables 47 and 48.
The resp. combined uncertainties were calculated from the spread resulting from the certification inter-laboratory comparison ($u_{ilc}$) and the uncertainty contributions from possible inhomogeneity over the length ($u_{bb}(1)$) and over area ($u_{bb}(2)$) of the material using Equation 3.

$$u_{\text{combined}} = \sqrt{u_{ilc}^2 + u_{bb}^2(1) + u_{bb}^2(2)} \qquad (3)$$

with

$u_{ilc} = \sqrt{\frac{s_M^2}{n}}$ : uncertainty contribution resulting from inter-laboratory comparison

$n$ : number of data sets used for calculating the certified mass fraction of each element

Table 47: Uncertainty calculation for BAM-M109

| | uncertainty contribution from | | | | | | | | | $u_{bb}$ (rel) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | n | $s_M$ | $u_{ilc}$ | $u_{bb}$ (1) Length | $u_{bb}$ (2) Area | u(comb) | U | | Length | Area |
| | % | | % | % | % | % | % | % | | | |
| As | 0.0113 | 11 | 0.0005 | 0.0002 | 0.0001 | 0.0002 | 0.0003 | 0.00059 | | 0.8765 | 1.9702 |
| Bi | 0.0193 | 11 | 0.0009 | 0.0003 | 0.0000 | 0.0000 | 0.0003 | 0.00058 | | 0.2403 | 0.2410 |
| Sb | 0.0098 | 11 | 0.0003 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.00024 | | 0.2246 | 0.6124 |
| Sn | 0.1150 | 12 | 0.0048 | 0.0014 | 0.0003 | 0.0007 | 0.0016 | 0.00315 | | 0.2388 | 0.6070 |
| | mg/kg | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | | |
| Ag | 45.05 | 9 | 0.8440 | 0.2813 | 0.1331 | 0.3399 | 0.4609 | 0.9217 | | 0.2956 | 0.7545 |
| Cd | 35.26 | 12 | 0.8570 | 0.2474 | 0.0870 | 0.3309 | 0.4222 | 0.8445 | | 0.2467 | 0.9385 |
| Cu | 19.58 | 12 | 0.8820 | 0.2546 | 0.0598 | 0.2160 | 0.3392 | 0.6785 | | 0.3055 | 1.1034 |
| Ni | 3.47 | 12 | 0.4000 | 0.1155 | 0.0360 | 0.0573 | 0.1338 | 0.2676 | | 1.0368 | 1.6503 |
| Te | 30.60 | 11 | 1.4180 | 0.4275 | 0.2432 | 0.5493 | 0.7373 | 1.4746 | | 0.7947 | 1.7951 |
| Tl | 3.03 | 8 | 0.5980 | 0.2114 | 0.0007 | 0.0037 | 0.2115 | 0.4229 | | 0.0233 | 0.1220 |
| Zn | 31.84 | 11 | 1.1430 | 0.3446 | 0.6648 | 0.6637 | 1.0007 | 2.0013 | | 2.0880 | 2.0846 |
| Al | 1.37 | 3 | 0.7340 | 0.4238 | 0.0075 | 0.0341 | 0.4252 | 0.8504 | | 0.5488 | 2.4873 |

Table 48: Uncertainty calculation for BAM-M109a

| | uncertainty contribution from | | | | | | | | | $u_{bb}$ (rel) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | n | $s_M$ | $u_{ilc}$ | $u_{bb}$ (1) Length | $u_{bb}$ (2) Area | u(comb) | U | | Length | Area |
| | % | | % | % | % | % | % | % | | | |
| As | 0.0116 | 9 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.00058 | | 1.2050 | 2.0519 |
| Bi | 0.0198 | 9 | 0.0005 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.00044 | | 0.3256 | 0.6316 |
| Sb | 0.0098 | 11 | 0.0005 | 0.0001 | 0.0002 | 0.0001 | 0.0003 | 0.00054 | | 2.3080 | 0.6331 |
| Sn | 0.1189 | 10 | 0.0018 | 0.0006 | 0.0041 | 0.0004 | 0.0042 | 0.00834 | | 3.4570 | 0.3375 |
| | mg/kg | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | | | |
| Ag | 45.65 | 9 | 2.1400 | 0.7133 | 0.7108 | 0.2515 | 1.0379 | 2.0759 | | 1.5570 | 0.5509 |
| Cd | 35.99 | 11 | 0.6990 | 0.2108 | 0.2197 | 0.2990 | 0.4267 | 0.8534 | | 0.6105 | 0.8308 |
| Cu | 19.53 | 11 | 1.2210 | 0.3681 | 0.1756 | 0.1557 | 0.4366 | 0.8732 | | 0.8991 | 0.7973 |
| Ni | 3.67 | 12 | 0.4220 | 0.1218 | 0.2763 | 0.0605 | 0.3080 | 0.6159 | | 7.5290 | 1.6474 |
| Te | 30.54 | 11 | 1.6000 | 0.4824 | 0.3327 | 0.6710 | 0.8909 | 1.7817 | | 1.0894 | 2.1971 |
| Zn | 34.75 | 11 | 1.6580 | 0.4999 | 1.7837 | 0.2038 | 1.8636 | 3.7273 | | 5.1330 | 0.5866 |
| Tl | 3.28 | 8 | 0.9080 | 0.3210 | 0.0019 | 0.0040 | 0.3211 | 0.6421 | | 0.0570 | 0.1220 |
| Al | 1.39 | 3 | 0.9250 | 0.5340 | 0.0082 | 0.0279 | 0.5348 | 1.0697 | | 0.5927 | 2.0090 |

The expanded uncertainties $U$ are calculated by multiplication of $u_{combined}$ with a coverage factor of $k$ = 2 using Equation 4.

$$U = k \cdot u_{combined} \qquad (4)$$

The calculated mass fractions and their resp. expanded uncertainties are given on Pages 3 and 4 of this report.

In addition to the wet chemical characterization some of the laboratories analysed the material with spark emission to check if there is agreement between SOES and wet chemistry. Tab. 49 shows the mean values of wet chemical and spark emission results as well as their standard deviations. The agreement between wet chemistry and SOES is good for all elements.

Tab. 49: Comparison wet chemistry vs. SOES (BAM-M109)

| Element | Wet chemical analysis | | | Spark emission | | |
|---|---|---|---|---|---|---|
| | **Mass fraction** in % | **Std.-dev.** in % | ***n*** | **Mass fraction** in % | **Std.-dev.** in % | ***n*** |
| As | 0.0113 | 0.0006 | 11 | 0.0111 | 0.0008 | 20 |
| Bi | 0.0193 | 0.0010 | 11 | 0.0197 | 0.0006 | 21 |
| Sb | 0.0098 | 0.0004 | 11 | 0.0104 | 0.0008 | 20 |
| Sn | 0.115 | 0.005 | 12 | 0.118 | 0.007 | 22 |
| | in mg/kg | in mg/kg | | in mg/kg | in mg/kg | |
| Ag | 45.1 | 0.9 | 9 | 44.9 | 2.4 | 22 |
| Cd | 35.3 | 0.9 | 12 | 34.6 | 3.2 | 22 |
| Cu | 19.6 | 0.9 | 12 | 20.3 | 1.6 | 21 |
| Ni | 3.5 | 0.4 | 12 | 3.9 | 0.5 | 21 |
| Te | 30.6 | 1.5 | 11 | 30.1 | 3.9 | 21 |
| Tl | 3.0 | 0.6 | 8 | 3.9 | 1.0 | 15 |
| Zn | 31.8 | 1.2 | 11 | 34.1 | 4.8 | 22 |
| Al | 1.37 | 0.74 | 3 | 0.60 | 0.29 | 5 |
| In | 0.3 | --- | 1 | 0.25 | 0.06 | 2 |

## 6. Instructions for users and stability

The certified reference materials BAM-M109/109a are intended for the calibration and quality control of spark emission spectrometers used for the analysis of similar materials. They are also suitable for wet chemical analysis.

**An area 8mm in diameter in the centre of the discs should be avoided for spark optical emission spectrometry.**

The surface of the material should be cleaned by turning or milling before analysis.

If chips prepared from the compact material are used for wet chemical analysis, a minimum sample intake of 0.1 g has to be used.

The materials will remain stable provided that they are not subjected to excessive heat (eg, during preparation of the working surface).

## 7. References


[1] ISO Guide 31, Reference materials - Contents of certificates, labels and accompanying documentation, 2015

[2] ISO Guide 34, General requirements for the competence of reference material producers, 2009

[3] ISO Guide 35, Reference materials - General and statistical principles for certification. Third edition, 2006

[4] Guidelines for the development and production of BAM Reference Materials, 2016

[5] Bonas G, Zervou M, Papaeoannou T, Lees M: Accred Qual Assur (2003) 8:101-107


## 8. Information on and purchase of the CRM

Certified reference materials BAM-M109/109a are supplied by


**Bundesanstalt für Materialforschung und -prüfung (BAM)**
Division 1.6 „Inorganic Reference Materials“
Richard-Willstätter-Str. 11, D-12489 Berlin, Germany
Phone: +49 30 - 8104 2061
Fax: +49 30 – 8104 72061
E-mail: sales.crm@bam.de


Each disc of BAM-M109/109a will be distributed together with a detailed certificate containing the certified values and their uncertainties, the mean values and standard deviations of all accepted data sets and information on the analytical methods used and the names of the participating laboratories. Information on certified reference materials can be obtained from BAM, https://www.bam.de.
Tel. +49 30 8104 1111.

**Annex 1**: Calculation of uncertainty contribution of potential inhomogeneity (length)
Arsenic in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 579.2454 | 96.5409 | 58.09582 |
| R4 | 6 | 606.1487 | 101.0248 | 32.13283 |
| T3 | 6 | 603.9838 | 100.6640 | 36.17572 |
| T9 | 6 | 592.9058 | 98.8176 | 15.87413 |
| U4 | 6 | 590.2864 | 98.3811 | 51.72425 |
| U7 | 6 | 583.9134 | 97.3189 | 22.67263 |
| W6 | 6 | 592.5750 | 98.7625 | 20.91802 |
| W8 | 6 | 592.9279 | 98.8213 | 12.01561 |
| X2 | 6 | 590.2769 | 98.3795 | 47.26561 |
| X7 | 6 | 576.8896 | 96.1483 | 35.70660 |
| Y1 | 6 | 603.6934 | 100.6156 | 29.66256 |
| Y3 | 6 | 587.1540 | 97.8590 | 30.11803 |
| Z6 | 6 | 595.1479 | 99.1913 | 23.59808 |
| Z10 | 6 | 603.9956 | 100.6659 | 79.73824 |
| AA4 | 6 | 592.7101 | 98.7850 | 15.62000 |
| AA7 | 6 | 591.1783 | 98.5297 | 58.53487 |
| AB3 | 6 | 620.3653 | 103.3942 | 22.23994 |
| AB9 | 6 | 604.4831 | 100.7472 | 43.15878 |
| AC2 | 6 | 587.5880 | 97.9313 | 35.67888 |
| AC6 | 6 | 591.2304 | 98.5384 | 50.48091 |
| AD3 | 6 | 611.5758 | 101.9293 | 15.20641 |
| AD10 | 6 | 585.5508 | 97.5918 | 35.98496 |
| AE2 | 6 | 593.4096 | 98.9016 | 39.63177 |
| AE8 | 6 | 597.7975 | 99.6329 | 33.50700 |
| AF1 | 6 | 600.9567 | 100.1594 | 22.73788 |
| AF8 | 6 | 604.6184 | 100.7697 | 34.20165 |
| AG1 | 6 | 609.1574 | 101.5262 | 45.06705 |
| AG3 | 6 | 577.7076 | 96.2846 | 52.26073 |
| AH4 | 6 | 607.4297 | 101.2383 | 57.07048 |
| AH9 | 6 | 599.9581 | 99.9930 | 21.91153 |
| AI4 | 6 | 585.6694 | 97.6116 | 51.25904 |
| AI7 | 6 | 604.4710 | 100.7452 | 48.17932 |
| AJ3 | 6 | 592.0313 | 98.6719 | 49.05784 |
| AJ9 | 6 | 593.8283 | 98.9714 | 25.46721 |
| AK3 | 6 | 579.3826 | 96.5638 | 32.33763 |
| AK6 | 6 | 591.9756 | 98.6626 | 63.96149 |
| AL1 | 6 | 588.7442 | 98.1240 | 39.74198 |
| AL7 | 6 | 596.4947 | 99.4158 | 52.71811 |
| AM7 | 6 | 609.8121 | 101.6353 | 43.08878 |
| AM10 | 6 | 608.1571 | 101.3595 | 29.52605 |
| | | | 99.2726 | |

| *Source of variation* | *sums of squares* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 673.705987 | 39 | 17.27451248 | 0.45629501 | 0.99770036 | 1.46005356 |
| Within groups | 7571.64212 | 200 | 37.85821058 | | | |
| | | | | | | |
| Total | 8245.3481 | 239 | | | | |
| | | | | | | |
| within-sd | 6.152903 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.870152 | | | | | |
| u_bb | 0.870152 | 870.15183 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.87652758 | | | | | |

Bismuth in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 1165.1733 | 194.1956 | 12.99739 |
| R4 | 6 | 1181.6879 | 196.9480 | 4.67006 |
| T3 | 6 | 1181.2007 | 196.8668 | 11.80861 |
| T9 | 6 | 1176.8704 | 196.1451 | 9.18371 |
| U4 | 6 | 1180.4047 | 196.7341 | 19.92166 |
| U7 | 6 | 1180.2655 | 196.7109 | 14.04917 |
| W6 | 6 | 1179.7825 | 196.6304 | 8.12803 |
| W8 | 6 | 1177.4628 | 196.2438 | 4.56305 |
| X2 | 6 | 1178.9847 | 196.4975 | 15.95083 |
| X7 | 6 | 1181.6167 | 196.9361 | 8.12129 |
| Y1 | 6 | 1177.0885 | 196.1814 | 12.26757 |
| Y3 | 6 | 1175.7002 | 195.9500 | 8.67723 |
| Z6 | 6 | 1178.3163 | 196.3860 | 13.52732 |
| Z10 | 6 | 1182.2972 | 197.0495 | 23.23552 |
| AA4 | 6 | 1181.4078 | 196.9013 | 6.92503 |
| AA7 | 6 | 1175.3442 | 195.8907 | 4.84797 |
| AB3 | 6 | 1192.9411 | 198.8235 | 6.83507 |
| AB9 | 6 | 1181.5740 | 196.9290 | 14.18644 |
| AC2 | 6 | 1179.4851 | 196.5809 | 9.63117 |
| AC6 | 6 | 1172.0917 | 195.3486 | 7.25469 |
| AD3 | 6 | 1187.3950 | 197.8992 | 3.45564 |
| AD10 | 6 | 1180.1388 | 196.6898 | 15.99420 |
| AE2 | 6 | 1179.6760 | 196.6127 | 17.21691 |
| AE8 | 6 | 1188.0940 | 198.0157 | 10.99573 |
| AF1 | 6 | 1180.3429 | 196.7238 | 11.00917 |
| AF8 | 6 | 1177.9479 | 196.3246 | 9.12633 |
| AG1 | 6 | 1183.4698 | 197.2450 | 4.63601 |
| AG3 | 6 | 1173.7753 | 195.6292 | 8.61195 |
| AH4 | 6 | 1182.1783 | 197.0297 | 15.80481 |
| AH9 | 6 | 1186.2260 | 197.7043 | 8.23741 |
| AI4 | 6 | 1177.4740 | 196.2457 | 12.42155 |
| AI7 | 6 | 1176.4754 | 196.0792 | 10.97885 |
| AJ3 | 6 | 1174.2695 | 195.7116 | 12.18369 |
| AJ9 | 6 | 1185.9213 | 197.6535 | 4.96568 |
| AK3 | 6 | 1174.2796 | 195.7133 | 18.97425 |
| AK6 | 6 | 1185.3136 | 197.5523 | 14.49319 |
| AL1 | 6 | 1178.5850 | 196.4308 | 16.74366 |
| AL7 | 6 | 1182.8464 | 197.1411 | 15.27323 |
| AM7 | 6 | 1184.2371 | 197.3728 | 10.58637 |
| AM10 | 6 | 1182.0551 | 197.0092 | 8.35080 |
| | | | 196.6683 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 155.775822 | 39 | 3.994251846 | 0.35755446 | 0.99985712 | 1.46005356 |
| Within groups | 2234.20614 | 200 | 11.17103068 | | | |
| | | | | | | |
| Total | 2389.98196 | 239 | | | | |
| | | | | | | |
| within-sd | 3.342309 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.472674 | | | | | |
| u_bb | 0.472674 | 472.6739 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.24034064 | | | | | |

Antimony in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 683.9687 | 113.9948 | 1.37299 |
| R4 | 6 | 687.3362 | 114.5560 | 2.78375 |
| T3 | 6 | 692.4294 | 115.4049 | 3.04764 |
| T9 | 6 | 692.3836 | 115.3973 | 3.54364 |
| U4 | 6 | 689.2078 | 114.8680 | 0.93392 |
| U7 | 6 | 701.8007 | 116.9668 | 2.94207 |
| W6 | 6 | 695.1225 | 115.8538 | 5.20336 |
| W8 | 6 | 692.1731 | 115.3622 | 1.09103 |
| X2 | 6 | 693.1282 | 115.5214 | 3.25685 |
| X7 | 6 | 689.7936 | 114.9656 | 1.85878 |
| Y1 | 6 | 692.7975 | 115.4663 | 4.54034 |
| Y3 | 6 | 689.8542 | 114.9757 | 0.74635 |
| Z6 | 6 | 698.4658 | 116.4110 | 2.62846 |
| Z10 | 6 | 696.0941 | 116.0157 | 3.97613 |
| AA4 | 6 | 697.0062 | 116.1677 | 1.47654 |
| AA7 | 6 | 691.6096 | 115.2683 | 2.48009 |
| AB3 | 6 | 690.4856 | 115.0809 | 1.27619 |
| AB9 | 6 | 692.9593 | 115.4932 | 3.56211 |
| AC2 | 6 | 694.2614 | 115.7102 | 6.75107 |
| AC6 | 6 | 689.9479 | 114.9913 | 2.98088 |
| AD3 | 6 | 691.1900 | 115.1983 | 2.89378 |
| AD10 | 6 | 692.0983 | 115.3497 | 4.50059 |
| AE2 | 6 | 690.9377 | 115.1563 | 0.77632 |
| AE8 | 6 | 692.7402 | 115.4567 | 6.54919 |
| AF1 | 6 | 684.1621 | 114.0270 | 2.87071 |
| AF8 | 6 | 687.3890 | 114.5648 | 2.65672 |
| AG1 | 6 | 696.1190 | 116.0198 | 3.54604 |
| AG3 | 6 | 689.9174 | 114.9862 | 4.80506 |
| AH4 | 6 | 693.7828 | 115.6305 | 3.60490 |
| AH9 | 6 | 688.9489 | 114.8248 | 3.10274 |
| AI4 | 6 | 683.7642 | 113.9607 | 1.76492 |
| AI7 | 6 | 686.5973 | 114.4329 | 8.49351 |
| AJ3 | 6 | 683.3245 | 113.8874 | 3.44103 |
| AJ9 | 6 | 691.9642 | 115.3274 | 0.94963 |
| AK3 | 6 | 685.0500 | 114.1750 | 4.20832 |
| AK6 | 6 | 691.6459 | 115.2743 | 6.67855 |
| AL1 | 6 | 686.4858 | 114.4143 | 4.08786 |
| AL7 | 6 | 687.8756 | 114.6459 | 4.05298 |
| AM7 | 6 | 682.4142 | 113.7357 | 5.45557 |
| AM10 | 6 | 685.5500 | 114.2583 | 2.70542 |
| | | | 115.0949 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 124.419979 | 39 | 3.190255877 | 0.95519473 | 0.55092725 | 1.46005356 |
| Within groups | 667.980208 | 200 | 3.339901041 | | | |
| | | | | | | |
| Total | 792.400187 | 239 | | | | |
| | | | | | | |
| within-sd | 1.82754 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.258453 | | | | | |
| u_bb | 0.258453 | 258.45313 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.22455649 | | | | | |

Tin in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 7408.6206 | 1234.7701 | 540.59341 |
| R4 | 6 | 7501.9500 | 1250.3250 | 273.86958 |
| T3 | 6 | 7612.9724 | 1268.8287 | 419.80434 |
| T9 | 6 | 7599.0304 | 1266.5051 | 373.99019 |
| U4 | 6 | 7534.6147 | 1255.7691 | 450.11814 |
| U7 | 6 | 7651.8923 | 1275.3154 | 136.59534 |
| W6 | 6 | 7627.0525 | 1271.1754 | 246.63761 |
| W8 | 6 | 7540.1545 | 1256.6924 | 159.88045 |
| X2 | 6 | 7608.1369 | 1268.0228 | 311.46904 |
| X7 | 6 | 7557.4329 | 1259.5722 | 405.04980 |
| Y1 | 6 | 7563.9932 | 1260.6655 | 537.66074 |
| Y3 | 6 | 7539.9327 | 1256.6555 | 370.62239 |
| Z6 | 6 | 7522.8233 | 1253.8039 | 963.77054 |
| Z10 | 6 | 7563.2109 | 1260.5351 | 1933.87579 |
| AA4 | 6 | 7600.4995 | 1266.7499 | 199.36580 |
| AA7 | 6 | 7574.4708 | 1262.4118 | 293.89717 |
| AB3 | 6 | 7603.2600 | 1267.2100 | 455.08063 |
| AB9 | 6 | 7583.8271 | 1263.9712 | 563.48241 |
| AC2 | 6 | 7600.6414 | 1266.7736 | 219.34013 |
| AC6 | 6 | 7496.0983 | 1249.3497 | 1164.22008 |
| AD3 | 6 | 7577.6708 | 1262.9451 | 311.47343 |
| AD10 | 6 | 7589.3862 | 1264.8977 | 249.82978 |
| AE2 | 6 | 7547.2384 | 1257.8731 | 1027.54943 |
| AE8 | 6 | 7560.9397 | 1260.1566 | 598.06659 |
| AF1 | 6 | 7527.6217 | 1254.6036 | 190.52903 |
| AF8 | 6 | 7535.8243 | 1255.9707 | 311.30952 |
| AG1 | 6 | 7630.9518 | 1271.8253 | 808.02346 |
| AG3 | 6 | 7474.7581 | 1245.7930 | 449.46915 |
| AH4 | 6 | 7599.1258 | 1266.5210 | 476.30892 |
| AH9 | 6 | 7541.9350 | 1256.9892 | 230.89874 |
| AI4 | 6 | 7521.7600 | 1253.6267 | 270.07576 |
| AI7 | 6 | 7506.4367 | 1251.0728 | 622.64894 |
| AJ3 | 6 | 7524.4436 | 1254.0739 | 261.10848 |
| AJ9 | 6 | 7565.0912 | 1260.8485 | 87.66193 |
| AK3 | 6 | 7516.7778 | 1252.7963 | 274.48299 |
| AK6 | 6 | 7635.5585 | 1272.5931 | 556.11038 |
| AL1 | 6 | 7513.8871 | 1252.3145 | 302.48883 |
| AL7 | 6 | 7597.0378 | 1266.1730 | 328.59593 |
| AM7 | 6 | 7516.1750 | 1252.6958 | 414.26692 |
| AM10 | 6 | 7540.9693 | 1256.8282 | 313.05104 |
| | | | 1259.6425 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 15779.6332 | 39 | 404.60598 | 0.89399521 | 0.65173343 | 1.46005356 |
| Within groups | 90516.3642 | 200 | 452.5818212 | | | |
| | | | | | | |
| Total | 106295.997 | 239 | | | | |
| | | | | | | |
| within-sd | 21.27397 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 3.008594 | | | | | |
| u_bb | 3.008594 | 3008.5938 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.23884505 | | | | | |

Silver in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 228.4917 | 38.0820 | 0.25188 |
| R4 | 6 | 230.2433 | 38.3739 | 0.59400 |
| T3 | 6 | 227.9727 | 37.9955 | 0.50685 |
| T9 | 6 | 227.9770 | 37.9962 | 0.31084 |
| U4 | 6 | 228.9288 | 38.1548 | 0.40486 |
| U7 | 6 | 228.2552 | 38.0425 | 0.27434 |
| W6 | 6 | 228.2742 | 38.0457 | 0.40739 |
| W8 | 6 | 227.9105 | 37.9851 | 0.60943 |
| X2 | 6 | 226.3165 | 37.7194 | 1.39107 |
| X7 | 6 | 227.8385 | 37.9731 | 0.58022 |
| Y1 | 6 | 228.2477 | 38.0413 | 1.05147 |
| Y3 | 6 | 228.7110 | 38.1185 | 0.32017 |
| Z6 | 6 | 228.5329 | 38.0888 | 0.46456 |
| Z10 | 6 | 231.0764 | 38.5127 | 1.13708 |
| AA4 | 6 | 229.2551 | 38.2092 | 0.30941 |
| AA7 | 6 | 227.5104 | 37.9184 | 0.35803 |
| AB3 | 6 | 228.1381 | 38.0230 | 0.45387 |
| AB9 | 6 | 228.9469 | 38.1578 | 0.52013 |
| AC2 | 6 | 227.4825 | 37.9138 | 0.35184 |
| AC6 | 6 | 229.0850 | 38.1808 | 0.36308 |
| AD3 | 6 | 228.5783 | 38.0964 | 0.44555 |
| AD10 | 6 | 228.4558 | 38.0760 | 0.50009 |
| AE2 | 6 | 228.5577 | 38.0930 | 0.41652 |
| AE8 | 6 | 229.0813 | 38.1802 | 0.60986 |
| AF1 | 6 | 228.1104 | 38.0184 | 0.28581 |
| AF8 | 6 | 229.3873 | 38.2312 | 0.40984 |
| AG1 | 6 | 228.3800 | 38.0633 | 0.83368 |
| AG3 | 6 | 229.7124 | 38.2854 | 0.22846 |
| AH4 | 6 | 228.3794 | 38.0632 | 0.49202 |
| AH9 | 6 | 229.8563 | 38.3094 | 0.67189 |
| AI4 | 6 | 228.1265 | 38.0211 | 0.26709 |
| AI7 | 6 | 226.5352 | 37.7559 | 1.44544 |
| AJ3 | 6 | 228.6769 | 38.1128 | 0.42940 |
| AJ9 | 6 | 228.9071 | 38.1512 | 0.23898 |
| AK3 | 6 | 228.1622 | 38.0270 | 0.48815 |
| AK6 | 6 | 227.5357 | 37.9226 | 2.00373 |
| AL1 | 6 | 228.4831 | 38.0805 | 0.35961 |
| AL7 | 6 | 224.4283 | 37.4047 | 3.74677 |
| AM7 | 6 | 227.5654 | 37.9276 | 0.45338 |
| AM10 | 6 | 228.9126 | 38.1521 | 0.32395 |
| | | | 38.0626 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 7.71917831 | 39 | 0.197927649 | 0.31279624 | 0.99997376 | 1.46005356 |
| Within groups | 126.553726 | 200 | 0.632768631 | | | |
| | | | | | | |
| Total | 134.272905 | 239 | | | | |
| | | | | | | |
| within-sd | 0.795468 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.112496 | | | | | |
| u_bb | 0.112496 | 112.4961 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.29555539 | | | | | |

Cadmium in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 220.7154 | 36.7859 | 0.29465 |
| R4 | 6 | 222.5229 | 37.0872 | 0.16103 |
| T3 | 6 | 222.9621 | 37.1603 | 0.24889 |
| T9 | 6 | 222.0697 | 37.0116 | 0.19504 |
| U4 | 6 | 222.4207 | 37.0701 | 0.09957 |
| U7 | 6 | 222.7661 | 37.1277 | 0.17093 |
| W6 | 6 | 225.3450 | 37.5575 | 0.04385 |
| W8 | 6 | 222.2173 | 37.0362 | 0.20810 |
| X2 | 6 | 224.4598 | 37.4100 | 0.43769 |
| X7 | 6 | 221.3607 | 36.8934 | 0.18322 |
| Y1 | 6 | 222.9046 | 37.1508 | 0.12357 |
| Y3 | 6 | 221.9815 | 36.9969 | 0.10136 |
| Z6 | 6 | 223.0179 | 37.1697 | 0.33018 |
| Z10 | 6 | 225.8180 | 37.6363 | 0.56602 |
| AA4 | 6 | 224.1984 | 37.3664 | 0.16925 |
| AA7 | 6 | 223.6100 | 37.2683 | 0.26554 |
| AB3 | 6 | 225.1161 | 37.5194 | 0.26287 |
| AB9 | 6 | 223.9288 | 37.3215 | 0.30107 |
| AC2 | 6 | 223.3419 | 37.2237 | 0.21736 |
| AC6 | 6 | 222.4313 | 37.0719 | 0.40471 |
| AD3 | 6 | 224.3525 | 37.3921 | 0.06958 |
| AD10 | 6 | 223.5792 | 37.2632 | 0.06906 |
| AE2 | 6 | 224.5367 | 37.4228 | 0.36051 |
| AE8 | 6 | 222.3672 | 37.0612 | 0.53578 |
| AF1 | 6 | 223.3583 | 37.2264 | 0.10992 |
| AF8 | 6 | 224.2591 | 37.3765 | 0.29501 |
| AG1 | 6 | 224.9651 | 37.4942 | 0.26674 |
| AG3 | 6 | 221.0844 | 36.8474 | 0.13529 |
| AH4 | 6 | 223.8342 | 37.3057 | 0.08116 |
| AH9 | 6 | 224.5260 | 37.4210 | 0.08627 |
| AI4 | 6 | 223.2582 | 37.2097 | 0.08475 |
| AI7 | 6 | 220.9991 | 36.8332 | 0.44961 |
| AJ3 | 6 | 223.3176 | 37.2196 | 0.22904 |
| AJ9 | 6 | 224.2196 | 37.3699 | 0.03821 |
| AK3 | 6 | 222.8499 | 37.1416 | 0.18530 |
| AK6 | 6 | 225.6954 | 37.6159 | 0.29982 |
| AL1 | 6 | 222.7294 | 37.1216 | 0.38227 |
| AL7 | 6 | 222.0897 | 37.0150 | 0.15892 |
| AM7 | 6 | 223.1258 | 37.1876 | 0.33349 |
| AM10 | 6 | 224.2994 | 37.3832 | 0.12215 |
| | | | 37.2193 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 10.4948642 | 39 | 0.269099083 | 1.1857522 | 0.22509365 | 1.46005356 |
| Within groups | 45.3887556 | 200 | 0.226943778 | | | |
| | | | | | | |
| Total | 55.8836198 | 239 | | | | |
| | | | | | | |
| within-sd | 0.476386 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.091821 | | | | | |
| s_bb_min | 0.067371 | | | | | |
| u_bb | 0.091821 | 91.820809 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.24670207 | | | | | |

Copper in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 117.4440 | 19.5740 | 0.21943 |
| R4 | 6 | 119.2142 | 19.8690 | 0.06653 |
| T3 | 6 | 119.3980 | 19.8997 | 0.25235 |
| T9 | 6 | 118.8285 | 19.8047 | 0.14367 |
| U4 | 6 | 119.6119 | 19.9353 | 0.16478 |
| U7 | 6 | 119.8067 | 19.9678 | 0.07101 |
| W6 | 6 | 120.6442 | 20.1074 | 0.02475 |
| W8 | 6 | 118.9576 | 19.8263 | 0.09079 |
| X2 | 6 | 119.2064 | 19.8677 | 0.22416 |
| X7 | 6 | 118.4701 | 19.7450 | 0.13999 |
| Y1 | 6 | 119.1769 | 19.8628 | 0.16234 |
| Y3 | 6 | 119.3667 | 19.8944 | 0.17276 |
| Z6 | 6 | 119.0525 | 19.8421 | 0.12232 |
| Z10 | 6 | 120.9491 | 20.1582 | 0.21673 |
| AA4 | 6 | 120.1141 | 20.0190 | 0.05203 |
| AA7 | 6 | 119.7533 | 19.9589 | 0.15253 |
| AB3 | 6 | 120.8092 | 20.1349 | 0.15175 |
| AB9 | 6 | 119.7519 | 19.9587 | 0.22506 |
| AC2 | 6 | 119.8328 | 19.9721 | 0.24226 |
| AC6 | 6 | 118.4854 | 19.7476 | 0.19371 |
| AD3 | 6 | 120.2042 | 20.0340 | 0.18313 |
| AD10 | 6 | 119.9300 | 19.9883 | 0.14344 |
| AE2 | 6 | 120.0860 | 20.0143 | 0.12912 |
| AE8 | 6 | 119.6355 | 19.9393 | 0.23363 |
| AF1 | 6 | 119.2854 | 19.8809 | 0.11701 |
| AF8 | 6 | 119.9073 | 19.9846 | 0.19094 |
| AG1 | 6 | 120.9461 | 20.1577 | 0.26661 |
| AG3 | 6 | 117.9715 | 19.6619 | 0.20353 |
| AH4 | 6 | 119.9569 | 19.9928 | 0.15860 |
| AH9 | 6 | 119.9219 | 19.9870 | 0.14719 |
| AI4 | 6 | 119.0624 | 19.8437 | 0.19244 |
| AI7 | 6 | 118.0801 | 19.6800 | 0.27469 |
| AJ3 | 6 | 119.2801 | 19.8800 | 0.15852 |
| AJ9 | 6 | 119.9304 | 19.9884 | 0.05228 |
| AK3 | 6 | 119.1239 | 19.8540 | 0.18871 |
| AK6 | 6 | 120.4317 | 20.0720 | 0.42541 |
| AL1 | 6 | 118.9675 | 19.8279 | 0.15991 |
| AL7 | 6 | 117.9206 | 19.6534 | 0.64257 |
| AM7 | 6 | 119.5550 | 19.9258 | 0.21342 |
| AM10 | 6 | 119.8174 | 19.9696 | 0.23149 |
| | | | 19.9120 | |

| *Source of variation* | *sums of squares* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 4.29646719 | 39 | 0.110165825 | 0.59536407 | 0.97214815 | 1.46005356 |
| Within groups | 37.0078851 | 200 | 0.185039425 | | | |
| | | | | | | |
| Total | 41.3043523 | 239 | | | | |
| | | | | | | |
| within-sd | 0.430162 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.060834 | | | | | |
| u_bb | 0.060834 | 60.834106 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.30551434 | | | | | |

Nickel in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 19.4145 | 3.2357 | 0.01163 |
| R4 | 6 | 19.5792 | 3.2632 | 0.01577 |
| T3 | 6 | 20.9643 | 3.4941 | 0.01515 |
| T9 | 6 | 20.7413 | 3.4569 | 0.00363 |
| U4 | 6 | 20.6754 | 3.4459 | 0.01553 |
| U7 | 6 | 20.9463 | 3.4910 | 0.01305 |
| W6 | 6 | 20.7650 | 3.4608 | 0.01258 |
| W8 | 6 | 20.4743 | 3.4124 | 0.00441 |
| X2 | 6 | 20.6055 | 3.4342 | 0.01345 |
| X7 | 6 | 20.3778 | 3.3963 | 0.01056 |
| Y1 | 6 | 20.4542 | 3.4090 | 0.02310 |
| Y3 | 6 | 20.3021 | 3.3837 | 0.00820 |
| Z6 | 6 | 20.7900 | 3.4650 | 0.01913 |
| Z10 | 6 | 20.6370 | 3.4395 | 0.01758 |
| AA4 | 6 | 20.9431 | 3.4905 | 0.04712 |
| AA7 | 6 | 20.5004 | 3.4167 | 0.00548 |
| AB3 | 6 | 20.5500 | 3.4250 | 0.00960 |
| AB9 | 6 | 21.0172 | 3.5029 | 0.00919 |
| AC2 | 6 | 20.7402 | 3.4567 | 0.00429 |
| AC6 | 6 | 20.3438 | 3.3906 | 0.00720 |
| AD3 | 6 | 20.9317 | 3.4886 | 0.00479 |
| AD10 | 6 | 20.7308 | 3.4551 | 0.02998 |
| AE2 | 6 | 20.6018 | 3.4336 | 0.00425 |
| AE8 | 6 | 20.3848 | 3.3975 | 0.01209 |
| AF1 | 6 | 20.5246 | 3.4208 | 0.00286 |
| AF8 | 6 | 20.6343 | 3.4391 | 0.00812 |
| AG1 | 6 | 21.0627 | 3.5105 | 0.03907 |
| AG3 | 6 | 20.4928 | 3.4155 | 0.00853 |
| AH4 | 6 | 20.5614 | 3.4269 | 0.00848 |
| AH9 | 6 | 20.2958 | 3.3826 | 0.00298 |
| AI4 | 6 | 20.4663 | 3.4110 | 0.02201 |
| AI7 | 6 | 20.3364 | 3.3894 | 0.01037 |
| AJ3 | 6 | 20.9246 | 3.4874 | 0.01473 |
| AJ9 | 6 | 20.5396 | 3.4233 | 0.00571 |
| AK3 | 6 | 20.3206 | 3.3868 | 0.00420 |
| AK6 | 6 | 20.9073 | 3.4846 | 0.00648 |
| AL1 | 6 | 20.4896 | 3.4149 | 0.00955 |
| AL7 | 6 | 21.0394 | 3.5066 | 0.01063 |
| AM7 | 6 | 20.3204 | 3.3867 | 0.01630 |
| AM10 | 6 | 20.6193 | 3.4366 | 0.02578 |
| | | | 3.4292 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 0.74722109 | 39 | 0.019159515 | 1.49223836 | 0.04090153 | 1.46005356 |
| Within groups | 2.56788935 | 200 | 0.012839447 | | | |
| | | | | | | |
| Total | 3.31511044 | 239 | | | | |
| | | | | | | |
| within-sd | 0.113311 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.035553 | | | | | |
| s_bb_min | 0.016025 | | | | | |
| u_bb | 0.035553 | 35.55297 | | | | |
| | | | | | | |
| u_bb(rel.) | 1.03677442 | | | | | |

Tellurium in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 163.6629 | 27.2772 | 3.81666 |
| R4 | 6 | 170.4700 | 28.4117 | 2.13030 |
| T3 | 6 | 170.4614 | 28.4102 | 2.14314 |
| T9 | 6 | 167.7231 | 27.9538 | 1.52747 |
| U4 | 6 | 166.0333 | 27.6722 | 2.51726 |
| U7 | 6 | 165.2523 | 27.5421 | 1.46159 |
| W6 | 6 | 168.8117 | 28.1353 | 2.05156 |
| W8 | 6 | 167.4835 | 27.9139 | 0.64830 |
| X2 | 6 | 169.4127 | 28.2354 | 3.12391 |
| X7 | 6 | 162.9860 | 27.1643 | 2.79619 |
| Y1 | 6 | 170.2073 | 28.3679 | 1.26390 |
| Y3 | 6 | 165.9577 | 27.6596 | 1.79619 |
| Z6 | 6 | 167.4550 | 27.9092 | 1.83294 |
| Z10 | 6 | 169.2375 | 28.2063 | 4.78357 |
| AA4 | 6 | 167.7360 | 27.9560 | 1.81595 |
| AA7 | 6 | 167.7763 | 27.9627 | 4.12843 |
| AB3 | 6 | 174.2456 | 29.0409 | 1.73203 |
| AB9 | 6 | 169.1476 | 28.1913 | 2.59988 |
| AC2 | 6 | 165.5076 | 27.5846 | 1.64026 |
| AC6 | 6 | 166.8133 | 27.8022 | 4.77633 |
| AD3 | 6 | 172.1558 | 28.6926 | 1.13742 |
| AD10 | 6 | 165.5863 | 27.5977 | 2.45545 |
| AE2 | 6 | 167.4646 | 27.9108 | 2.70378 |
| AE8 | 6 | 167.8067 | 27.9678 | 2.21087 |
| AF1 | 6 | 169.2213 | 28.2035 | 1.24465 |
| AF8 | 6 | 170.6214 | 28.4369 | 1.74354 |
| AG1 | 6 | 172.5860 | 28.7643 | 3.17292 |
| AG3 | 6 | 162.6183 | 27.1031 | 3.11787 |
| AH4 | 6 | 170.8350 | 28.4725 | 3.79865 |
| AH9 | 6 | 169.0107 | 28.1684 | 2.08687 |
| AI4 | 6 | 164.9124 | 27.4854 | 3.41352 |
| AI7 | 6 | 171.2720 | 28.5453 | 3.27039 |
| AJ3 | 6 | 166.9107 | 27.8185 | 3.31086 |
| AJ9 | 6 | 168.2625 | 28.0438 | 2.39508 |
| AK3 | 6 | 163.9482 | 27.3247 | 2.56212 |
| AK6 | 6 | 166.7229 | 27.7871 | 2.95055 |
| AL1 | 6 | 166.0077 | 27.6680 | 2.68642 |
| AL7 | 6 | 170.3031 | 28.3838 | 1.66563 |
| AM7 | 6 | 171.3788 | 28.5631 | 2.49694 |
| AM10 | 6 | 173.1079 | 28.8513 | 2.22407 |
| | | | 28.0296 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 50.8926951 | 39 | 1.3049409 | 0.52600832 | 0.99059204 | 1.46005356 |
| Within groups | 496.167395 | 200 | 2.480836973 | | | |
| | | | | | | |
| Total | 547.06009 | 239 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| within-sd | 1.575067 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.222748 | | | | | |
| u_bb | 0.222748 | 222.74815 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.79468798 | | | | | |

Thallium in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 14.3855 | 2.3976 | 0.0000140 |
| R4 | 6 | 14.3967 | 2.3994 | 0.0000099 |
| T3 | 6 | 14.3882 | 2.3980 | 0.0000219 |
| T9 | 6 | 14.3976 | 2.3996 | 0.0000036 |
| U4 | 6 | 14.3992 | 2.3999 | 0.0000018 |
| U7 | 6 | 14.3996 | 2.3999 | 0.0000031 |
| W6 | 6 | 14.4058 | 2.4010 | 0.0000023 |
| W8 | 6 | 14.3964 | 2.3994 | 0.0000085 |
| X2 | 6 | 14.3984 | 2.3997 | 0.0000191 |
| X7 | 6 | 14.3892 | 2.3982 | 0.0000107 |
| Y1 | 6 | 14.3989 | 2.3998 | 0.0000249 |
| Y3 | 6 | 14.3952 | 2.3992 | 0.0000125 |
| Z6 | 6 | 14.3929 | 2.3988 | 0.0000248 |
| Z10 | 6 | 14.3946 | 2.3991 | 0.0000528 |
| AA4 | 6 | 14.3956 | 2.3993 | 0.0000018 |
| AA7 | 6 | 14.4079 | 2.4013 | 0.0000069 |
| AB3 | 6 | 14.4119 | 2.4020 | 0.0000133 |
| AB9 | 6 | 14.3972 | 2.3995 | 0.0000325 |
| AC2 | 6 | 14.4026 | 2.4004 | 0.0000274 |
| AC6 | 6 | 14.3871 | 2.3978 | 0.0000227 |
| AD3 | 6 | 14.4025 | 2.4004 | 0.0000091 |
| AD10 | 6 | 14.4017 | 2.4003 | 0.0000057 |
| AE2 | 6 | 14.4017 | 2.4003 | 0.0000326 |
| AE8 | 6 | 14.3915 | 2.3986 | 0.0000247 |
| AF1 | 6 | 14.4008 | 2.4001 | 0.0000054 |
| AF8 | 6 | 14.4004 | 2.4001 | 0.0000192 |
| AG1 | 6 | 14.4071 | 2.4012 | 0.0000210 |
| AG3 | 6 | 14.3871 | 2.3978 | 0.0000232 |
| AH4 | 6 | 14.3986 | 2.3998 | 0.0000211 |
| AH9 | 6 | 14.4065 | 2.4011 | 0.0000141 |
| AI4 | 6 | 14.3942 | 2.3990 | 0.0000259 |
| AI7 | 6 | 14.3863 | 2.3977 | 0.0000224 |
| AJ3 | 6 | 14.3972 | 2.3995 | 0.0000143 |
| AJ9 | 6 | 14.4058 | 2.4010 | 0.0000017 |
| AK3 | 6 | 14.3944 | 2.3991 | 0.0000208 |
| AK6 | 6 | 14.4060 | 2.4010 | 0.0000046 |
| AL1 | 6 | 14.3981 | 2.3997 | 0.0000081 |
| AL7 | 6 | 14.4044 | 2.4007 | 0.0000029 |
| AM7 | 6 | 14.3933 | 2.3989 | 0.0000199 |
| AM10 | 6 | 14.4010 | 2.4002 | 0.0000142 |
| | | | 2.3997 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 0.00027114 | 39 | 6.95236E-06 | 0.44479909 | 0.99824477 | 1.46005356 |
| Within groups | 0.00312607 | 200 | 1.56303E-05 | | | |
| | | | | | | |
| Total | 0.00339721 | 239 | | | | |
| | | | | | | |
| within-sd | 0.003954 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.000559 | | | | | |
| u_bb | 0.000559 | 0.5591124 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.02329961 | | | | | |

Zinc in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 229.7508 | 38.2918 | 1.44630 |
| R4 | 6 | 228.7771 | 38.1295 | 2.52855 |
| T3 | 6 | 252.2712 | 42.0452 | 1.61818 |
| T9 | 6 | 241.5607 | 40.2601 | 2.96178 |
| U4 | 6 | 233.0329 | 38.8388 | 2.57779 |
| U7 | 6 | 256.9955 | 42.8326 | 1.82752 |
| W6 | 6 | 244.3067 | 40.7178 | 1.30858 |
| W8 | 6 | 240.9624 | 40.1604 | 0.90388 |
| X2 | 6 | 246.8829 | 41.1472 | 5.03050 |
| X7 | 6 | 249.1890 | 41.5315 | 2.22867 |
| Y1 | 6 | 241.1838 | 40.1973 | 5.22326 |
| Y3 | 6 | 243.0975 | 40.5162 | 3.37162 |
| Z6 | 6 | 248.4058 | 41.4010 | 0.70969 |
| Z10 | 6 | 249.6741 | 41.6123 | 3.29705 |
| AA4 | 6 | 250.1372 | 41.6895 | 7.19223 |
| AA7 | 6 | 242.3475 | 40.3913 | 3.29256 |
| AB3 | 6 | 238.1600 | 39.6933 | 3.92837 |
| AB9 | 6 | 248.9400 | 41.4900 | 6.24136 |
| AC2 | 6 | 248.4503 | 41.4084 | 8.05288 |
| AC6 | 6 | 243.1046 | 40.5174 | 2.61444 |
| AD3 | 6 | 240.1483 | 40.0247 | 5.89030 |
| AD10 | 6 | 242.2546 | 40.3758 | 0.65199 |
| AE2 | 6 | 242.3942 | 40.3990 | 0.25584 |
| AE8 | 6 | 244.2140 | 40.7023 | 4.65311 |
| AF1 | 6 | 231.3900 | 38.5650 | 1.23886 |
| AF8 | 6 | 240.9991 | 40.1665 | 6.72866 |
| AG1 | 6 | 245.3027 | 40.8838 | 1.76698 |
| AG3 | 6 | 238.1339 | 39.6890 | 2.50548 |
| AH4 | 6 | 244.3364 | 40.7227 | 3.19415 |
| AH9 | 6 | 235.1989 | 39.1998 | 3.17036 |
| AI4 | 6 | 240.0015 | 40.0003 | 6.39742 |
| AI7 | 6 | 242.7318 | 40.4553 | 18.24991 |
| AJ3 | 6 | 232.9785 | 38.8298 | 3.08036 |
| AJ9 | 6 | 238.8804 | 39.8134 | 3.02624 |
| AK3 | 6 | 234.0625 | 39.0104 | 2.11283 |
| AK6 | 6 | 248.8246 | 41.4708 | 2.86168 |
| AL1 | 6 | 232.6271 | 38.7712 | 4.14975 |
| AL7 | 6 | 240.5578 | 40.0930 | 3.51425 |
| AM7 | 6 | 234.2467 | 39.0411 | 5.23823 |
| AM10 | 6 | 235.3957 | 39.2326 | 1.05590 |
| | | | 40.2580 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 280.340432 | 39 | 7.188216205 | 1.96805985 | 0.00140411 | 1.46005356 |
| Within groups | 730.487563 | 200 | 3.652437816 | | | |
| | | | | | | |
| Total | 1010.828 | 239 | | | | |
| | | | | | | |
| within-sd | 1.911135 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.840925 | | | | | |
| s_bb_min | 0.270275 | | | | | |
| u_bb | 0.840925 | 840.92549 | | | | |
| | | | | | | |
| u_bb(rel.) | 2.08884314 | | | | | |

Aluminium in BAM-M109:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| R1 | 6 | 4.9157 | 0.8193 | 0.00085 |
| R4 | 6 | 5.0642 | 0.8440 | 0.00097 |
| T3 | 6 | 4.9408 | 0.8235 | 0.00035 |
| T9 | 6 | 4.9808 | 0.8301 | 0.00117 |
| U4 | 6 | 5.0225 | 0.8371 | 0.00059 |
| U7 | 6 | 5.0403 | 0.8401 | 0.00098 |
| W6 | 6 | 5.1567 | 0.8594 | 0.00144 |
| W8 | 6 | 5.0058 | 0.8343 | 0.00037 |
| X2 | 6 | 5.1569 | 0.8595 | 0.00141 |
| X7 | 6 | 4.8731 | 0.8122 | 0.00036 |
| Y1 | 6 | 4.9975 | 0.8329 | 0.00029 |
| Y3 | 6 | 4.9352 | 0.8225 | 0.00030 |
| Z6 | 6 | 4.9750 | 0.8292 | 0.00094 |
| Z10 | 6 | 5.0391 | 0.8398 | 0.00203 |
| AA4 | 6 | 5.0312 | 0.8385 | 0.00080 |
| AA7 | 6 | 5.1504 | 0.8584 | 0.00150 |
| AB3 | 6 | 5.1325 | 0.8554 | 0.00050 |
| AB9 | 6 | 5.0646 | 0.8441 | 0.00160 |
| AC2 | 6 | 4.9583 | 0.8264 | 0.00037 |
| AC6 | 6 | 4.9642 | 0.8274 | 0.00163 |
| AD3 | 6 | 5.0542 | 0.8424 | 0.00032 |
| AD10 | 6 | 5.1092 | 0.8515 | 0.00100 |
| AE2 | 6 | 5.0791 | 0.8465 | 0.00180 |
| AE8 | 6 | 5.0512 | 0.8419 | 0.00224 |
| AF1 | 6 | 5.0725 | 0.8454 | 0.00119 |
| AF8 | 6 | 5.0633 | 0.8439 | 0.00323 |
| AG1 | 6 | 5.0925 | 0.8487 | 0.00072 |
| AG3 | 6 | 5.0640 | 0.8440 | 0.00189 |
| AH4 | 6 | 5.0258 | 0.8376 | 0.00063 |
| AH9 | 6 | 5.1206 | 0.8534 | 0.00110 |
| AI4 | 6 | 4.9179 | 0.8197 | 0.00053 |
| AI7 | 6 | 4.8860 | 0.8143 | 0.00107 |
| AJ3 | 6 | 4.9964 | 0.8327 | 0.00073 |
| AJ9 | 6 | 5.0400 | 0.8400 | 0.00111 |
| AK3 | 6 | 5.0026 | 0.8338 | 0.00088 |
| AK6 | 6 | 5.1712 | 0.8619 | 0.00194 |
| AL1 | 6 | 4.9925 | 0.8321 | 0.00090 |
| AL7 | 6 | 5.0322 | 0.8387 | 0.00085 |
| AM7 | 6 | 5.0050 | 0.8342 | 0.00138 |
| AM10 | 6 | 5.0507 | 0.8418 | 0.00039 |
| | | | 0.8385 | |

| *Source of variation* | *squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 0.03575053 | 39 | 0.00091668 | 0.86600797 | 0.69653324 | 1.46005356 |
| Within groups | 0.21170252 | 200 | 0.001058513 | | | |
| | | | | | | |
| Total | 0.24745306 | 239 | | | | |
| | | | | | | |
| within-sd | 0.032535 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.004601 | | | | | |
| u_bb | 0.004601 | 4.6011142 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.54875441 | | | | | |

Arsenic in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.056955 | 0.0094925 | 3.427E-07 |
| J8 | 6 | 0.059465 | 0.00991083 | 4.9292E-07 |
| K5 | 6 | 0.055608 | 0.009268 | 4.1131E-07 |
| L8 | 6 | 0.055371 | 0.0092285 | 2.9509E-07 |
| M4 | 6 | 0.055248 | 0.009208 | 3.2769E-07 |
| N10 | 6 | 0.055288 | 0.00921467 | 3.3332E-07 |
| N7 | 6 | 0.05496 | 0.00916 | 2.6591E-07 |
| O1 | 6 | 0.055469 | 0.00924483 | 2.9495E-07 |
| O8 | 6 | 0.057239 | 0.00953983 | 4.754E-07 |
| P3 | 6 | 0.055159 | 0.00919317 | 3.9617E-07 |
| P9 | 6 | 0.055608 | 0.009268 | 3.5663E-07 |
| Q10 | 6 | 0.055807 | 0.00930117 | 2.7911E-07 |
| Q4 | 6 | 0.05544 | 0.00924 | 4.0502E-07 |
| | | | 0.00932842 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 3.10653E-06 | 12 | 2.58878E-07 | 0.71968479 | 0.72701203 | 1.90436961 |
| Within groups | 2.33811E-05 | 65 | 3.5971E-07 | | | |
| | | | | | | |
| Total | 2.64877E-05 | 77 | | | | |
| | | | | | | |
| within-sd | 0.00059976 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 0.00011234 | | | | | |
| u_bb | 0.00011234 | 0.11233635 | | | | |
| | | | | | | |
| u_bb(rel.) | 1.204237343 | | | | | |

Bismuth in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.115512 | 0.019252 | 9.8841E-08 |
| J8 | 6 | 0.115815 | 0.0193025 | 6.8686E-08 |
| K5 | 6 | 0.114843 | 0.0191405 | 1.4592E-07 |
| L8 | 6 | 0.11428 | 0.01904667 | 1.033E-07 |
| M4 | 6 | 0.114395 | 0.01906583 | 1.076E-07 |
| N10 | 6 | 0.114536 | 0.01908933 | 7.0988E-08 |
| N7 | 6 | 0.114778 | 0.01912967 | 6.7615E-08 |
| O1 | 6 | 0.113827 | 0.01897117 | 1.3666E-07 |
| O8 | 6 | 0.115131 | 0.0191885 | 1.3718E-07 |
| P3 | 6 | 0.114462 | 0.019077 | 1.2887E-07 |
| P9 | 6 | 0.114473 | 0.01907883 | 1.3746E-07 |
| Q10 | 6 | 0.114302 | 0.01905033 | 1.1581E-07 |
| Q4 | 6 | 0.114494 | 0.01908233 | 1.1597E-07 |
| | | | 0.01911344 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 5.79574E-07 | 12 | 4.82978E-08 | 0.43757174 | 0.94209703 | 1.90436961 |
| Within groups | 7.1745E-06 | 65 | 1.10377E-07 | | | |
| | | | | | | |
| Total | 7.75407E-06 | 77 | | | | |
| | | | | | | |
| within-sd | 0.00033223 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 6.2228E-05 | | | | | |
| u_bb | 6.2228E-05 | 0.06222762 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.325570018 | | | | | |

Antimony in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.070031 | 0.01167183 | 2.5926E-09 |
| J8 | 6 | 0.070337 | 0.01172283 | 7.2162E-09 |
| K5 | 6 | 0.069295 | 0.01154917 | 5.0858E-09 |
| L8 | 6 | 0.068931 | 0.0114885 | 1.5506E-08 |
| M4 | 6 | 0.068788 | 0.01146467 | 1.7585E-08 |
| N10 | 6 | 0.071146 | 0.01185767 | 6.4991E-09 |
| N7 | 6 | 0.072292 | 0.01204867 | 1.7211E-09 |
| O1 | 6 | 0.068595 | 0.0114325 | 2.13E-08 |
| O8 | 6 | 0.07378 | 0.01229667 | 4.0882E-07 |
| P3 | 6 | 0.06988 | 0.01164667 | 8.2695E-09 |
| P9 | 6 | 0.068791 | 0.01146517 | 2.2773E-08 |
| Q10 | 6 | 0.06901 | 0.01150167 | 1.6998E-08 |
| Q4 | 6 | 0.069224 | 0.01153733 | 1.0227E-08 |
| | | | 0.01166795 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 4.85164E-06 | 12 | 4.04304E-07 | 9.65118449 | 1.994E-10 | 1.90436961 |
| Within groups | 2.72295E-06 | 65 | 4.18916E-08 | | | |
| | | | | | | |
| Total | 7.5746E-06 | 77 | | | | |
| | | | | | | |
| within-sd | 0.00020467 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.00026923 | | | | | |
| s_bb_min | 3.8336E-05 | | | | | |
| u_bb | 0.00026923 | 0.26922552 | | | | |
| | | | | | | |
| u_bb(rel.) | 2.307393795 | | | | | |

Tin in BAM-M109a:

| *Gruppen* | *Anzahl* | *Summe* | *Mittelwert* | *Varianz* |
|---|---|---|---|---|
| J1 | 6 | 0.764701 | 0.12745017 | 4.4697E-06 |
| J8 | 6 | 0.842358 | 0.140393 | 3.0039E-05 |
| K5 | 6 | 0.750602 | 0.12510033 | 5.3833E-06 |
| L8 | 6 | 0.75935 | 0.12655833 | 6.8057E-06 |
| M4 | 6 | 0.759189 | 0.1265315 | 8.566E-06 |
| N10 | 6 | 0.755169 | 0.1258615 | 5.8201E-06 |
| N7 | 6 | 0.753809 | 0.12563483 | 6.3191E-06 |
| O1 | 6 | 0.787822 | 0.13130367 | 4.5508E-05 |
| P3 | 6 | 0.757053 | 0.1261755 | 5.1326E-06 |
| P9 | 6 | 0.759763 | 0.12662717 | 5.6607E-06 |
| Q10 | 6 | 0.75539 | 0.12589833 | 6.9603E-06 |
| Q4 | 6 | 0.757897 | 0.12631617 | 5.2574E-06 |
| | | | 0.12782088 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 0.001198163 | 11 | 0.000108924 | 9.616399025 | 1.0354E-09 | 1.95221194 |
| Within groups | 0.000679614 | 60 | 1.13269E-05 | | | |
| | | | | | | |
| Total | 0.001877777 | 71 | | | | |
| | | | | | | |
| within-sd | 0.00336555 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.00441808 | | | | | |
| s_bb_min | 0.00064312 | | | | | |
| u_bb | 0.00441808 | 4.418077378 | | | | |
| | | | | | | |
| u_bb(rel.) | 3.45645997 | | | | | |

Silver in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.023816 | 0.00396933 | 1.6683E-09 |
| J8 | 6 | 0.024216 | 0.004036 | 4.9304E-09 |
| K5 | 6 | 0.023452 | 0.00390867 | 1.1663E-09 |
| L8 | 6 | 0.023104 | 0.00385067 | 4.4419E-09 |
| M4 | 6 | 0.023178 | 0.003863 | 2.9324E-09 |
| N10 | 6 | 0.023307 | 0.0038845 | 2.9071E-09 |
| N7 | 6 | 0.023283 | 0.0038805 | 1.8219E-09 |
| O1 | 6 | 0.022743 | 0.0037905 | 4.0155E-09 |
| O8 | 6 | 0.023531 | 0.00392183 | 1.0417E-08 |
| P3 | 6 | 0.023109 | 0.0038515 | 3.6695E-09 |
| P9 | 6 | 0.02317 | 0.00386167 | 4.2279E-09 |
| Q10 | 6 | 0.023204 | 0.00386733 | 3.8567E-09 |
| Q4 | 6 | 0.023264 | 0.00387733 | 3.1603E-09 |
| | | | 0.00388945 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.65342E-07 | 12 | 2.21119E-08 | 5.84083845 | 9.599E-07 | 1.90436961 |
| Within groups | 2.46073E-07 | 65 | 3.78574E-09 | | | |
| | | | | | | |
| Total | 5.11415E-07 | 77 | | | | |
| | | | | | | |
| within-sd | 6.1528E-05 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 6.0541E-05 | | | | | |
| s_bb_min | 1.1524E-05 | | | | | |
| u_bb | 6.0541E-05 | 0.06054112 | | | | |
| | | | | | | |
| u_bb(rel.) | 1.556547576 | | | | | |

Cadmium in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.022429 | 0.00373817 | 2.261E-09 |
| J8 | 6 | 0.022916 | 0.00381933 | 3.9027E-09 |
| K5 | 6 | 0.022185 | 0.0036975 | 4.2083E-09 |
| L8 | 6 | 0.022362 | 0.003727 | 4.8532E-09 |
| M4 | 6 | 0.022503 | 0.0037505 | 3.7355E-09 |
| N10 | 6 | 0.022256 | 0.00370933 | 2.5983E-09 |
| N7 | 6 | 0.022158 | 0.003693 | 4.8264E-09 |
| O1 | 6 | 0.022306 | 0.00371767 | 5.7719E-09 |
| O8 | 6 | 0.022523 | 0.00375383 | 3.7394E-09 |
| P3 | 6 | 0.022229 | 0.00370483 | 2.7686E-09 |
| P9 | 6 | 0.02236 | 0.00372667 | 2.6095E-09 |
| Q10 | 6 | 0.02232 | 0.00372 | 3.6548E-09 |
| Q4 | 6 | 0.022397 | 0.00373283 | 4.5734E-09 |
| | | | 0.00373005 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 7.68081E-08 | 12 | 6.40068E-09 | 1.68089315 | 0.09181484 | 1.90436961 |
| Within groups | 2.47514E-07 | 65 | 3.8079E-09 | | | |
| | | | | | | |
| Total | 3.24322E-07 | 77 | | | | |
| | | | | | | |
| within-sd | 6.1708E-05 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 2.2772E-05 | | | | | |
| s_bb_min | 1.1558E-05 | | | | | |
| u_bb | 2.2772E-05 | 0.0227718 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.610495676 | | | | | |

Copper in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.012 | 0.002 | 2.882E-09 |
| J8 | 6 | 0.012321 | 0.0020535 | 1.5231E-09 |
| K5 | 6 | 0.011823 | 0.0019705 | 2.3135E-09 |
| L8 | 6 | 0.011865 | 0.0019775 | 3.1739E-09 |
| M4 | 6 | 0.011903 | 0.00198383 | 3.3082E-09 |
| N10 | 6 | 0.011914 | 0.00198567 | 2.1439E-09 |
| N7 | 6 | 0.011938 | 0.00198967 | 2.6003E-09 |
| O1 | 6 | 0.0117 | 0.00195 | 1.898E-09 |
| O8 | 6 | 0.012184 | 0.00203067 | 3.0419E-09 |
| P3 | 6 | 0.01194 | 0.00199 | 1.936E-09 |
| P9 | 6 | 0.011913 | 0.0019855 | 2.4075E-09 |
| Q10 | 6 | 0.011858 | 0.00197633 | 2.8803E-09 |
| Q4 | 6 | 0.011929 | 0.00198817 | 2.235E-09 |
| | | | 0.00199087 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 4.90797E-08 | 12 | 4.08998E-09 | 1.64391172 | 0.10127972 | 1.90436961 |
| Within groups | 1.61717E-07 | 65 | 2.48795E-09 | | | |
| | | | | | | |
| Total | 2.10797E-07 | 77 | | | | |
| | | | | | | |
| within-sd | 4.9879E-05 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 1.79E-05 | | | | | |
| s_bb_min | 9.3425E-06 | | | | | |
| u_bb | 1.79E-05 | 0.01789985 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.899095926 | | | | | |

Nickel in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.002441 | 0.00040683 | 6.8967E-11 |
| J8 | 6 | 0.002587 | 0.00043117 | 1.3577E-10 |
| K5 | 6 | 0.002189 | 0.00036483 | 6.3767E-11 |
| L8 | 6 | 0.002407 | 0.00040117 | 7.8377E-10 |
| M4 | 6 | 0.002355 | 0.0003925 | 1.3755E-09 |
| N10 | 6 | 0.002105 | 0.00035083 | 1.0577E-10 |
| N7 | 6 | 0.002082 | 0.000347 | 8.32E-11 |
| O1 | 6 | 0.002426 | 0.00040433 | 2.7027E-10 |
| O8 | 6 | 0.002554 | 0.00042567 | 1.2067E-09 |
| P3 | 6 | 0.002153 | 0.00035883 | 7.1767E-11 |
| P9 | 6 | 0.002226 | 0.000371 | 4.424E-10 |
| Q10 | 6 | 0.002241 | 0.0003735 | 1.091E-10 |
| Q4 | 6 | 0.002239 | 0.00037317 | 6.1367E-11 |
| | | | 0.00038468 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 5.47375E-08 | 12 | 4.56146E-09 | 12.4100505 | 1.2561E-12 | 1.90436961 |
| Within groups | 2.38915E-08 | 65 | 3.67562E-10 | | | |
| | | | | | | |
| Total | 7.8629E-08 | 77 | | | | |
| | | | | | | |
| within-sd | 1.9172E-05 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 2.8962E-05 | | | | | |
| s_bb_min | 3.5909E-06 | | | | | |
| u_bb | 2.8962E-05 | 0.02896168 | | | | |
| | | | | | | |
| u_bb(rel.) | 7.528783066 | | | | | |

Tellurium in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.015397 | 0.00256617 | 2.5541E-08 |
| J8 | 6 | 0.01638 | 0.00273 | 2.6262E-08 |
| K5 | 6 | 0.015684 | 0.002614 | 3.0046E-08 |
| L8 | 6 | 0.015827 | 0.00263783 | 1.9269E-08 |
| M4 | 6 | 0.015821 | 0.00263683 | 2.542E-08 |
| N10 | 6 | 0.015872 | 0.00264533 | 2.5177E-08 |
| N7 | 6 | 0.015661 | 0.00261017 | 2.2794E-08 |
| O1 | 6 | 0.015551 | 0.00259183 | 1.507E-08 |
| O8 | 6 | 0.015466 | 0.00257767 | 2.4355E-08 |
| P3 | 6 | 0.015796 | 0.00263267 | 2.6858E-08 |
| P9 | 6 | 0.015813 | 0.0026355 | 1.7223E-08 |
| Q10 | 6 | 0.015863 | 0.00264383 | 1.8979E-08 |
| Q4 | 6 | 0.015831 | 0.0026385 | 2.6661E-08 |
| | | | 0.00262772 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 1.16976E-07 | 12 | 9.74798E-09 | 0.41733117 | 0.95143789 | 1.90436961 |
| Within groups | 1.51826E-06 | 65 | 2.33579E-08 | | | |
| | | | | | | |
| Total | 1.63524E-06 | 77 | | | | |
| | | | | | | |
| within-sd | 0.00015283 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 2.8626E-05 | | | | | |
| u_bb | 2.8626E-05 | 0.02862603 | | | | |
| | | | | | | |
| u_bb(rel.) | 1.089387478 | | | | | |

Thallium in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.001437 | 0.0002395 | 3E-13 |
| J8 | 6 | 0.001437 | 0.0002395 | 3E-13 |
| K5 | 6 | 0.001437 | 0.0002395 | 3E-13 |
| L8 | 6 | 0.001438 | 0.00023967 | 2.6667E-13 |
| M4 | 6 | 0.00144 | 0.00024 | 8E-13 |
| N10 | 6 | 0.001437 | 0.0002395 | 3E-13 |
| N7 | 6 | 0.001437 | 0.0002395 | 3E-13 |
| O1 | 6 | 0.001439 | 0.00023983 | 5.6667E-13 |
| O8 | 6 | 0.001438 | 0.00023967 | 2.6667E-13 |
| P3 | 6 | 0.001439 | 0.00023983 | 5.6667E-13 |
| P9 | 6 | 0.001439 | 0.00023983 | 5.6667E-13 |
| Q10 | 6 | 0.001439 | 0.00023983 | 5.6667E-13 |
| Q4 | 6 | 0.00144 | 0.00024 | 8E-13 |
| | | | 0.00023971 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.71795E-12 | 12 | 2.26496E-13 | 0.49905838 | 0.90786886 | 1.90436961 |
| Within groups | 2.95E-11 | 65 | 4.53846E-13 | | | |
| | | | | | | |
| Total | 3.22179E-11 | 77 | | | | |
| | | | | | | |
| within-sd | 6.7368E-07 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0 | | | | | |
| s_bb_min | 1.2618E-07 | | | | | |
| u_bb | 1.2618E-07 | 0.00012618 | | | | |
| | | | | | | |
| u_bb(rel.) | 0.05264064 | | | | | |

Zinc in BAM-M109a:

| *Sample* | *Number* | *Sum* | *Mean* | *Variance* |
|---|---|---|---|---|
| J1 | 6 | 0.023309 | 0.00388483 | 6.875E-09 |
| K5 | 6 | 0.025961 | 0.00432683 | 2.339E-09 |
| L8 | 6 | 0.027641 | 0.00460683 | 5.0442E-09 |
| M4 | 6 | 0.026525 | 0.00442083 | 4.3134E-09 |
| N10 | 6 | 0.025403 | 0.00423383 | 1.4734E-09 |
| N7 | 6 | 0.025391 | 0.00423183 | 4.513E-09 |
| O1 | 6 | 0.027856 | 0.00464267 | 4.178E-07 |
| O8 | 6 | 0.02385 | 0.003975 | 8.5004E-09 |
| P3 | 6 | 0.025718 | 0.00428633 | 2.7639E-09 |
| P9 | 6 | 0.025943 | 0.00432383 | 3.975E-09 |
| Q10 | 6 | 0.026052 | 0.004342 | 3.7832E-09 |
| Q4 | 6 | 0.026061 | 0.0043435 | 5.8615E-09 |
| | | | 0.00430153 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 3.1097E-06 | 11 | 2.827E-07 | 7.260468003 | 1.0591E-07 | 1.95221194 |
| Within groups | 2.33622E-06 | 60 | 3.89369E-08 | | | |
| | | | | | | |
| Total | 5.44592E-06 | 71 | | | | |
| | | | | | | |
| within-sd | 0.00019732 | | | | | |
| | | | | | | |
| effective n | 5.00 | | | | | |
| s_bb | 0.0002208 | | | | | |
| s_bb_min | 3.7706E-05 | | | | | |
| u_bb | 0.0002208 | 0.220800102 | | | | |
| | | | | | | |
| u_bb(rel.) | 5.133062331 | | | | | |

**Annex 2:** Calculation of uncertainty contribution of potential inhomogeneity (area)

Arsenic in BAM-M109:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | AG3-1 | | | | | | | | | | | |
| r_0 | 0.010342844 | 0.010549156 | | | | | | | | | | | |
| r_in | 0.010856 | 0.010752 | 0.010699 | 0.010571 | 0.010631 | 0.01078 | 0.010707 | | | | | | |
| r_out | 0.010927 | 0.010934 | 0.011153 | 0.0109 | 0.011087 | 0.010765 | 0.011084 | 0.01061 | 0.011123 | 0.011132 | 0.010845 | 0.010859 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.66238E-07 | 2 | 2.83119E-07 | 13.12658464 | 0.000304757 | 3.554557146 | | | | | | | |
| Within groups | 3.88231E-07 | 18 | 2.15684E-08 | | | | | | | | | | |
| Total | 9.54469E-07 | 20 | | | | | | | | | | | |
| within-sd | 0.000146862 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 0.000212182 | | | u_bb(rel.) | 1.960262314 | | | | | | | | |
| s_bb_min | 3.51785E-05 | | | | | | | | | | | | |
| u_bb | 0.000212182 | | | 0.010824143 | | | | | | | | | |
| **at:** | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.009238858 | 0.009455142 | | | | | | | | | | | |
| r_in | 0.009275 | 0.009306 | 0.009204 | 0.009415 | 0.00961 | 0.009341 | 0.009367 | 0.009141 | | | | | |
| r_out | 0.009636 | 0.009554 | 0.009311 | 0.00922 | 0.009581 | 0.009255 | 0.009518 | 0.009251 | 0.009374 | 0.009132 | 0.009366 | 0.009368 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.14861E-08 | 2 | 5.74304E-09 | 0.244978238 | 0.785155995 | 3.521893261 | | | | | | | |
| Innerhalb de | 4.45418E-07 | 19 | 2.34431E-08 | | | | | | | | | | |
| Gesamt | 4.56904E-07 | 21 | | | | | | | | | | | |
| within-sd | 0.000153111 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.374752384 | | | | | | | | |
| s_bb_min | 3.50767E-05 | | | | | | | | | | | | |
| u_bb | 3.50767E-05 | | | 0.009359955 | | | | | | | | | |
| **at:** | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.008771997 | 0.009110003 | | | | | | | | | | | |
| r_in | 0.008329 | 0.00884 | 0.008338 | 0.008413 | 0.008459 | 0.008469 | 0.008673 | 0.008186 | | | | | |
| r_out | 0.009307 | 0.008518 | 0.008628 | 0.008266 | 0.008787 | 0.008582 | 0.008878 | 0.00856 | 0.008552 | 0.008501 | 0.00863 | 0.008502 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.03199E-07 | 2 | 2.01599E-07 | 3.513624642 | 0.050302623 | 3.521893261 | | | | | | | |
| Within groups | 1.09015E-06 | 19 | 5.73765E-08 | | | | | | | | | | |
| Total | 1.49335E-06 | 21 | | | | | | | | | | | |
| within-sd | 0.000239534 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000152742 | | | u_bb(rel.) | 1.77513353 | | | | | | | | |
| s_bb_min | 5.48754E-05 | | | | | | | | | | | | |
| u_bb | 0.000152742 | | | 0.008604545 | | | | | | | | | |
| **at:** | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.010032634 | 0.010245366 | | | | | | | | | | | |
| r_in | 0.009517 | 0.009244 | 0.009556 | 0.009357 | 0.009426 | 0.009293 | 0.009266 | 0.009278 | | | | | |
| r_out | 0.009819 | 0.009881 | 0.009585 | 0.009372 | 0.00935 | 0.009503 | 0.00949 | 0.009631 | 0.009569 | 0.009402 | 0.009478 | 0.009425 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 9.55577E-07 | 2 | 4.77788E-07 | 20.980842 | 1.54924E-05 | 3.521893261 | | | | | | | |
| Within groups | 4.32679E-07 | 19 | 2.27726E-08 | | | | | | | | | | |
| Total | 1.38826E-06 | 21 | | | | | | | | | | | |
| within-sd | 0.000150906 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000271303 | | | u_bb(rel.) | 2.846019708 | | | | | | | | |
| s_bb_min | 3.45714E-05 | | | | | | | | | | | | |
| u_bb | 0.000271303 | | | 0.009532727 | | | | | | | | | |
| **at:** | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.010013037 | 0.010264963 | | | | | | | | | | | |
| r_in | 0.010218 | 0.010147 | 0.010292 | 0.010255 | 0.010379 | 0.010256 | 0.01042 | 0.010443 | | | | | |
| r_out | 0.010612 | 0.010855 | 0.010679 | 0.010616 | 0.010777 | 0.01079 | 0.0107 | 0.010225 | 0.010387 | 0.010245 | 0.010776 | 0.010495 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 6.27571E-07 | 2 | 3.13786E-07 | 9.7747726 | 0.00120497 | 3.521893261 | | | | | | | |
| Within groups | 6.0993E-07 | 19 | 3.21016E-08 | | | | | | | | | | |
| Total | 1.2375E-06 | 21 | | | | | | | | | | | |
| within-sd | 0.000179169 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000213463 | | | u_bb(rel.) | 2.043198564 | | | | | | | | |
| s_bb_min | 4.10463E-05 | | | | | | | | | | | | |
| u_bb | 0.000213463 | | | 0.0104475 | | | | | | | | | |
| | | | | | | | Mean: | 1.9702109 | | | | | |

## Bismuth in BAM-M109:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | AG3-1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.019572105 | 0.019737895 | | | | | | | | | | | |
| r_in | 0.01985 | 0.019679 | 0.019808 | 0.019781 | 0.01986 | 0.019794 | 0.019898 | | | | | | |
| r_out | 0.019896 | 0.019965 | 0.019965 | 0.019785 | 0.019674 | 0.019924 | 0.019965 | 0.019808 | 0.019639 | 0.02014 | 0.019845 | 0.019857 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 8.5126E-08 | 2 | 4.2563E-08 | 3.052181418 | 0.072209052 | 3.554557146 | | | | | | | |
| Within groups | 2.51012E-07 | 18 | 1.39451E-08 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 3.36138E-07 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000118089 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 7.01857E-05 | | | u_bb(rel.) | 0.353925921 | | | | | | | | |
| s_bb_min | 2.82866E-05 | | | | | | | | | | | | |
| u_bb | 7.01857E-05 | | | 0.019830619 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.019248897 | 0.019399103 | | | | | | | | | | | |
| r_in | 0.019109 | 0.019304 | 0.019296 | 0.019242 | 0.019469 | 0.019423 | 0.019303 | 0.019243 | | | | | |
| r_out | 0.019437 | 0.019288 | 0.019367 | 0.019256 | 0.019471 | 0.019393 | 0.019505 | 0.0192 | 0.01924 | 0.01932 | 0.019333 | 0.019491 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.73607E-08 | 2 | 8.68033E-09 | 0.770814394 | 0.476571295 | 3.521893261 | | | | | | | |
| Innerhalb de | 2.13964E-07 | 19 | 1.12612E-08 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 2.31324E-07 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000106119 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.12574558 | | | | | | | | |
| s_bb_min | 2.43111E-05 | | | | | | | | | | | | |
| u_bb | 2.43111E-05 | | | 0.019333545 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.01948854 | 0.01966346 | | | | | | | | | | | |
| r_in | 0.019423 | 0.019663 | 0.019482 | 0.019484 | 0.019362 | 0.019377 | 0.01957 | 0.019266 | | | | | |
| r_out | 0.019554 | 0.019416 | 0.019611 | 0.019417 | 0.019413 | 0.01936 | 0.019769 | 0.019538 | 0.019502 | 0.01932 | 0.019551 | 0.019466 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.53165E-08 | 2 | 1.26582E-08 | 0.827742124 | 0.452192223 | 3.521893261 | | | | | | | |
| Within groups | 2.90557E-07 | 19 | 1.52925E-08 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 3.15874E-07 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000123663 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.145386264 | | | | | | | | |
| s_bb_min | 2.83302E-05 | | | | | | | | | | | | |
| u_bb | 2.83302E-05 | | | 0.019486182 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.01964774 | 0.01975826 | | | | | | | | | | | |
| r_in | 0.019796 | 0.019783 | 0.019905 | 0.0198 | 0.019744 | 0.019753 | 0.019581 | 0.019794 | | | | | |
| r_out | 0.019831 | 0.01995 | 0.01984 | 0.01972 | 0.019858 | 0.019833 | 0.019854 | 0.019967 | 0.019867 | 0.01976 | 0.019804 | 0.019867 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.09797E-08 | 2 | 2.54898E-08 | 4.19857624 | 0.030899941 | 3.521893261 | | | | | | | |
| Within groups | 1.1535E-07 | 19 | 6.07107E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.6633E-07 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 7.79171E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 5.6047E-05 | | | u_bb(rel.) | 0.28299249 | | | | | | | | |
| s_bb_min | 1.78502E-05 | | | | | | | | | | | | |
| u_bb | 5.6047E-05 | | | 0.019805136 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.01963741 | 0.01976859 | | | | | | | | | | | |
| r_in | 0.019789 | 0.019908 | 0.019844 | 0.01985 | 0.019931 | 0.019748 | 0.019852 | 0.0198 | | | | | |
| r_out | 0.019851 | 0.019863 | 0.019884 | 0.019889 | 0.020112 | 0.019839 | 0.019851 | 0.019655 | 0.019891 | 0.019879 | 0.019859 | 0.019712 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.08365E-08 | 2 | 2.04183E-08 | 2.349535019 | 0.122521362 | 3.521893261 | | | | | | | |
| Within groups | 1.65117E-07 | 19 | 8.69034E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 2.05953E-07 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 9.3222E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.35564E-05 | | | u_bb(rel.) | 0.219572257 | | | | | | | | |
| s_bb_min | 2.13565E-05 | | | | | | | | | | | | |
| u_bb | 4.35564E-05 | | | 0.019836955 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 0.2410433 | | | | | |

## Antimony in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.011450765 | 0.011565235 | | | | | | | | | | | |
| r_in | 0.011664 | 0.011473 | 0.011622 | 0.011649 | 0.011776 | 0.011705 | 0.01165 | | | | | | |
| r_out | 0.011722 | 0.011821 | 0.011714 | 0.011729 | 0.011784 | 0.011635 | 0.011639 | 0.011761 | 0.011847 | 0.011697 | 0.011758 | 0.011611 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 9.209E-08 | 2 | 4.6045E-08 | 7.07740175 | 0.005398086 | 3.554557146 | | | | | | | |
| Within groups | 1.17106E-07 | 18 | 6.50592E-09 | | | | | | | | | | |
| Total | 2.09196E-07 | 20 | | | | | | | | | | | |
| within-sd | 8.06593E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 8.24979E-05 | | | u_bb(rel.) | 0.706337817 | | | | | | | | |
| s_bb_min | 1.93207E-05 | | | | | | | | | | | | |
| u_bb | 8.24979E-05 | | | 0.011679667 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.011420013 | 0.011543987 | | | | | | | | | | | |
| r_in | 0.011363 | 0.011317 | 0.011464 | 0.011556 | 0.011619 | 0.011554 | 0.011521 | 0.011476 | | | | | |
| r_out | 0.011697 | 0.011481 | 0.011628 | 0.011617 | 0.011552 | 0.011573 | 0.011583 | 0.011581 | 0.011452 | 0.011612 | 0.011436 | 0.011529 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 3.34888E-08 | 2 | 1.67444E-08 | 2.192426341 | 0.139084952 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.4511E-07 | 19 | 7.63739E-09 | | | | | | | | | | |
| Gesamt | 1.78599E-07 | 21 | | | | | | | | | | | |
| within-sd | 8.73922E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.83822E-05 | | | u_bb(rel.) | 0.333001713 | | | | | | | | |
| s_bb_min | 2.00209E-05 | | | | | | | | | | | | |
| u_bb | 3.83822E-05 | | | 0.011526136 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.011205445 | 0.011360555 | | | | | | | | | | | |
| r_in | 0.011239 | 0.011354 | 0.01145 | 0.011367 | 0.011462 | 0.011414 | 0.011224 | 0.011348 | | | | | |
| r_out | 0.011565 | 0.011268 | 0.011504 | 0.011122 | 0.011409 | 0.011391 | 0.011295 | 0.011283 | 0.011359 | 0.011356 | 0.011248 | 0.011233 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 9.03854E-09 | 2 | 4.51927E-09 | 0.373386106 | 0.693339756 | 3.521893261 | | | | | | | |
| Within groups | 2.29966E-07 | 19 | 1.21035E-08 | | | | | | | | | | |
| Total | 2.39005E-07 | 21 | | | | | | | | | | | |
| within-sd | 0.000110016 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.222276212 | | | | | | | | |
| s_bb_min | 2.52038E-05 | | | | | | | | | | | | |
| u_bb | 2.52038E-05 | | | 0.011338955 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.011098544 | 0.011233456 | | | | | | | | | | | |
| r_in | 0.01124 | 0.011232 | 0.011164 | 0.011197 | 0.011205 | 0.011139 | 0.01108 | 0.011381 | | | | | |
| r_out | 0.011541 | 0.011249 | 0.011403 | 0.01145 | 0.011258 | 0.011383 | 0.011193 | 0.011385 | 0.011274 | 0.011252 | 0.011351 | 0.011361 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.16558E-07 | 2 | 5.82788E-08 | 6.387907294 | 0.007555107 | 3.521893261 | | | | | | | |
| Within groups | 1.73343E-07 | 19 | 9.1233E-09 | | | | | | | | | | |
| Total | 2.899E-07 | 21 | | | | | | | | | | | |
| within-sd | 9.5516E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 8.91719E-05 | | | u_bb(rel.) | 0.790817865 | | | | | | | | |
| s_bb_min | 2.1882E-05 | | | | | | | | | | | | |
| u_bb | 8.91719E-05 | | | 0.011275909 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.011102526 | 0.011229474 | | | | | | | | | | | |
| r_in | 0.011407 | 0.011477 | 0.011404 | 0.011547 | 0.011379 | 0.011421 | 0.011336 | 0.011376 | | | | | |
| r_out | 0.01144 | 0.011306 | 0.011443 | 0.011261 | 0.011278 | 0.011536 | 0.011251 | 0.011338 | 0.01133 | 0.011213 | 0.01136 | 0.01119 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.10234E-07 | 2 | 5.51169E-08 | 6.785263855 | 0.005974804 | 3.521893261 | | | | | | | |
| Within groups | 1.54338E-07 | 19 | 8.12303E-09 | | | | | | | | | | |
| Total | 2.64571E-07 | 21 | | | | | | | | | | | |
| within-sd | 9.01278E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 8.71892E-05 | | | u_bb(rel.) | 0.768417151 | | | | | | | | |
| s_bb_min | 2.06476E-05 | | | | | | | | | | | | |
| u_bb | 8.71892E-05 | | | 0.011346591 | | | | | | | | | |
| | | | | | | | Mean: | 0.6123835 | | | | | |

## Tin in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.124124694 | 0.125013306 | | | | | | | | | | |
| r_in | 0.124864 | 0.12381 | 0.123305 | 0.124629 | 0.124567 | 0.124381 | 0.124526 | | | | | |
| r_out | 0.126872 | 0.125993 | 0.126398 | 0.125713 | 0.124756 | 0.12589 | 0.125935 | 0.126271 | 0.12663 | 0.126248 | 0.12518 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 1.2257E-05 | 2 | 6.12851E-06 | 15.43446786 | 0.000124783 | 3.554557146 | | | | | | |
| Within groups | 7.1472E-06 | 18 | 3.97067E-07 | | | | | | | | | |
| Total | 1.94042E-05 | 20 | | | | | | | | | | |
| within-sd | 0.000630132 | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | |
| s_bb | 0.000993257 | | | u_bb(rel.) | 0.793109768 | | | | | | | |
| s_bb_min | 0.000150939 | | | | | | | | | | | |
| u_bb | 0.000993257 | | | 0.12523581 | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | |
| r_0 | 0.121337017 | 0.121952983 | | | | | | | | | | |
| r_in | 0.121676 | 0.122235 | 0.121804 | 0.122862 | 0.121435 | 0.121963 | 0.122267 | 0.122109 | | | | |
| r_out | 0.123408 | 0.122701 | 0.123417 | 0.123429 | 0.123654 | 0.123163 | 0.124083 | 0.123342 | 0.123286 | 0.124304 | 0.123987 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | |
| Unterschiede | 1.3493E-05 | 2 | 6.74651E-06 | 35.5637511 | 3.77585E-07 | 3.521893261 | | | | | | |
| Innerhalb de | 3.60434E-06 | 19 | 1.89702E-07 | | | | | | | | | |
| Gesamt | 1.70974E-05 | 21 | | | | | | | | | | |
| within-sd | 0.000435548 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.001029884 | | | u_bb(rel.) | 0.838573021 | | | | | | | |
| s_bb_min | 9.97808E-05 | | | | | | | | | | | |
| u_bb | 0.001029884 | | | 0.122813864 | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | |
| r_0 | 0.122115734 | 0.122768266 | | | | | | | | | | |
| r_in | 0.123102 | 0.12318 | 0.122936 | 0.123308 | 0.12282 | 0.122168 | 0.124024 | 0.122975 | | | | |
| r_out | 0.123841 | 0.12356 | 0.123836 | 0.123078 | 0.122674 | 0.123325 | 0.123153 | 0.12332 | 0.122576 | 0.122787 | 0.123019 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 9.19338E-07 | 2 | 4.59669E-07 | 2.169113596 | 0.141747206 | 3.521893261 | | | | | | |
| Within groups | 4.0264E-06 | 19 | 2.11916E-07 | | | | | | | | | |
| Total | 4.94573E-06 | 21 | | | | | | | | | | |
| within-sd | 0.000460343 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000200194 | | | u_bb(rel.) | 0.162670138 | | | | | | | |
| s_bb_min | 0.000105461 | | | | | | | | | | | |
| u_bb | 0.000200194 | | | 0.123067636 | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | |
| r_0 | 0.123250817 | 0.124261183 | | | | | | | | | | |
| r_in | 0.123143 | 0.121904 | 0.12304 | 0.123223 | 0.122681 | 0.121479 | 0.122079 | 0.121397 | | | | |
| r_out | 0.124391 | 0.124895 | 0.122334 | 0.124617 | 0.124049 | 0.123347 | 0.123413 | 0.123817 | 0.123728 | 0.123272 | 0.123376 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 9.50989E-06 | 2 | 4.75494E-06 | 9.331351616 | 0.001503142 | 3.521893261 | | | | | | |
| Within groups | 9.68176E-06 | 19 | 5.09567E-07 | | | | | | | | | |
| Total | 1.91917E-05 | 21 | | | | | | | | | | |
| within-sd | 0.000713839 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000828705 | | | u_bb(rel.) | 0.672443152 | | | | | | | |
| s_bb_min | 0.000163535 | | | | | | | | | | | |
| u_bb | 0.000828705 | | | 0.123237955 | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | |
| r_0 | 0.123215395 | 0.124296605 | | | | | | | | | | |
| r_in | 0.125694 | 0.125171 | 0.126245 | 0.12473 | 0.124602 | 0.124608 | 0.123933 | 0.123461 | | | | |
| r_out | 0.124057 | 0.124675 | 0.125772 | 0.123508 | 0.124979 | 0.125093 | 0.124448 | 0.125433 | 0.123799 | 0.124414 | 0.124403 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 1.76781E-06 | 2 | 8.83907E-07 | 1.522402078 | 0.243640724 | 3.521893261 | | | | | | |
| Within groups | 1.10314E-05 | 19 | 5.806E-07 | | | | | | | | | |
| Total | 1.27992E-05 | 21 | | | | | | | | | | |
| within-sd | 0.000761971 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000221505 | | | u_bb(rel.) | 0.17775417 | | | | | | | |
| s_bb_min | 0.000174562 | | | | | | | | | | | |
| u_bb | 0.000221505 | | | 0.124612909 | | | | | | | | |
| | | | | | | | Mean: | 0.6070364 | | | | |

## Silver in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.003828442 | 0.003855558 | | | | | | | | | | | |
| r_in | 0.003855 | 0.003854 | 0.003823 | 0.003795 | 0.003838 | 0.003842 | 0.003864 | | | | | | |
| r_out | 0.003874 | 0.003853 | 0.003875 | 0.003828 | 0.003855 | 0.00384 | 0.003865 | 0.003854 | 0.00387 | 0.003844 | 0.003861 | 0.003829 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.10638E-09 | 2 | 5.5319E-10 | 1.522293229 | 0.245012918 | 3.554557146 | | | | | | | |
| Within groups | 6.54107E-09 | 18 | 3.63393E-10 | | | | | | | | | | |
| Total | 7.64745E-09 | 20 | | | | | | | | | | | |
| within-sd | 1.90629E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 5.71577E-06 | | | u_bb(rel.) | 0.148548041 | | | | | | | | |
| s_bb_min | 4.56622E-06 | | | | | | | | | | | | |
| u_bb | 5.71577E-06 | | | 0.003847762 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.003864388 | 0.003899612 | | | | | | | | | | | |
| r_in | 0.00386 | 0.00386 | 0.003889 | 0.003885 | 0.003915 | 0.003915 | 0.003886 | 0.00383 | | | | | |
| r_out | 0.003901 | 0.003899 | 0.003873 | 0.003893 | 0.003886 | 0.003839 | 0.003895 | 0.003905 | 0.00386 | 0.003859 | 0.00389 | 0.003854 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *(e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.08182E-11 | 2 | 5.40909E-12 | 0.008773963 | 0.99126843 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.17134E-08 | 19 | 6.16494E-10 | | | | | | | | | | |
| Gesamt | 1.17242E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.48293E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.146606656 | | | | | | | | |
| s_bb_min | 5.6882E-06 | | | | | | | | | | | | |
| u_bb | 5.6882E-06 | | | 0.003879909 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.003763981 | 0.003790019 | | | | | | | | | | | |
| r_in | 0.003849 | 0.003875 | 0.003886 | 0.003861 | 0.003865 | 0.003867 | 0.003861 | 0.003853 | | | | | |
| r_out | 0.003878 | 0.003876 | 0.003864 | 0.003865 | 0.003869 | 0.003844 | 0.003834 | 0.003882 | 0.003906 | 0.00387 | 0.003895 | 0.003838 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.47636E-08 | 2 | 7.38179E-09 | 21.55164655 | 1.29888E-05 | 3.521893261 | | | | | | | |
| Within groups | 6.50781E-09 | 19 | 3.42516E-10 | | | | | | | | | | |
| Total | 2.12714E-08 | 21 | | | | | | | | | | | |
| within-sd | 1.85072E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.37447E-05 | | | u_bb(rel.) | 0.874503616 | | | | | | | | |
| s_bb_min | 4.23986E-06 | | | | | | | | | | | | |
| u_bb | 3.37447E-05 | | | 0.003858727 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.003746214 | 0.003777786 | | | | | | | | | | | |
| r_in | 0.003891 | 0.00388 | 0.003889 | 0.003871 | 0.003904 | 0.003814 | 0.003861 | 0.003876 | | | | | |
| r_out | 0.00392 | 0.003895 | 0.003885 | 0.003883 | 0.003882 | 0.003869 | 0.003847 | 0.00389 | 0.003862 | 0.003881 | 0.00389 | 0.003871 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.47937E-08 | 2 | 1.23969E-08 | 25.09458311 | 4.65369E-06 | 3.521893261 | | | | | | | |
| Within groups | 9.38611E-09 | 19 | 4.94006E-10 | | | | | | | | | | |
| Total | 3.41799E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.22262E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.38801E-05 | | | u_bb(rel.) | 1.134585922 | | | | | | | | |
| s_bb_min | 5.09187E-06 | | | | | | | | | | | | |
| u_bb | 4.38801E-05 | | | 0.0038675 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.003747767 | 0.003776233 | | | | | | | | | | | |
| r_in | 0.003869 | 0.003859 | 0.003837 | 0.003867 | 0.003857 | 0.003814 | 0.003866 | 0.003839 | | | | | |
| r_out | 0.003875 | 0.003863 | 0.003842 | 0.00386 | 0.003833 | 0.003855 | 0.003879 | 0.003862 | 0.00384 | 0.003811 | 0.00387 | 0.003829 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.45169E-08 | 2 | 7.25847E-09 | 17.89182044 | 4.27539E-05 | 3.521893261 | | | | | | | |
| Within groups | 7.70805E-09 | 19 | 4.05687E-10 | | | | | | | | | | |
| Total | 2.2225E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.01417E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.32947E-05 | | | u_bb(rel.) | 0.86632217 | | | | | | | | |
| s_bb_min | 4.61431E-06 | | | | | | | | | | | | |
| u_bb | 3.32947E-05 | | | 0.003843227 | | | | | | | | | |
| | | | | | | | Mean: | 0.7544688 | | | | | |

## Cadmium in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.00361647 | 0.00367553 | | | | | | | | | | | |
| r_in | 0.003657 | 0.003648 | 0.003576 | 0.003661 | 0.003632 | 0.003719 | 0.003729 | | | | | | |
| r_out | 0.003746 | 0.003714 | 0.003724 | 0.003714 | 0.003647 | 0.003711 | 0.003693 | 0.00372 | 0.003784 | 0.003698 | 0.003712 | 0.003671 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.53449E-08 | 2 | 7.67245E-09 | 4.456253328 | 0.026783368 | 3.554557146 | | | | | | | |
| Within groups | 3.09911E-08 | 18 | 1.72173E-09 | | | | | | | | | | |
| Total | 4.6336E-08 | 20 | | | | | | | | | | | |
| within-sd | 4.14937E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 3.20048E-05 | | | u_bb(rel.) | 0.867808237 | | | | | | | | |
| s_bb_min | 9.9392E-06 | | | | | | | | | | | | |
| u_bb | 3.20048E-05 | | | 0.003688 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.003633892 | 0.003674108 | | | | | | | | | | | |
| r_in | 0.003647 | 0.003669 | 0.003629 | 0.003651 | 0.003651 | 0.003649 | 0.003654 | 0.003637 | | | | | |
| r_out | 0.003716 | 0.003702 | 0.003737 | 0.003752 | 0.003782 | 0.003684 | 0.003716 | 0.003801 | 0.003693 | 0.003755 | 0.003754 | 0.003739 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 4.07843E-08 | 2 | 2.03921E-08 | 24.85659326 | 4.96911E-06 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.55874E-08 | 19 | 8.20392E-10 | | | | | | | | | | |
| Gesamt | 5.63717E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.86425E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 5.62674E-05 | | | u_bb(rel.) | 1.522124126 | | | | | | | | |
| s_bb_min | 6.56178E-06 | | | | | | | | | | | | |
| u_bb | 5.62674E-05 | | | 0.003696636 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.003696745 | 0.003733255 | | | | | | | | | | | |
| r_in | 0.003633 | 0.003674 | 0.003654 | 0.003656 | 0.003641 | 0.003636 | 0.003706 | 0.003662 | | | | | |
| r_out | 0.00373 | 0.003703 | 0.003726 | 0.003705 | 0.00367 | 0.003667 | 0.003688 | 0.003678 | 0.003674 | 0.003669 | 0.003674 | 0.003635 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 6.59145E-09 | 2 | 3.29572E-09 | 4.932596629 | 0.018819226 | 3.521893261 | | | | | | | |
| Within groups | 1.26949E-08 | 19 | 6.68152E-10 | | | | | | | | | | |
| Total | 1.92863E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.58486E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.06167E-05 | | | u_bb(rel.) | 0.560575718 | | | | | | | | |
| s_bb_min | 5.92173E-06 | | | | | | | | | | | | |
| u_bb | 2.06167E-05 | | | 0.003677773 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.003611955 | 0.003676045 | | | | | | | | | | | |
| r_in | 0.003665 | 0.003688 | 0.003671 | 0.003671 | 0.003671 | 0.003624 | 0.003609 | 0.003614 | | | | | |
| r_out | 0.003747 | 0.003798 | 0.003603 | 0.003749 | 0.003758 | 0.003641 | 0.003686 | 0.003711 | 0.003719 | 0.003709 | 0.003718 | 0.003681 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.9664E-08 | 2 | 9.83199E-09 | 4.742571053 | 0.021344427 | 3.521893261 | | | | | | | |
| Within groups | 3.93896E-08 | 19 | 2.07314E-09 | | | | | | | | | | |
| Total | 5.90536E-08 | 21 | | | | | | | | | | | |
| within-sd | 4.55317E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.54275E-05 | | | u_bb(rel.) | 0.961979642 | | | | | | | | |
| s_bb_min | 1.0431E-05 | | | | | | | | | | | | |
| u_bb | 3.54275E-05 | | | 0.003682773 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.003617881 | 0.003670119 | | | | | | | | | | | |
| r_in | 0.003689 | 0.003727 | 0.003756 | 0.003658 | 0.003683 | 0.003679 | 0.003699 | 0.003608 | | | | | |
| r_out | 0.003635 | 0.003629 | 0.003697 | 0.003629 | 0.003692 | 0.003716 | 0.003641 | 0.003692 | 0.003649 | 0.003635 | 0.003661 | 0.003685 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.2843E-09 | 2 | 2.14215E-09 | 1.582017421 | 0.231470356 | 3.521893261 | | | | | | | |
| Within groups | 2.57272E-08 | 19 | 1.35406E-09 | | | | | | | | | | |
| Total | 3.00115E-08 | 21 | | | | | | | | | | | |
| within-sd | 3.67976E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.12909E-05 | | | u_bb(rel.) | 0.307623886 | | | | | | | | |
| s_bb_min | 8.43005E-06 | | | | | | | | | | | | |
| u_bb | 1.12909E-05 | | | 0.003670364 | | | | | | | | | |
| | | | | | | | Mean: | 0.9385345 | | | | | |

## Copper in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.00194115 | 0.00196485 | | | | | | | | | | | |
| r_in | 0.001962 | 0.00193 | 0.001913 | 0.001934 | 0.001951 | 0.00195 | 0.00196 | | | | | | |
| r_out | 0.002 | 0.001983 | 0.001999 | 0.001971 | 0.001947 | 0.001983 | 0.00199 | 0.001987 | 0.00199 | 0.001972 | 0.001966 | 0.00196 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 6.06638E-09 | 2 | 3.03319E-09 | 10.83342503 | 0.000815836 | 3.554557146 | | | | | | | |
| Within groups | 5.03972E-09 | 18 | 2.79984E-10 | | | | | | | | | | |
| Total | 1.11061E-08 | 20 | | | | | | | | | | | |
| within-sd | 1.67327E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 2.17695E-05 | | | u_bb(rel.) | 1.108159614 | | | | | | | | |
| s_bb_min | 4.00808E-06 | | | | | | | | | | | | |
| u_bb | 2.17695E-05 | | | 0.001964476 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.001904364 | 0.001921636 | | | | | | | | | | | |
| r_in | 0.001913 | 0.00192 | 0.001916 | 0.001944 | 0.001917 | 0.001932 | 0.001923 | 0.001911 | | | | | |
| r_out | 0.001957 | 0.001955 | 0.001952 | 0.001959 | 0.001964 | 0.00193 | 0.001974 | 0.001966 | 0.001942 | 0.001973 | 0.001967 | 0.001948 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *(e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 7.61707E-09 | 2 | 3.80853E-09 | 25.44896457 | 4.22424E-06 | 3.521893261 | | | | | | | |
| Innerhalb de | 2.84342E-09 | 19 | 1.49654E-10 | | | | | | | | | | |
| Gesamt | 1.04605E-08 | 21 | | | | | | | | | | | |
| within-sd | 1.22333E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.43285E-05 | | | u_bb(rel.) | 1.253783893 | | | | | | | | |
| s_bb_min | 2.80256E-06 | | | | | | | | | | | | |
| u_bb | 2.43285E-05 | | | 0.001940409 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.001877022 | 0.001892978 | | | | | | | | | | | |
| r_in | 0.001937 | 0.001948 | 0.001947 | 0.001935 | 0.00193 | 0.001929 | 0.001957 | 0.001936 | | | | | |
| r_out | 0.00196 | 0.001968 | 0.001966 | 0.001956 | 0.001932 | 0.001944 | 0.001939 | 0.001955 | 0.001953 | 0.001943 | 0.001958 | 0.001933 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.38257E-09 | 2 | 3.69129E-09 | 28.87269948 | 1.73845E-06 | 3.521893261 | | | | | | | |
| Within groups | 2.42909E-09 | 19 | 1.27847E-10 | | | | | | | | | | |
| Total | 9.81166E-09 | 21 | | | | | | | | | | | |
| within-sd | 1.13069E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.40091E-05 | | | u_bb(rel.) | 1.237120618 | | | | | | | | |
| s_bb_min | 2.59034E-06 | | | | | | | | | | | | |
| u_bb | 2.40091E-05 | | | 0.001940727 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.001920086 | 0.001949914 | | | | | | | | | | | |
| r_in | 0.001931 | 0.001923 | 0.001933 | 0.001934 | 0.001942 | 0.001869 | 0.001911 | 0.001895 | | | | | |
| r_out | 0.001979 | 0.00198 | 0.001924 | 0.00197 | 0.001959 | 0.001955 | 0.001927 | 0.001955 | 0.001936 | 0.001945 | 0.001945 | 0.001944 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.6729E-09 | 2 | 2.83645E-09 | 6.416339648 | 0.007427863 | 3.521893261 | | | | | | | |
| Within groups | 8.39927E-09 | 19 | 4.42067E-10 | | | | | | | | | | |
| Total | 1.40722E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.10254E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.96806E-05 | | | u_bb(rel.) | 1.015726293 | | | | | | | | |
| s_bb_min | 4.81676E-06 | | | | | | | | | | | | |
| u_bb | 1.96806E-05 | | | 0.001937591 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.001923161 | 0.001946839 | | | | | | | | | | | |
| r_in | 0.002009 | 0.001983 | 0.002009 | 0.001974 | 0.001979 | 0.001965 | 0.001975 | 0.001953 | | | | | |
| r_out | 0.001972 | 0.001979 | 0.002009 | 0.001979 | 0.001988 | 0.002 | 0.001989 | 0.001998 | 0.001956 | 0.001975 | 0.001975 | 0.001976 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.06372E-09 | 2 | 2.03186E-09 | 7.296118643 | 0.004455427 | 3.521893261 | | | | | | | |
| Within groups | 5.29121E-09 | 19 | 2.78485E-10 | | | | | | | | | | |
| Total | 9.35493E-09 | 21 | | | | | | | | | | | |
| within-sd | 1.66879E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.68414E-05 | | | u_bb(rel.) | 0.851496211 | | | | | | | | |
| s_bb_min | 3.82307E-06 | | | | | | | | | | | | |
| u_bb | 1.68414E-05 | | | 0.001977864 | | | | | | | | | |
| | | | | | | | Mean: | 1.1033771 | | | | | |

## Nickel in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.000319548 | 0.000334452 | | | | | | | | | | | |
| r_in | 0.00034 | 0.000355 | 0.000344 | 0.000336 | 0.000359 | 0.000339 | 0.000339 | | | | | | |
| r_out | 0.000339 | 0.00034 | 0.000335 | 0.000339 | 0.000347 | 0.000347 | 0.000373 | 0.00034 | 0.000346 | 0.000335 | 0.000333 | 0.000328 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.87286E-10 | 2 | 2.43643E-10 | 2.179230938 | 0.14206112 | 3.554557146 | | | | | | | |
| Within groups | 2.01244E-09 | 18 | 1.11802E-10 | | | | | | | | | | |
| Total | 2.49973E-09 | 20 | | | | | | | | | | | |
| within-sd | 1.05737E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 4.76381E-06 | | | u_bb(rel.) | 1.395647289 | | | | | | | | |
| s_bb_min | 2.53276E-06 | | | | | | | | | | | | |
| u_bb | 4.76381E-06 | | | 0.000341333 | | | | | | | | | |
| **at:** | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.000313558 | 0.000326442 | | | | | | | | | | | |
| r_in | 0.000337 | 0.000332 | 0.00033 | 0.00033 | 0.000339 | 0.000324 | 0.000353 | 0.000344 | | | | | |
| r_out | 0.00035 | 0.000336 | 0.000337 | 0.000352 | 0.000332 | 0.000329 | 0.000332 | 0.000344 | 0.000356 | 0.000343 | 0.000332 | 0.000334 | |
| *reuungsursac* | *dratsummen (* | *iheitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 6.71966E-10 | 2 | 3.35983E-10 | 4.050264717 | 0.034266547 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.57611E-09 | 19 | 8.29533E-11 | | | | | | | | | | |
| Gesamt | 2.24808E-09 | 21 | | | | | | | | | | | |
| within-sd | 9.10787E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 6.39775E-06 | | | u_bb(rel.) | 1.900494176 | | | | | | | | |
| s_bb_min | 2.08655E-06 | | | | | | | | | | | | |
| u_bb | 6.39775E-06 | | | 0.000336636 | | | | | | | | | |
| **at:** | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.000313521 | 0.000346479 | | | | | | | | | | | |
| r_in | 0.000339 | 0.000337 | 0.000341 | 0.000329 | 0.000333 | 0.000325 | 0.00034 | 0.000429 | | | | | |
| r_out | 0.000361 | 0.000331 | 0.000353 | 0.000331 | 0.00034 | 0.000323 | 0.000332 | 0.00033 | 0.000329 | 0.000344 | 0.000322 | 0.000326 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 8.03049E-10 | 2 | 4.01525E-10 | 0.753800698 | 0.484136658 | 3.521893261 | | | | | | | |
| Within groups | 1.01207E-08 | 19 | 5.32667E-10 | | | | | | | | | | |
| Total | 1.09237E-08 | 21 | | | | | | | | | | | |
| within-sd | 2.30796E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 1.560320595 | | | | | | | | |
| s_bb_min | 5.28736E-06 | | | | | | | | | | | | |
| u_bb | 5.28736E-06 | | | 0.000338864 | | | | | | | | | |
| **at:** | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.000340785 | 0.000353215 | | | | | | | | | | | |
| r_in | 0.000324 | 0.000339 | 0.000326 | 0.000338 | 0.000322 | 0.00031 | 0.000319 | 0.000323 | | | | | |
| r_out | 0.000341 | 0.000327 | 0.000327 | 0.000328 | 0.000324 | 0.000331 | 0.00035 | 0.000331 | 0.000324 | 0.000344 | 0.000331 | 0.000331 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 8.12027E-10 | 2 | 4.06013E-10 | 5.272737578 | 0.015083249 | 3.521893261 | | | | | | | |
| Within groups | 1.46304E-09 | 19 | 7.70024E-11 | | | | | | | | | | |
| Total | 2.27507E-09 | 21 | | | | | | | | | | | |
| within-sd | 8.7751E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 7.29536E-06 | | | u_bb(rel.) | 2.203432591 | | | | | | | | |
| s_bb_min | 2.01031E-06 | | | | | | | | | | | | |
| u_bb | 7.29536E-06 | | | 0.000331091 | | | | | | | | | |
| **at:** | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.000337652 | 0.000356348 | | | | | | | | | | | |
| r_in | 0.000339 | 0.000341 | 0.000348 | 0.000366 | 0.000336 | 0.000334 | 0.000345 | 0.000342 | | | | | |
| r_out | 0.000347 | 0.000335 | 0.000344 | 0.000378 | 0.000366 | 0.000347 | 0.000338 | 0.000336 | 0.000336 | 0.000342 | 0.000373 | 0.000344 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.18049E-10 | 2 | 5.90246E-11 | 0.335236244 | 0.719314287 | 3.521893261 | | | | | | | |
| Within groups | 3.34531E-09 | 19 | 1.76069E-10 | | | | | | | | | | |
| Total | 3.46336E-09 | 21 | | | | | | | | | | | |
| within-sd | 1.32691E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.876381767 | | | | | | | | |
| s_bb_min | 3.03985E-06 | | | | | | | | | | | | |
| u_bb | 3.03985E-06 | | | 0.000346864 | | | | | | | | | |
| | | | | | | | Mean: | 1.6503012 | | | | | |

## Tellurium in BAM-M109:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | AG3-1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.002958783 | 0.003025217 | | | | | | | | | | | |
| r_in | 0.003002 | 0.003001 | 0.002988 | 0.003035 | 0.002973 | 0.003028 | 0.003046 | | | | | | |
| r_out | 0.003091 | 0.003068 | 0.003154 | 0.003066 | 0.003055 | 0.003032 | 0.003126 | 0.00301 | 0.003104 | 0.00313 | 0.003044 | 0.002958 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.12656E-08 | 2 | 1.06328E-08 | 4.743706915 | 0.022143569 | 3.554557146 | | | | | | | |
| Within groups | 4.03461E-08 | 18 | 2.24145E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 6.16117E-08 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 4.7344E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 3.80054E-05 | | | u_bb(rel.) | 1.249101355 | | | | | | | | |
| s_bb_min | 1.13405E-05 | | | | | | | | | | | | |
| u_bb | 3.80054E-05 | | | 0.003042619 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.00262771 | 0.00269229 | | | | | | | | | | | |
| r_in | 0.002654 | 0.002675 | 0.002639 | 0.002627 | 0.00273 | 0.00269 | 0.002667 | 0.002585 | | | | | |
| r_out | 0.002797 | 0.002695 | 0.002726 | 0.002666 | 0.002768 | 0.002678 | 0.002692 | 0.002705 | 0.002683 | 0.002635 | 0.002734 | 0.002652 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *(e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.05083E-08 | 2 | 5.25415E-09 | 2.515458387 | 0.107359625 | 3.521893261 | | | | | | | |
| Innerhalb de | 3.96861E-08 | 19 | 2.08874E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 5.01944E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 4.57028E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.26285E-05 | | | u_bb(rel.) | 0.843518741 | | | | | | | | |
| s_bb_min | 1.04702E-05 | | | | | | | | | | | | |
| u_bb | 2.26285E-05 | | | 0.002682636 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.002513662 | 0.002586338 | | | | | | | | | | | |
| r_in | 0.002299 | 0.002431 | 0.002438 | 0.002379 | 0.002394 | 0.002366 | 0.002389 | 0.002393 | | | | | |
| r_out | 0.002556 | 0.002483 | 0.0024 | 0.002398 | 0.002404 | 0.002454 | 0.002526 | 0.002439 | 0.002459 | 0.002391 | 0.002441 | 0.002371 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.62689E-08 | 2 | 2.31344E-08 | 8.713577244 | 0.002063571 | 3.521893261 | | | | | | | |
| Within groups | 5.04448E-08 | 19 | 2.65499E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 9.67137E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 5.15266E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 5.75574E-05 | | | u_bb(rel.) | 2.366359657 | | | | | | | | |
| s_bb_min | 1.18044E-05 | | | | | | | | | | | | |
| u_bb | 5.75574E-05 | | | 0.002432318 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.002793765 | 0.002856235 | | | | | | | | | | | |
| r_in | 0.002686 | 0.002665 | 0.002691 | 0.002606 | 0.002632 | 0.002668 | 0.002592 | 0.002615 | | | | | |
| r_out | 0.002765 | 0.00275 | 0.002672 | 0.002678 | 0.002738 | 0.002671 | 0.002717 | 0.002625 | 0.002656 | 0.002684 | 0.002686 | 0.002608 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.24679E-08 | 2 | 2.62339E-08 | 13.383905 | 0.00023596 | 3.521893261 | | | | | | | |
| Within groups | 3.72421E-08 | 19 | 1.96011E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 8.971E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 4.42731E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 6.2663E-05 | | | u_bb(rel.) | 2.334409867 | | | | | | | | |
| s_bb_min | 1.01426E-05 | | | | | | | | | | | | |
| u_bb | 6.2663E-05 | | | 0.002684318 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | AG3-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.002799244 | 0.002850756 | | | | | | | | | | | |
| r_in | 0.002811 | 0.002825 | 0.002821 | 0.002853 | 0.002824 | 0.002774 | 0.002852 | 0.002792 | | | | | |
| r_out | 0.002878 | 0.002898 | 0.002905 | 0.002981 | 0.002895 | 0.002931 | 0.002929 | 0.002871 | 0.002872 | 0.00281 | 0.002899 | 0.002876 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.09169E-08 | 2 | 1.54585E-08 | 11.56086181 | 0.000519219 | 3.521893261 | | | | | | | |
| Within groups | 2.54056E-08 | 19 | 1.33714E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 5.63226E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.65669E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.77947E-05 | | | u_bb(rel.) | 1.670426641 | | | | | | | | |
| s_bb_min | 8.37721E-06 | | | | | | | | | | | | |
| u_bb | 4.77947E-05 | | | 0.002861227 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 1.7950616 | | | | | |

## Thallium in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.000239791 | 0.000240209 | | | | | | | | | | | |
| r_in | 0.00024 | 0.000239 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.80952E-13 | 2 | 1.90476E-13 | 2.261157025 | 0.13302567 | 3.554557146 | | | | | | | |
| Within groups | 1.51629E-12 | 18 | 8.42384E-14 | | | | | | | | | | |
| Total | 1.89724E-12 | 20 | | | | | | | | | | | |
| within-sd | 2.90238E-07 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 1.35229E-07 | | | u_bb(rel.) | 0.056367715 | | | | | | | | |
| s_bb_min | 6.95223E-08 | | | | | | | | | | | | |
| u_bb | 1.35229E-07 | | | 0.000239905 | | | | | | | | | |
| **at:** | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.000238703 | 0.000239297 | | | | | | | | | | | |
| r_in | 0.000239 | 0.00024 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.00024 | 0.000239 | | | | | |
| r_out | 0.000239 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 2.28788E-12 | 2 | 1.14394E-12 | 6.501035867 | 0.007062644 | 3.521893261 | | | | | | | |
| Innerhalb de | 3.34329E-12 | 19 | 1.75963E-13 | | | | | | | | | | |
| Gesamt | 5.63117E-12 | 21 | | | | | | | | | | | |
| within-sd | 4.19479E-07 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.95708E-07 | | | u_bb(rel.) | 0.165191013 | | | | | | | | |
| s_bb_min | 9.60995E-08 | | | | | | | | | | | | |
| u_bb | 3.95708E-07 | | | 0.000239545 | | | | | | | | | |
| **at:** | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.00023974 | 0.00024026 | | | | | | | | | | | |
| r_in | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.74242E-13 | 2 | 8.71212E-14 | 0.648532904 | 0.534002439 | 3.521893261 | | | | | | | |
| Within groups | 2.55238E-12 | 19 | 1.34336E-13 | | | | | | | | | | |
| Total | 2.72662E-12 | 21 | | | | | | | | | | | |
| within-sd | 3.66519E-07 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.035006002 | | | | | | | | |
| s_bb_min | 8.39667E-08 | | | | | | | | | | | | |
| u_bb | 8.39667E-08 | | | 0.000239864 | | | | | | | | | |
| **at:** | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.000239752 | 0.000240248 | | | | | | | | | | | |
| r_in | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.25E-12 | 2 | 1.625E-12 | 13.01245211 | 0.00027565 | 3.521893261 | | | | | | | |
| Within groups | 2.37273E-12 | 19 | 1.2488E-13 | | | | | | | | | | |
| Total | 5.62273E-12 | 21 | | | | | | | | | | | |
| within-sd | 3.53384E-07 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.92612E-07 | | | u_bb(rel.) | 0.205683434 | | | | | | | | |
| s_bb_min | 8.09577E-08 | | | | | | | | | | | | |
| u_bb | 4.92612E-07 | | | 0.0002395 | | | | | | | | | |
| **at:** | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.000239842 | 0.000240158 | | | | | | | | | | | |
| r_in | 0.00024 | 0.00024 | 0.000241 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.95455E-14 | 2 | 3.97727E-14 | 0.816953317 | 0.45670454 | 3.521893261 | | | | | | | |
| Within groups | 9.25E-13 | 19 | 4.86842E-14 | | | | | | | | | | |
| Total | 1.00455E-12 | 21 | | | | | | | | | | | |
| within-sd | 2.20645E-07 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.021057731 | | | | | | | | |
| s_bb_min | 5.05481E-08 | | | | | | | | | | | | |
| u_bb | 5.05481E-08 | | | 0.000240045 | | | | | | | | | |
| | | | | | | | Mean: | 0.1220163 | | | | | |

## Zinc in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.003840814 | 0.003905186 | | | | | | | | | | | |
| r_in | 0.003858 | 0.003872 | 0.003803 | 0.003802 | 0.003823 | 0.003865 | 0.003846 | | | | | | |
| r_out | 0.003782 | 0.00377 | 0.003767 | 0.003681 | 0.003684 | 0.003751 | 0.003766 | 0.003766 | 0.003824 | 0.00378 | 0.003756 | 0.003878 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.39783E-08 | 2 | 1.69892E-08 | 8.089550004 | 0.003116068 | 3.554557146 | | | | | | | |
| Within groups | 3.78025E-08 | 18 | 2.10014E-09 | | | | | | | | | | |
| Total | 7.17808E-08 | 20 | | | | | | | | | | | |
| within-sd | 4.58272E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 5.06247E-05 | | | u_bb(rel.) | 1.331896319 | | | | | | | | |
| s_bb_min | 1.09772E-05 | | | | | | | | | | | | |
| u_bb | 5.06247E-05 | | | 0.003800952 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 0.003889678 | 0.003960322 | | | | | | | | | | | |
| r_in | 0.003937 | 0.003935 | 0.00396 | 0.003972 | 0.003947 | 0.00392 | 0.003983 | 0.003924 | | | | | |
| r_out | 0.003921 | 0.003913 | 0.003969 | 0.00401 | 0.003956 | 0.003854 | 0.003916 | 0.003909 | 0.003919 | 0.004088 | 0.003939 | 0.00401 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.10165E-09 | 2 | 5.50826E-10 | 0.217711042 | 0.806336705 | 3.521893261 | | | | | | | |
| Innerhalb de | 4.80715E-08 | 19 | 2.53008E-09 | | | | | | | | | | |
| Gesamt | 4.91731E-08 | 21 | | | | | | | | | | | |
| within-sd | 5.02999E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.291958251 | | | | | | | | |
| s_bb_min | 1.15233E-05 | | | | | | | | | | | | |
| u_bb | 1.15233E-05 | | | 0.003946909 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 0.00412731 | 0.00417069 | | | | | | | | | | | |
| r_in | 0.003999 | 0.004024 | 0.004006 | 0.004055 | 0.00404 | 0.004053 | 0.004101 | 0.00404 | | | | | |
| r_out | 0.004003 | 0.003997 | 0.004017 | 0.004059 | 0.004001 | 0.003997 | 0.004009 | 0.004077 | 0.004026 | 0.003972 | 0.004036 | 0.003993 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.06471E-08 | 2 | 1.53235E-08 | 16.31323505 | 7.514E-05 | 3.521893261 | | | | | | | |
| Within groups | 1.78473E-08 | 19 | 9.39332E-10 | | | | | | | | | | |
| Total | 4.84944E-08 | 21 | | | | | | | | | | | |
| within-sd | 3.06485E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.82375E-05 | | | u_bb(rel.) | 1.195033098 | | | | | | | | |
| s_bb_min | 7.02135E-06 | | | | | | | | | | | | |
| u_bb | 4.82375E-05 | | | 0.0040365 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 0.003631316 | 0.003734684 | | | | | | | | | | | |
| r_in | 0.004044 | 0.004065 | 0.004255 | 0.004131 | 0.004132 | 0.004362 | 0.004048 | 0.00414 | | | | | |
| r_out | 0.003992 | 0.004045 | 0.004034 | 0.004009 | 0.004045 | 0.004038 | 0.004016 | 0.004069 | 0.004016 | 0.004062 | 0.004088 | 0.004054 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.45936E-07 | 2 | 1.72968E-07 | 33.12380738 | 6.40734E-07 | 3.521893261 | | | | | | | |
| Within groups | 9.92154E-08 | 19 | 5.22186E-09 | | | | | | | | | | |
| Total | 4.45152E-07 | 21 | | | | | | | | | | | |
| within-sd | 7.22625E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000164728 | | | u_bb(rel.) | 4.071432134 | | | | | | | | |
| s_bb_min | 1.65548E-05 | | | | | | | | | | | | |
| u_bb | 0.000164728 | | | 0.004045955 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 0.003641479 | 0.003724521 | | | | | | | | | | | |
| r_in | 0.003811 | 0.00379 | 0.003819 | 0.003764 | 0.003769 | 0.003735 | 0.003734 | 0.003706 | | | | | |
| r_out | 0.003547 | 0.003647 | 0.003718 | 0.003612 | 0.003612 | 0.003678 | 0.003682 | 0.00381 | 0.003677 | 0.0037 | 0.003742 | 0.003713 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.86998E-08 | 2 | 1.93499E-08 | 5.559003953 | 0.012569266 | 3.521893261 | | | | | | | |
| Within groups | 6.61356E-08 | 19 | 3.48082E-09 | | | | | | | | | | |
| Total | 1.04835E-07 | 21 | | | | | | | | | | | |
| within-sd | 5.89985E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 5.06661E-05 | | | u_bb(rel.) | 1.36546294 | | | | | | | | |
| s_bb_min | 1.35161E-05 | | | | | | | | | | | | |
| u_bb | 5.06661E-05 | | | 0.003710545 | | | | | | | | | |
| | | | | | | | Mean: | 2.0846266 | | | | | |

## Aluminium in BAM-M109:

| at: | | AG3-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 7.89899E-05 | 8.70101E-05 | | | | | | | | | | | |
| r_in | 0.000087 | 0.000109 | 0.000083 | 0.000085 | 0.000085 | 0.000086 | 0.000088 | | | | | | |
| r_out | 0.000089 | 0.000088 | 0.00009 | 0.000088 | 0.000086 | 0.000087 | 0.000087 | 0.000088 | 0.000092 | 0.000091 | 0.000089 | 0.000085 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.82857E-11 | 2 | 2.91429E-11 | 0.938699675 | 0.40946471 | 3.554557146 | | | | | | | |
| Within groups | 5.58828E-10 | 18 | 3.1046E-11 | | | | | | | | | | |
| Total | 6.17113E-10 | 20 | | | | | | | | | | | |
| within-sd | 5.57189E-06 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 1.515842985 | | | | | | | | |
| s_bb_min | 1.33466E-06 | | | | | | | | | | | | |
| u_bb | 1.33466E-06 | | | 8.80476E-05 | | | | | | | | | |
| at: | | AG3-3 | | | | | | | | | | | |
| r_0 | 8.52739E-05 | 8.67261E-05 | | | | | | | | | | | |
| r_in | 0.000084 | 0.000084 | 0.000083 | 0.000084 | 0.000085 | 0.000083 | 0.000083 | 0.000084 | | | | | |
| r_out | 0.000086 | 0.000086 | 0.000086 | 0.000086 | 0.000088 | 0.000089 | 0.000089 | 0.000087 | 0.000088 | 0.000086 | 0.000087 | 0.000088 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 5.61061E-11 | 2 | 2.8053E-11 | 26.35883411 | 3.30911E-06 | 3.521893261 | | | | | | | |
| Innerhalb de | 2.02212E-11 | 19 | 1.06427E-12 | | | | | | | | | | |
| Gesamt | 7.63273E-11 | 21 | | | | | | | | | | | |
| within-sd | 1.03164E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.08946E-06 | | | u_bb(rel.) | 2.434747959 | | | | | | | | |
| s_bb_min | 2.3634E-07 | | | | | | | | | | | | |
| u_bb | 2.08946E-06 | | | 8.58182E-05 | | | | | | | | | |
| at: | | AG3-4 | | | | | | | | | | | |
| r_0 | 7.61692E-05 | 9.38308E-05 | | | | | | | | | | | |
| r_in | 0.000082 | 0.000085 | 0.000085 | 0.000083 | 0.000083 | 0.000082 | 0.000084 | 0.000085 | | | | | |
| r_out | 0.000088 | 0.000085 | 0.000087 | 0.000083 | 0.000084 | 0.00014 | 0.000086 | 0.000083 | 0.000083 | 0.000085 | 0.000085 | 0.000098 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.46663E-10 | 2 | 1.23331E-10 | 0.7772758 | 0.473732459 | 3.521893261 | | | | | | | |
| Within groups | 3.01476E-09 | 19 | 1.58671E-10 | | | | | | | | | | |
| Total | 3.26142E-09 | 21 | | | | | | | | | | | |
| within-sd | 1.25965E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 3.296299844 | | | | | | | | |
| s_bb_min | 2.88576E-06 | | | | | | | | | | | | |
| u_bb | 2.88576E-06 | | | 8.75455E-05 | | | | | | | | | |
| at: | | AG3-5 | | | | | | | | | | | |
| r_0 | 8.63826E-05 | 8.96174E-05 | | | | | | | | | | | |
| r_in | 0.000084 | 0.000085 | 0.000084 | 0.000081 | 0.000082 | 0.000076 | 0.000079 | 0.00008 | | | | | |
| r_out | 0.000088 | 0.000087 | 0.000085 | 0.000087 | 0.000086 | 0.000084 | 0.000085 | 0.000085 | 0.000087 | 0.000085 | 0.000082 | 0.000085 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.12989E-10 | 2 | 5.64943E-11 | 10.94105451 | 0.000689593 | 3.521893261 | | | | | | | |
| Within groups | 9.81068E-11 | 19 | 5.16352E-12 | | | | | | | | | | |
| Total | 2.11095E-10 | 21 | | | | | | | | | | | |
| within-sd | 2.27234E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.88158E-06 | | | u_bb(rel.) | 3.421197691 | | | | | | | | |
| s_bb_min | 5.20576E-07 | | | | | | | | | | | | |
| u_bb | 2.88158E-06 | | | 8.42273E-05 | | | | | | | | | |
| at: | | AG3-6 | | | | | | | | | | | |
| r_0 | 8.69959E-05 | 8.90041E-05 | | | | | | | | | | | |
| r_in | 0.000087 | 0.000088 | 0.000088 | 0.000089 | 0.000089 | 0.000086 | 0.000086 | 0.000089 | | | | | |
| r_out | 0.000089 | 0.000084 | 0.000089 | 0.000087 | 0.000089 | 0.000088 | 0.000088 | 0.000088 | 0.000086 | 0.000087 | 0.000088 | 0.000086 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 9.01515E-13 | 2 | 4.50758E-13 | 0.222840167 | 0.802304742 | 3.521893261 | | | | | | | |
| Within groups | 3.84329E-11 | 19 | 2.02278E-12 | | | | | | | | | | |
| Total | 3.93344E-11 | 21 | | | | | | | | | | | |
| within-sd | 1.42225E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.371986116 | | | | | | | | |
| s_bb_min | 3.25826E-07 | | | | | | | | | | | | |
| u_bb | 3.25826E-07 | | | 8.75909E-05 | | | | | | | | | |
| | | | | | | | Mean: | 2.4873415 | | | | | |

## Arsenic in BAM-M109a:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | N7-1 | | | | | | | | | | |
| r_0 | 0.008234614 | 0.008461386 | | | | | | | | | | |
| r_in | 0.008508 | 0.008259 | 0.008361 | 0.008102 | 0.008106 | 0.00819 | 0.008176 | | | | | |
| r_out | 0.008634 | 0.008793 | 0.008518 | 0.008441 | 0.00841 | 0.008281 | 0.00871 | 0.008577 | 0.008334 | 0.00834 | 0.008679 | 0.008397 |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 3.20923E-07 | 2 | 1.60461E-07 | 6.218249591 | 0.008849124 | 3.554557146 | | | | | | |
| Within groups | 4.64488E-07 | 18 | 2.58049E-08 | | | | | | | | | |
| Total | 7.85411E-07 | 20 | | | | | | | | | | |
| within-sd | 0.000160639 | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | |
| s_bb | 0.000152245 | | | u_bb(rel.) | 1.811291857 | | | | | | | |
| s_bb_min | 3.84787E-05 | | | | | | | | | | | |
| u_bb | 0.000152245 | | | 0.008405333 | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | |
| r_0 | 0.008989677 | 0.009296323 | | | | | | | | | | |
| r_in | 0.009317 | 0.009416 | 0.009002 | 0.009175 | 0.009225 | 0.009319 | 0.0096 | 0.00915 | | | | |
| r_out | 0.009741 | 0.009487 | 0.009488 | 0.008938 | 0.009591 | 0.009271 | 0.009851 | 0.009378 | 0.009234 | 0.009406 | 0.009372 | 0.009417 |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *ltischer F-Wert* | | | | | | |
| Unterschiede | 2.09097E-07 | 2 | 1.04549E-07 | 2.212234355 | 0.13686632 | 3.521893261 | | | | | | |
| Innerhalb de | 8.97927E-07 | 19 | 4.72593E-08 | | | | | | | | | |
| Gesamt | 1.10702E-06 | 21 | | | | | | | | | | |
| within-sd | 0.000217392 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 9.62673E-05 | | | u_bb(rel.) | 1.029777409 | | | | | | | |
| s_bb_min | 4.98029E-05 | | | | | | | | | | | |
| u_bb | 9.62673E-05 | | | 0.009348364 | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | |
| r_0 | 0.008544072 | 0.008815928 | | | | | | | | | | |
| r_in | 0.008459 | 0.008432 | 0.008888 | 0.008391 | 0.008451 | 0.008645 | 0.0088 | 0.008219 | | | | |
| r_out | 0.009047 | 0.008608 | 0.008684 | 0.008817 | 0.00874 | 0.008952 | 0.008697 | 0.008558 | 0.00897 | 0.008634 | 0.008858 | 0.008551 |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 2.41114E-07 | 2 | 1.20557E-07 | 3.283000045 | 0.059615987 | 3.521893261 | | | | | | |
| Within groups | 6.97712E-07 | 19 | 3.67217E-08 | | | | | | | | | |
| Total | 9.38826E-07 | 21 | | | | | | | | | | |
| within-sd | 0.000191629 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000116454 | | | u_bb(rel.) | 1.343040411 | | | | | | | |
| s_bb_min | 4.39008E-05 | | | | | | | | | | | |
| u_bb | 0.000116454 | | | 0.008670955 | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | |
| r_0 | 0.009232744 | 0.009403256 | | | | | | | | | | |
| r_in | 0.008687 | 0.008685 | 0.008717 | 0.008791 | 0.008752 | 0.008888 | 0.008848 | 0.008945 | | | | |
| r_out | 0.009271 | 0.00905 | 0.00917 | 0.009003 | 0.008974 | 0.009024 | 0.009266 | 0.009192 | 0.009008 | 0.009196 | 0.008991 | 0.008838 |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 6.38308E-07 | 2 | 3.19154E-07 | 21.81780128 | 1.19773E-05 | 3.521893261 | | | | | | |
| Within groups | 2.77935E-07 | 19 | 1.46281E-08 | | | | | | | | | |
| Total | 9.16243E-07 | 21 | | | | | | | | | | |
| within-sd | 0.000120947 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000221949 | | | u_bb(rel.) | 2.466951704 | | | | | | | |
| s_bb_min | 2.7708E-05 | | | | | | | | | | | |
| u_bb | 0.000221949 | | | 0.008996909 | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | |
| r_0 | 0.009218254 | 0.009417746 | | | | | | | | | | |
| r_in | 0.009606 | 0.009729 | 0.009814 | 0.009753 | 0.009466 | 0.009577 | 0.009533 | 0.009504 | | | | |
| r_out | 0.010184 | 0.010266 | 0.009904 | 0.009933 | 0.010003 | 0.010103 | 0.009911 | 0.009952 | 0.009959 | 0.009968 | 0.009765 | 0.009765 |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | |
| Between groups | 1.08476E-06 | 2 | 5.42382E-07 | 27.17049419 | 2.67525E-06 | 3.521893261 | | | | | | |
| Within groups | 3.79281E-07 | 19 | 1.99622E-08 | | | | | | | | | |
| Total | 1.46404E-06 | 21 | | | | | | | | | | |
| within-sd | 0.000141288 | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | |
| s_bb | 0.000290704 | | | u_bb(rel.) | 2.97007712 | | | | | | | |
| s_bb_min | 3.23679E-05 | | | | | | | | | | | |
| u_bb | 0.000290704 | | | 0.009787773 | | | | | | | | |
| | | | | | | | Mean: | 2.051935 | | | | |

## Bismuth in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.019006035 | 0.019165965 | | | | | | | | | | | |
| r_in | 0.019241 | 0.019166 | 0.019088 | 0.019075 | 0.019042 | 0.019218 | 0.018833 | | | | | | |
| r_out | 0.01928 | 0.019278 | 0.019313 | 0.019173 | 0.019263 | 0.019116 | 0.019313 | 0.019312 | 0.019368 | 0.019204 | 0.019425 | 0.019111 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.49136E-07 | 2 | 7.45678E-08 | 5.895867985 | 0.010729766 | 3.554557146 | | | | | | | |
| Within groups | 2.27654E-07 | 18 | 1.26475E-08 | | | | | | | | | | |
| Total | 3.7679E-07 | 20 | | | | | | | | | | | |
| within-sd | 0.000112461 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 0.00010324 | | | u_bb(rel.) | 0.537985051 | | | | | | | | |
| s_bb_min | 2.69383E-05 | | | | | | | | | | | | |
| u_bb | 0.00010324 | | | 0.019190048 | | | | | | | | | |
| at: | | N7-3 | | | | | | | | | | | |
| r_0 | 0.019002594 | 0.019139406 | | | | | | | | | | | |
| r_in | 0.018974 | 0.019224 | 0.019006 | 0.019044 | 0.018996 | 0.019054 | 0.019039 | 0.019245 | | | | | |
| r_out | 0.019199 | 0.019272 | 0.019234 | 0.0192 | 0.019387 | 0.019097 | 0.019304 | 0.019186 | 0.019076 | 0.019242 | 0.019092 | 0.019161 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *ltischer F-Wert* | | | | | | | |
| Unterschiede | 9.47092E-08 | 2 | 4.73546E-08 | 5.072715087 | 0.017168792 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.77368E-07 | 19 | 9.33516E-09 | | | | | | | | | | |
| Gesamt | 2.72077E-07 | 21 | | | | | | | | | | | |
| within-sd | 9.66186E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 7.84232E-05 | | | u_bb(rel.) | 0.409643315 | | | | | | | | |
| s_bb_min | 2.21346E-05 | | | | | | | | | | | | |
| u_bb | 7.84232E-05 | | | 0.019144273 | | | | | | | | | |
| at: | | N7-4 | | | | | | | | | | | |
| r_0 | 0.01857425 | 0.01868375 | | | | | | | | | | | |
| r_in | 0.018873 | 0.018693 | 0.018805 | 0.018823 | 0.018752 | 0.018888 | 0.019009 | 0.018772 | | | | | |
| r_out | 0.018882 | 0.018868 | 0.018832 | 0.018932 | 0.018848 | 0.018894 | 0.018877 | 0.018865 | 0.019044 | 0.018858 | 0.018822 | 0.018822 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.08181E-07 | 2 | 5.40905E-08 | 9.114336982 | 0.001678117 | 3.521893261 | | | | | | | |
| Within groups | 1.12759E-07 | 19 | 5.93466E-09 | | | | | | | | | | |
| Total | 2.2094E-07 | 21 | | | | | | | | | | | |
| within-sd | 7.70368E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 8.82605E-05 | | | u_bb(rel.) | 0.468545294 | | | | | | | | |
| s_bb_min | 1.76486E-05 | | | | | | | | | | | | |
| u_bb | 8.82605E-05 | | | 0.018837136 | | | | | | | | | |
| at: | | N7-5 | | | | | | | | | | | |
| r_0 | 0.019064633 | 0.019201367 | | | | | | | | | | | |
| r_in | 0.018507 | 0.018637 | 0.018532 | 0.018587 | 0.018532 | 0.018642 | 0.018714 | 0.018672 | | | | | |
| r_out | 0.018968 | 0.018635 | 0.018885 | 0.018782 | 0.018701 | 0.01867 | 0.018776 | 0.018818 | 0.0187 | 0.018602 | 0.018667 | 0.018672 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.54815E-07 | 2 | 2.27408E-07 | 24.1577376 | 6.04043E-06 | 3.521893261 | | | | | | | |
| Within groups | 1.78856E-07 | 19 | 9.41345E-09 | | | | | | | | | | |
| Total | 6.33671E-07 | 21 | | | | | | | | | | | |
| within-sd | 9.70229E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000187786 | | | u_bb(rel.) | 1.002828535 | | | | | | | | |
| s_bb_min | 2.22272E-05 | | | | | | | | | | | | |
| u_bb | 0.000187786 | | | 0.018725682 | | | | | | | | | |
| at: | | N7-6 | | | | | | | | | | | |
| r_0 | 0.019031176 | 0.019234824 | | | | | | | | | | | |
| r_in | 0.019129 | 0.019288 | 0.019277 | 0.01958 | 0.019169 | 0.019424 | 0.019072 | 0.019104 | | | | | |
| r_out | 0.019444 | 0.019496 | 0.019251 | 0.01945 | 0.019417 | 0.019437 | 0.01946 | 0.019272 | 0.019437 | 0.019639 | 0.019301 | 0.01923 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.85203E-07 | 2 | 9.26016E-08 | 4.50390393 | 0.02506153 | 3.521893261 | | | | | | | |
| Within groups | 3.90646E-07 | 19 | 2.05603E-08 | | | | | | | | | | |
| Total | 5.75849E-07 | 21 | | | | | | | | | | | |
| within-sd | 0.000143389 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000107952 | | | u_bb(rel.) | 0.55862498 | | | | | | | | |
| s_bb_min | 3.28493E-05 | | | | | | | | | | | | |
| u_bb | 0.000107952 | | | 0.019324682 | | | | | | | | | |
| | | | | | | | Mean: | 0.6315849 | | | | | |

## Antimony in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.011865293 | 0.012014707 | | | | | | | | | | | |
| r_in | 0.012134 | 0.011913 | 0.012212 | 0.012082 | 0.011991 | 0.012129 | 0.01201 | | | | | | |
| r_out | 0.012088 | 0.01204 | 0.01215 | 0.01204 | 0.011905 | 0.012111 | 0.012136 | 0.012212 | 0.012304 | 0.012021 | 0.012234 | 0.012067 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 5.04026E-08 | 2 | 2.52013E-08 | 2.254074989 | 0.133780971 | 3.554557146 | | | | | | | |
| Within groups | 2.01246E-07 | 18 | 1.11803E-08 | | | | | | | | | | |
| Total | 2.51648E-07 | 20 | | | | | | | | | | | |
| within-sd | 0.000105737 | | | | | | | | | | | | |
| effective n | 5.81 | | | u_bb(rel.) | 0.406712643 | | | | | | | | |
| s_bb | 4.91268E-05 | | | | | | | | | | | | |
| s_bb_min | 2.53277E-05 | | | | | | | | | | | | |
| u_bb | 4.91268E-05 | | | 0.012079 | | | | | | | | | |
| at: | | N7-3 | | | | | | | | | | | |
| r_0 | 0.011886031 | 0.012003969 | | | | | | | | | | | |
| r_in | 0.011994 | 0.011961 | 0.01187 | 0.012049 | 0.012083 | 0.012119 | 0.011971 | 0.011832 | | | | | |
| r_out | 0.012072 | 0.012013 | 0.011964 | 0.011918 | 0.012032 | 0.012057 | 0.012112 | 0.012174 | 0.012057 | 0.012004 | 0.012033 | 0.011949 | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.91542E-08 | 2 | 9.5771E-09 | 1.387281654 | 0.273929873 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.31167E-07 | 19 | 6.9035E-09 | | | | | | | | | | |
| Gesamt | 1.50321E-07 | 21 | | | | | | | | | | | |
| within-sd | 8.30873E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | u_bb(rel.) | 0.173203084 | | | | | | | | |
| s_bb | 2.07965E-05 | | | | | | | | | | | | |
| s_bb_min | 1.90347E-05 | | | | | | | | | | | | |
| u_bb | 2.07965E-05 | | | 0.012007 | | | | | | | | | |
| at: | | N7-4 | | | | | | | | | | | |
| r_0 | 0.011810638 | 0.011947362 | | | | | | | | | | | |
| r_in | 0.012021 | 0.012021 | 0.01181 | 0.011892 | 0.011924 | 0.011914 | 0.011861 | 0.012008 | | | | | |
| r_out | 0.011852 | 0.011893 | 0.012164 | 0.011904 | 0.01203 | 0.01198 | 0.012012 | 0.012089 | 0.01206 | 0.011865 | 0.012101 | 0.011867 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.66262E-08 | 2 | 1.33131E-08 | 1.416061301 | 0.267145323 | 3.521893261 | | | | | | | |
| Within groups | 1.78629E-07 | 19 | 9.40151E-09 | | | | | | | | | | |
| Total | 2.05255E-07 | 21 | | | | | | | | | | | |
| within-sd | 9.69614E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | u_bb(rel.) | 0.210398885 | | | | | | | | |
| s_bb | 2.51547E-05 | | | | | | | | | | | | |
| s_bb_min | 2.22131E-05 | | | | | | | | | | | | |
| u_bb | 2.51547E-05 | | | 0.011955727 | | | | | | | | | |
| at: | | N7-5 | | | | | | | | | | | |
| r_0 | 0.011666372 | 0.011807628 | | | | | | | | | | | |
| r_in | 0.011991 | 0.012063 | 0.012005 | 0.012086 | 0.011996 | 0.012027 | 0.011894 | 0.011961 | | | | | |
| r_out | 0.011946 | 0.012031 | 0.012137 | 0.012148 | 0.011951 | 0.012195 | 0.012164 | 0.01224 | 0.012169 | 0.011891 | 0.012025 | 0.011936 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.91278E-07 | 2 | 9.56391E-08 | 9.479376115 | 0.001395391 | 3.521893261 | | | | | | | |
| Within groups | 1.91694E-07 | 19 | 1.00892E-08 | | | | | | | | | | |
| Total | 3.82973E-07 | 21 | | | | | | | | | | | |
| within-sd | 0.000100445 | | | | | | | | | | | | |
| effective n | 6.18 | | | u_bb(rel.) | 0.979101989 | | | | | | | | |
| s_bb | 0.000117639 | | | | | | | | | | | | |
| s_bb_min | 2.30112E-05 | | | | | | | | | | | | |
| u_bb | 0.000117639 | | | 0.012015 | | | | | | | | | |
| at: | | N7-6 | | | | | | | | | | | |
| r_0 | 0.011680006 | 0.011793994 | | | | | | | | | | | |
| r_in | 0.012031 | 0.011978 | 0.012023 | 0.012107 | 0.011957 | 0.011871 | 0.011877 | 0.012029 | | | | | |
| r_out | 0.011965 | 0.011994 | 0.01207 | 0.012109 | 0.011994 | 0.011982 | 0.011957 | 0.012085 | 0.012223 | 0.012046 | 0.012083 | 0.011951 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.562E-07 | 2 | 7.81001E-08 | 12.02340097 | 0.000422397 | 3.521893261 | | | | | | | |
| Within groups | 1.23418E-07 | 19 | 6.49567E-09 | | | | | | | | | | |
| Total | 2.79618E-07 | 21 | | | | | | | | | | | |
| within-sd | 8.05957E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | u_bb(rel.) | 0.89753162 | | | | | | | | |
| s_bb | 0.000107625 | | | | | | | | | | | | |
| s_bb_min | 1.84639E-05 | | | | | | | | | | | | |
| u_bb | 0.000107625 | | | 0.011991182 | | | | | | | | | |
| | | | | | | | Mean: | 0.6330696 | | | | | |

## Tin in BAM-M109a:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | N7-1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.124905135 | 0.125768865 | | | | | | | | | | | |
| r_in | 0.126254 | 0.126815 | 0.12554 | 0.125374 | 0.125741 | 0.126477 | 0.126018 | | | | | | |
| r_out | 0.12549 | 0.125727 | 0.125307 | 0.125137 | 0.125652 | 0.126161 | 0.126527 | 0.125566 | 0.127474 | 0.126017 | 0.126319 | 0.125324 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.50947E-07 | 2 | 3.75474E-07 | 1.000202953 | 0.387349731 | 3.554557146 | | | | | | | |
| Within groups | 6.75716E-06 | 18 | 3.75398E-07 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 7.5081E-06 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000612697 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 3.62137E-06 | | | u_bb(rel.) | 0.116584108 | | | | | | | | |
| s_bb_min | 0.000146762 | | | | | | | | | | | | |
| u_bb | 0.000146762 | | | 0.125885429 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.127113579 | 0.127976421 | | | | | | | | | | | |
| r_in | 0.12738 | 0.128221 | 0.128021 | 0.128679 | 0.127749 | 0.128226 | 0.12781 | 0.128169 | | | | | |
| r_out | 0.129016 | 0.129754 | 0.129488 | 0.129468 | 0.12778 | 0.128515 | 0.130194 | 0.129601 | 0.130215 | 0.129488 | 0.128745 | 0.128669 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade* | *(e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 9.73863E-06 | 2 | 4.86932E-06 | 12.94656614 | 0.000283433 | 3.521893261 | | | | | | | |
| Innerhalb de | 7.14606E-06 | 19 | 3.76109E-07 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 1.68847E-05 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000613277 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.00085255 | | | u_bb(rel.) | 0.662694948 | | | | | | | | |
| s_bb_min | 0.000140497 | | | | | | | | | | | | |
| u_bb | 0.00085255 | | | 0.128649 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.122820084 | 0.123861916 | | | | | | | | | | | |
| r_in | 0.122681 | 0.123254 | 0.123404 | 0.123854 | 0.122724 | 0.121721 | 0.122236 | 0.122549 | | | | | |
| r_out | 0.123796 | 0.123762 | 0.123054 | 0.122544 | 0.122091 | 0.123492 | 0.123159 | 0.124121 | 0.122286 | 0.12391 | 0.124514 | 0.122673 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.22221E-06 | 2 | 6.11106E-07 | 1.123171478 | 0.345907061 | 3.521893261 | | | | | | | |
| Within groups | 1.03377E-05 | 19 | 5.44089E-07 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.15599E-05 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000737624 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000104119 | | | u_bb(rel.) | 0.137258352 | | | | | | | | |
| s_bb_min | 0.000168984 | | | | | | | | | | | | |
| u_bb | 0.000168984 | | | 0.123113955 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.12255661 | 0.12327739 | | | | | | | | | | | |
| r_in | 0.123725 | 0.123693 | 0.122937 | 0.123064 | 0.124219 | 0.123453 | 0.122604 | 0.122474 | | | | | |
| r_out | 0.123377 | 0.122981 | 0.123219 | 0.12349 | 0.122729 | 0.123876 | 0.123358 | 0.124188 | 0.123616 | 0.12364 | 0.123913 | 0.124057 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 8.19012E-07 | 2 | 4.09506E-07 | 1.587681273 | 0.230349506 | 3.521893261 | | | | | | | |
| Within groups | 4.90062E-06 | 19 | 2.57927E-07 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 5.71963E-06 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000507865 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000156589 | | | u_bb(rel.) | 0.12691198 | | | | | | | | |
| s_bb_min | 0.000116348 | | | | | | | | | | | | |
| u_bb | 0.000156589 | | | 0.123383955 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.12256978 | 0.12326422 | | | | | | | | | | | |
| r_in | 0.124096 | 0.122893 | 0.122891 | 0.123665 | 0.123645 | 0.12355 | 0.123212 | 0.123583 | | | | | |
| r_out | 0.124227 | 0.123825 | 0.124332 | 0.124334 | 0.124388 | 0.123598 | 0.123583 | 0.123386 | 0.124096 | 0.123621 | 0.124471 | 0.12266 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.03045E-06 | 2 | 1.01523E-06 | 4.18949662 | 0.031095189 | 3.521893261 | | | | | | | |
| Within groups | 4.6042E-06 | 19 | 2.42326E-07 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 6.63466E-06 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 0.000492267 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0.000353593 | | | u_bb(rel.) | 0.286005734 | | | | | | | | |
| s_bb_min | 0.000112775 | | | | | | | | | | | | |
| u_bb | 0.000353593 | | | 0.123631364 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 0.3374914 | | | | | |

## Silver in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.003813632 | 0.003852368 | | | | | | | | | | | |
| r_in | 0.003873 | 0.003789 | 0.003838 | 0.00385 | 0.003812 | 0.003862 | 0.003826 | | | | | | |
| r_out | 0.003873 | 0.003861 | 0.003852 | 0.003837 | 0.00381 | 0.003836 | 0.003872 | 0.003857 | 0.003839 | 0.003867 | 0.003915 | 0.003872 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.60861E-09 | 2 | 1.3043E-09 | 1.744164636 | 0.203062016 | 3.554557146 | | | | | | | |
| Within groups | 1.34606E-08 | 18 | 7.4781E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.60692E-08 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.73461E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 9.78723E-06 | | | u_bb(rel.) | 0.254349074 | | | | | | | | |
| s_bb_min | 6.55035E-06 | | | | | | | | | | | | |
| u_bb | 9.78723E-06 | | | 0.003847952 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003828994 | 0.003853006 | | | | | | | | | | | |
| r_in | 0.003867 | 0.003862 | 0.003814 | 0.003872 | 0.003849 | 0.003847 | 0.003862 | 0.003844 | | | | | |
| r_out | 0.003837 | 0.003844 | 0.003867 | 0.003861 | 0.00382 | 0.003853 | 0.003869 | 0.003842 | 0.003836 | 0.003832 | 0.003867 | 0.003858 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 2.04231E-10 | 2 | 1.02116E-10 | 0.355293202 | 0.705526826 | 3.521893261 | | | | | | | |
| Innerhalb de | 5.46083E-09 | 19 | 2.87412E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 5.66506E-09 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.69532E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.100897318 | | | | | | | | |
| s_bb_min | 3.88386E-06 | | | | | | | | | | | | |
| u_bb | 3.88386E-06 | | | 0.003849318 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003831914 | 0.003856086 | | | | | | | | | | | |
| r_in | 0.00391 | 0.003896 | 0.003902 | 0.003901 | 0.003873 | 0.003932 | 0.003905 | 0.003883 | | | | | |
| r_out | 0.003903 | 0.003928 | 0.003932 | 0.003907 | 0.003895 | 0.003939 | 0.003918 | 0.003887 | 0.003909 | 0.003914 | 0.003928 | 0.003893 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 8.1392E-09 | 2 | 4.0696E-09 | 13.94732408 | 0.000187279 | 3.521893261 | | | | | | | |
| Within groups | 5.54389E-09 | 19 | 2.91784E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.36831E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.70817E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.47208E-05 | | | u_bb(rel.) | 0.633549025 | | | | | | | | |
| s_bb_min | 3.91329E-06 | | | | | | | | | | | | |
| u_bb | 2.47208E-05 | | | 0.003901955 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003831306 | 0.003860694 | | | | | | | | | | | |
| r_in | 0.003897 | 0.003862 | 0.003924 | 0.00391 | 0.003887 | 0.003932 | 0.003879 | 0.003908 | | | | | |
| r_out | 0.003922 | 0.00387 | 0.003943 | 0.003909 | 0.003888 | 0.003919 | 0.003922 | 0.003902 | 0.00391 | 0.003923 | 0.00391 | 0.003923 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.44233E-09 | 2 | 3.72116E-09 | 8.657070713 | 0.002125393 | 3.521893261 | | | | | | | |
| Within groups | 8.16698E-09 | 19 | 4.29841E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.56093E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.07326E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.30742E-05 | | | u_bb(rel.) | 0.591426298 | | | | | | | | |
| s_bb_min | 4.74969E-06 | | | | | | | | | | | | |
| u_bb | 2.30742E-05 | | | 0.003901455 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003831277 | 0.003860723 | | | | | | | | | | | |
| r_in | 0.0039 | 0.003844 | 0.00387 | 0.003925 | 0.003911 | 0.003878 | 0.003924 | 0.003898 | | | | | |
| r_out | 0.00394 | 0.003944 | 0.003893 | 0.003932 | 0.003922 | 0.003932 | 0.003937 | 0.003939 | 0.003926 | 0.00393 | 0.003923 | 0.003913 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.39142E-08 | 2 | 6.95709E-09 | 16.28303057 | 7.59804E-05 | 3.521893261 | | | | | | | |
| Within groups | 8.11794E-09 | 19 | 4.2726E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 2.20321E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.06703E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.25007E-05 | | | u_bb(rel.) | 0.83167439 | | | | | | | | |
| s_bb_min | 4.7354E-06 | | | | | | | | | | | | |
| u_bb | 3.25007E-05 | | | 0.003907864 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 0.5509493 | | | | | |

## Cadmium in BAM-M109a:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | N7-1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003532076 | 0.003583924 | | | | | | | | | | | |
| r_in | 0.003662 | 0.003649 | 0.003647 | 0.003652 | 0.003609 | 0.003615 | 0.003644 | | | | | | |
| r_out | 0.003687 | 0.003662 | 0.003623 | 0.003625 | 0.003633 | 0.003657 | 0.003747 | 0.003664 | 0.003675 | 0.003672 | 0.003691 | 0.003571 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.75655E-08 | 2 | 8.78273E-09 | 6.428879588 | 0.007819394 | 3.554557146 | | | | | | | |
| Within groups | 2.45905E-08 | 18 | 1.36614E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 4.21559E-08 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.69613E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 3.57299E-05 | | | u_bb(rel.) | 0.980808435 | | | | | | | | |
| s_bb_min | 8.85353E-06 | | | | | | | | | | | | |
| u_bb | 3.57299E-05 | | | 0.003642905 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003715168 | 0.003762832 | | | | | | | | | | | |
| r_in | 0.003775 | 0.003787 | 0.003732 | 0.003804 | 0.003748 | 0.003805 | 0.00373 | 0.003779 | | | | | |
| r_out | 0.003755 | 0.003827 | 0.003834 | 0.003774 | 0.003794 | 0.003787 | 0.003848 | 0.003862 | 0.003843 | 0.003821 | 0.003839 | 0.003764 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *iheitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.43857E-08 | 2 | 7.19285E-09 | 6.309350772 | 0.007919375 | 3.521893261 | | | | | | | |
| Innerhalb de | 2.16606E-08 | 19 | 1.14003E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 3.60463E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.37643E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.12911E-05 | | | u_bb(rel.) | 0.825563065 | | | | | | | | |
| s_bb_min | 7.73516E-06 | | | | | | | | | | | | |
| u_bb | 3.12911E-05 | | | 0.003790273 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003612932 | 0.003667068 | | | | | | | | | | | |
| r_in | 0.003534 | 0.003578 | 0.00364 | 0.003607 | 0.003558 | 0.003501 | 0.003559 | 0.003605 | | | | | |
| r_out | 0.00365 | 0.00365 | 0.003597 | 0.003633 | 0.00363 | 0.003691 | 0.003605 | 0.003665 | 0.003602 | 0.003664 | 0.003659 | 0.00358 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.04933E-08 | 2 | 1.02467E-08 | 7.035546639 | 0.005168898 | 3.521893261 | | | | | | | |
| Within groups | 2.76718E-08 | 19 | 1.45641E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 4.81652E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.8163E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.77088E-05 | | | u_bb(rel.) | 1.043670776 | | | | | | | | |
| s_bb_min | 8.74285E-06 | | | | | | | | | | | | |
| u_bb | 3.77088E-05 | | | 0.003613091 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003574861 | 0.003617139 | | | | | | | | | | | |
| r_in | 0.003647 | 0.00361 | 0.003627 | 0.003615 | 0.003683 | 0.003613 | 0.003594 | 0.003596 | | | | | |
| r_out | 0.003607 | 0.00359 | 0.00359 | 0.003649 | 0.003602 | 0.003687 | 0.003664 | 0.003653 | 0.003634 | 0.00364 | 0.003631 | 0.003642 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.35857E-09 | 2 | 1.17929E-09 | 1.318998026 | 0.290801978 | 3.521893261 | | | | | | | |
| Within groups | 1.69875E-08 | 19 | 8.94077E-10 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.9346E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.99011E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 6.7924E-06 | | | u_bb(rel.) | 0.188931054 | | | | | | | | |
| s_bb_min | 6.85012E-06 | | | | | | | | | | | | |
| u_bb | 6.85012E-06 | | | 0.003625727 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.003573466 | 0.003618534 | | | | | | | | | | | |
| r_in | 0.00366 | 0.003666 | 0.003664 | 0.003718 | 0.003637 | 0.003733 | 0.003664 | 0.00362 | | | | | |
| r_out | 0.003691 | 0.003699 | 0.003719 | 0.003668 | 0.003724 | 0.003654 | 0.003672 | 0.00364 | 0.003695 | 0.00369 | 0.003708 | 0.003652 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.33871E-08 | 2 | 6.69355E-09 | 6.639135565 | 0.006508961 | 3.521893261 | | | | | | | |
| Within groups | 1.91557E-08 | 19 | 1.0082E-09 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 3.25428E-08 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.17521E-05 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.03264E-05 | | | u_bb(rel.) | 0.826066187 | | | | | | | | |
| s_bb_min | 7.27417E-06 | | | | | | | | | | | | |
| u_bb | 3.03264E-05 | | | 0.003671182 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 0.8307669 | | | | | |

## Copper in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.001955268 | 0.001974732 | | | | | | | | | | | |
| r_in | 0.002007 | 0.001986 | 0.001966 | 0.001974 | 0.001972 | 0.001989 | 0.001973 | | | | | | |
| r_out | 0.001999 | 0.001986 | 0.001987 | 0.001977 | 0.001971 | 0.001992 | 0.002 | 0.001981 | 0.002011 | 0.001987 | 0.002011 | 0.001972 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 1.14567E-09 | 2 | 5.72833E-10 | 3.026923478 | 0.0735854 | 3.554557146 |
| Within groups | 3.40643E-09 | 18 | 1.89246E-10 | | | |
| Total | 4.5521E-09 | 20 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| within-sd | 1.37567E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 8.12572E-06 | | | u_bb(rel.) | 0.409493677 | | | | | | | | |
| s_bb_min | 3.29521E-06 | | | | | | | | | | | | |
| u_bb | 8.12572E-06 | | | 0.001984333 | | | | | | | | | |

| at: | | N7-3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.002005825 | 0.002030175 | | | | | | | | | | | |
| r_in | 0.002035 | 0.002039 | 0.002013 | 0.002057 | 0.002065 | 0.002023 | 0.002048 | 0.002031 | | | | | |
| r_out | 0.002055 | 0.002064 | 0.002072 | 0.002061 | 0.002024 | 0.002061 | 0.002092 | 0.002076 | 0.002073 | 0.00206 | 0.00205 | 0.002045 | |

| *reuungsursac* | *dratsummen (* | *iheitsgrade (e Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* |
|---|---|---|---|---|---|
| Unterschiede | 4.49403E-09 | 2 | 2.24701E-09 | 7.580113376 | 0.003799375 | 3.521893261 |
| Innerhalb de | 5.63227E-09 | 19 | 2.96435E-10 | | | |
| Gesamt | 1.01263E-08 | 21 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| within-sd | 1.72173E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.77633E-05 | | | u_bb(rel.) | 0.86688665 | | | | | | | | |
| s_bb_min | 3.94435E-06 | | | | | | | | | | | | |
| u_bb | 1.77633E-05 | | | 0.002049091 | | | | | | | | | |

| at: | | N7-4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.001901448 | 0.001924552 | | | | | | | | | | | |
| r_in | 0.001926 | 0.00193 | 0.001938 | 0.001945 | 0.001903 | 0.001927 | 0.001917 | 0.001913 | | | | | |
| r_out | 0.001963 | 0.001965 | 0.001946 | 0.001928 | 0.001922 | 0.001959 | 0.001947 | 0.001947 | 0.001927 | 0.001963 | 0.001967 | 0.001919 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 3.2593E-09 | 2 | 1.62965E-09 | 6.072795392 | 0.009138855 | 3.521893261 |
| Within groups | 5.0987E-09 | 19 | 2.68352E-10 | | | |
| Total | 8.358E-09 | 21 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| within-sd | 1.63815E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.48395E-05 | | | u_bb(rel.) | 0.766753519 | | | | | | | | |
| s_bb_min | 3.75287E-06 | | | | | | | | | | | | |
| u_bb | 1.48395E-05 | | | 0.001935364 | | | | | | | | | |

| at: | | N7-5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.00189621 | 0.00191579 | | | | | | | | | | | |
| r_in | 0.001939 | 0.001926 | 0.001932 | 0.001938 | 0.001948 | 0.001947 | 0.001922 | 0.001923 | | | | | |
| r_out | 0.001954 | 0.001915 | 0.001942 | 0.001943 | 0.001916 | 0.001953 | 0.001946 | 0.001961 | 0.001939 | 0.001962 | 0.001947 | 0.001961 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.72266E-09 | 2 | 1.36133E-09 | 7.046880729 | 0.005135361 | 3.521893261 |
| Within groups | 3.67046E-09 | 19 | 1.93182E-10 | | | |
| Total | 6.39312E-09 | 21 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| within-sd | 1.3899E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.37465E-05 | | | u_bb(rel.) | 0.709478378 | | | | | | | | |
| s_bb_min | 3.18416E-06 | | | | | | | | | | | | |
| u_bb | 1.37465E-05 | | | 0.001937545 | | | | | | | | | |

| at: | | N7-6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.001897388 | 0.001914612 | | | | | | | | | | | |
| r_in | 0.00194 | 0.00191 | 0.001909 | 0.001937 | 0.001939 | 0.001928 | 0.001934 | 0.001935 | | | | | |
| r_out | 0.001962 | 0.001962 | 0.001948 | 0.001962 | 0.001969 | 0.001948 | 0.001947 | 0.001956 | 0.001959 | 0.001943 | 0.001968 | 0.001928 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 5.7337E-09 | 2 | 2.86685E-09 | 19.3499602 | 2.61213E-05 | 3.521893261 |
| Within groups | 2.815E-09 | 19 | 1.48158E-10 | | | |
| Total | 8.5487E-09 | 21 | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| within-sd | 1.2172E-05 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.09711E-05 | | | u_bb(rel.) | 1.080580865 | | | | | | | | |
| s_bb_min | 2.78852E-06 | | | | | | | | | | | | |
| u_bb | 2.09711E-05 | | | 0.001940727 | | | | | | | | | |
| | | | | | | | Mean: | 0.7972582 | | | | | |

## Nickel in BAM-M109a:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | N7-1 | | | | | | | | | | | |
| r_0 | 0.000322646 | 0.000377354 | | | | | | | | | | | |
| r_in | 0.000342 | 0.000338 | 0.000506 | 0.000404 | 0.000341 | 0.000338 | 0.000353 | | | | | | |
| r_out | 0.000345 | 0.00034 | 0.000356 | 0.000342 | 0.000335 | 0.000337 | 0.000357 | 0.000353 | 0.000354 | 0.000331 | 0.000347 | 0.000332 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.16061E-09 | 2 | 2.0803E-09 | 1.444034206 | 0.262040256 | 3.554557146 | | | | | | | |
| Within groups | 2.59311E-08 | 18 | 1.44062E-09 | | | | | | | | | | |
| Total | 3.00918E-08 | 20 | | | | | | | | | | | |
| within-sd | 3.79555E-05 | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 1.04933E-05 | | | u_bb(rel.) | 2.957449203 | | | | | | | | |
| s_bb_min | 9.09167E-06 | | | | | | | | | | | | |
| u_bb | 1.04933E-05 | | | 0.00035481 | | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | | |
| r_0 | 0.00034464 | 0.00035736 | | | | | | | | | | | |
| r_in | 0.000338 | 0.00035 | 0.000356 | 0.000366 | 0.000362 | 0.000349 | 0.00036 | 0.000352 | | | | | |
| r_out | 0.000363 | 0.000381 | 0.00035 | 0.000359 | 0.000352 | 0.000349 | 0.000356 | 0.000366 | 0.00036 | 0.000351 | 0.000352 | 0.000354 | |
| *reuungsursac* | *dratsummen (* | *lheitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 1.14148E-10 | 2 | 5.70739E-11 | 0.705059896 | 0.506554816 | 3.521893261 | | | | | | | |
| Innerhalb de | 1.53803E-09 | 19 | 8.0949E-11 | | | | | | | | | | |
| Gesamt | 1.65218E-09 | 21 | | | | | | | | | | | |
| within-sd | 8.99716E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.579279926 | | | | | | | | |
| s_bb_min | 2.06118E-06 | | | | | | | | | | | | |
| u_bb | 2.06118E-06 | | | 0.000355818 | | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | | |
| r_0 | 0.000331045 | 0.000338955 | | | | | | | | | | | |
| r_in | 0.000331 | 0.00034 | 0.000331 | 0.000345 | 0.000335 | 0.000327 | 0.000327 | 0.000331 | | | | | |
| r_out | 0.000347 | 0.000329 | 0.000344 | 0.00034 | 0.00034 | 0.000336 | 0.000339 | 0.000334 | 0.000336 | 0.000336 | 0.000332 | 0.000334 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.29659E-11 | 2 | 3.6483E-11 | 1.172085203 | 0.331135737 | 3.521893261 | | | | | | | |
| Within groups | 5.91404E-10 | 19 | 3.11265E-11 | | | | | | | | | | |
| Total | 6.6437E-10 | 21 | | | | | | | | | | | |
| within-sd | 5.57912E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 9.30849E-07 | | | u_bb(rel.) | 0.380809161 | | | | | | | | |
| s_bb_min | 1.27813E-06 | | | | | | | | | | | | |
| u_bb | 1.27813E-06 | | | 0.000335636 | | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | | |
| r_0 | 0.000330266 | 0.000341734 | | | | | | | | | | | |
| r_in | 0.000335 | 0.00034 | 0.000342 | 0.000328 | 0.000331 | 0.000334 | 0.000336 | 0.00033 | | | | | |
| r_out | 0.000335 | 0.00036 | 0.000338 | 0.000338 | 0.000336 | 0.00034 | 0.000353 | 0.000357 | 0.000354 | 0.000359 | 0.000345 | 0.000339 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.08333E-10 | 2 | 3.54167E-10 | 5.326152133 | 0.014574845 | 3.521893261 | | | | | | | |
| Within groups | 1.26342E-09 | 19 | 6.64958E-11 | | | | | | | | | | |
| Total | 1.97175E-09 | 21 | | | | | | | | | | | |
| within-sd | 8.15449E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 6.82166E-06 | | | u_bb(rel.) | 2.000485738 | | | | | | | | |
| s_bb_min | 1.86813E-06 | | | | | | | | | | | | |
| u_bb | 6.82166E-06 | | | 0.000341 | | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | | |
| r_0 | 0.000332012 | 0.000339988 | | | | | | | | | | | |
| r_in | 0.000343 | 0.000336 | 0.000333 | 0.000348 | 0.000359 | 0.000341 | 0.000339 | 0.000343 | | | | | |
| r_out | 0.000335 | 0.000339 | 0.000333 | 0.000338 | 0.00034 | 0.000338 | 0.000343 | 0.000342 | 0.000341 | 0.000343 | 0.000337 | 0.000336 | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.11205E-10 | 2 | 5.56023E-11 | 1.77984695 | 0.195656276 | 3.521893261 | | | | | | | |
| Within groups | 5.93558E-10 | 19 | 3.12399E-11 | | | | | | | | | | |
| Total | 7.04763E-10 | 21 | | | | | | | | | | | |
| within-sd | 5.58927E-06 | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.98519E-06 | | | u_bb(rel.) | 0.583956726 | | | | | | | | |
| s_bb_min | 1.28046E-06 | | | | | | | | | | | | |
| u_bb | 1.98519E-06 | | | 0.000339955 | | | | | | | | | |
| | | | | | | | Mean: | 1.6474244 | | | | | |

## Tellurium in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.00231299 | 0.00237301 | | | | | | | | | | | |
| r_in | 0.002346 | 0.002366 | 0.002325 | 0.002363 | 0.002337 | 0.002306 | 0.002252 | | | | | | |
| r_out | 0.002445 | 0.00247 | 0.002377 | 0.002341 | 0.002427 | 0.002347 | 0.002445 | 0.002442 | 0.002407 | 0.002358 | 0.00241 | 0.002364 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.66687E-08 | 2 | 1.33344E-08 | 7.379646539 | 0.004565011 | 3.554557146 |
| Within groups | 3.25244E-08 | 18 | 1.80691E-09 | | | |
| Total | 5.91931E-08 | 20 | | | | |

| | | | |
|---|---|---|---|
| within-sd | 4.25078E-05 | | |
| effective n | 5.81 | | |
| s_bb | 4.45447E-05 | u_bb(rel.) | 1.87786377 |
| s_bb_min | 1.01821E-05 | | |
| u_bb | 4.45447E-05 | 0.002372095 | |

| at: | | N7-3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.002593365 | 0.002678635 | | | | | | | | | | | |
| r_in | 0.002633 | 0.002683 | 0.002602 | 0.002603 | 0.002682 | 0.002727 | 0.002723 | 0.002631 | | | | | |
| r_out | 0.002778 | 0.002731 | 0.002746 | 0.002582 | 0.002796 | 0.002684 | 0.002813 | 0.002747 | 0.002639 | 0.002687 | 0.002692 | 0.002706 | |

| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* |
|---|---|---|---|---|---|---|
| Unterschiede | 2.13567E-08 | 2 | 1.06784E-08 | 2.921542284 | 0.07829009 | 3.521893261 |
| Innerhalb de | 6.94457E-08 | 19 | 3.65504E-09 | | | |
| Gesamt | 9.08025E-08 | 21 | | | | |

| | | | |
|---|---|---|---|
| within-sd | 6.04569E-05 | | |
| effective n | 6.18 | | |
| s_bb | 3.37064E-05 | u_bb(rel.) | 1.253514702 |
| s_bb_min | 1.38502E-05 | | |
| u_bb | 3.37064E-05 | 0.002688955 | |

| at: | | N7-4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.002478904 | 0.002569096 | | | | | | | | | | | |
| r_in | 0.002425 | 0.002433 | 0.002428 | 0.002491 | 0.002416 | 0.002361 | 0.00252 | 0.002362 | | | | | |
| r_out | 0.002636 | 0.002458 | 0.00253 | 0.002546 | 0.002429 | 0.002519 | 0.002487 | 0.002417 | 0.002552 | 0.002509 | 0.00247 | 0.002386 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.60909E-08 | 2 | 1.30455E-08 | 3.193624013 | 0.063725135 | 3.521893261 |
| Within groups | 7.76121E-08 | 19 | 4.08485E-09 | | | |
| Total | 1.03703E-07 | 21 | | | | |

| | | | |
|---|---|---|---|
| within-sd | 6.39128E-05 | | |
| effective n | 6.18 | | |
| s_bb | 3.80725E-05 | u_bb(rel.) | 1.539044635 |
| s_bb_min | 1.4642E-05 | | |
| u_bb | 3.80725E-05 | 0.002473773 | |

| at: | | N7-5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.002547577 | 0.002612423 | | | | | | | | | | | |
| r_in | 0.002478 | 0.002476 | 0.002508 | 0.002505 | 0.002549 | 0.002531 | 0.00257 | 0.002552 | | | | | |
| r_out | 0.002652 | 0.002578 | 0.002649 | 0.002547 | 0.002578 | 0.002543 | 0.002694 | 0.00258 | 0.002641 | 0.002612 | 0.002602 | 0.00252 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.98612E-08 | 2 | 1.49306E-08 | 7.049380446 | 0.005127997 | 3.521893261 |
| Within groups | 4.02421E-08 | 19 | 2.118E-09 | | | |
| Total | 7.01033E-08 | 21 | | | | |

| | | | |
|---|---|---|---|
| within-sd | 4.60218E-05 | | |
| effective n | 6.18 | | |
| s_bb | 4.55261E-05 | u_bb(rel.) | 1.771914763 |
| s_bb_min | 1.05432E-05 | | |
| u_bb | 4.55261E-05 | 0.002569318 | |

| at: | | N7-6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.002534784 | 0.002625216 | | | | | | | | | | | |
| r_in | 0.002722 | 0.002802 | 0.002733 | 0.002779 | 0.002656 | 0.002732 | 0.002608 | 0.002645 | | | | | |
| r_out | 0.002921 | 0.002861 | 0.002816 | 0.002758 | 0.002825 | 0.002854 | 0.002853 | 0.002766 | 0.002921 | 0.002806 | 0.002798 | 0.00272 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 1.3566E-07 | 2 | 6.78298E-08 | 16.62198947 | 6.71143E-05 | 3.521893261 |
| Within groups | 7.75338E-08 | 19 | 4.08073E-09 | | | |
| Total | 2.13193E-07 | 21 | | | | |

| | | | |
|---|---|---|---|
| within-sd | 6.38806E-05 | | |
| effective n | 6.18 | | |
| s_bb | 0.00010155 | u_bb(rel.) | 3.678368823 |
| s_bb_min | 1.46346E-05 | | |
| u_bb | 0.00010155 | 0.002760727 | |

| | | |
|---|---|---|
| Mean: | 2.1971076 | |

## Thallium in BAM-M109a:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **at:** | | N7-1 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.000239791 | 0.000240209 | | | | | | | | | | | |
| r_in | 0.00024 | 0.000239 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.80952E-13 | 2 | 1.90476E-13 | 2.261157025 | 0.13302567 | 3.554557146 | | | | | | | |
| Within groups | 1.51629E-12 | 18 | 8.42384E-14 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.89724E-12 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.90238E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 1.35229E-07 | | | u_bb(rel.) | 0.056367715 | | | | | | | | |
| s_bb_min | 6.95223E-08 | | | | | | | | | | | | |
| u_bb | 1.35229E-07 | | | 0.000239905 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.000238703 | 0.000239297 | | | | | | | | | | | |
| r_in | 0.000239 | 0.00024 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.00024 | 0.000239 | | | | | |
| r_out | 0.000239 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 2.28788E-12 | 2 | 1.14394E-12 | 6.501035867 | 0.007062644 | 3.521893261 | | | | | | | |
| Innerhalb de | 3.34329E-12 | 19 | 1.75963E-13 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 5.63117E-12 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 4.19479E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 3.95708E-07 | | | u_bb(rel.) | 0.165191013 | | | | | | | | |
| s_bb_min | 9.60995E-08 | | | | | | | | | | | | |
| u_bb | 3.95708E-07 | | | 0.000239545 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.00023974 | 0.00024026 | | | | | | | | | | | |
| r_in | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.74242E-13 | 2 | 8.71212E-14 | 0.648532904 | 0.534002439 | 3.521893261 | | | | | | | |
| Within groups | 2.55238E-12 | 19 | 1.34336E-13 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 2.72662E-12 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.66519E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.035006002 | | | | | | | | |
| s_bb_min | 8.39667E-08 | | | | | | | | | | | | |
| u_bb | 8.39667E-08 | | | 0.000239864 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.000239752 | 0.000240248 | | | | | | | | | | | |
| r_in | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | 0.000239 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.000239 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.000239 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.25E-12 | 2 | 1.625E-12 | 13.01245211 | 0.00027565 | 3.521893261 | | | | | | | |
| Within groups | 2.37273E-12 | 19 | 1.2488E-13 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 5.62273E-12 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 3.53384E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 4.92612E-07 | | | u_bb(rel.) | 0.205683434 | | | | | | | | |
| s_bb_min | 8.09577E-08 | | | | | | | | | | | | |
| u_bb | 4.92612E-07 | | | 0.0002395 | | | | | | | | | |
| | | | | | | | | | | | | | |
| **at:** | | N7-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 0.000239842 | 0.000240158 | | | | | | | | | | | |
| r_in | 0.00024 | 0.00024 | 0.000241 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | | | | | |
| r_out | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | 0.00024 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 7.95455E-14 | 2 | 3.97727E-14 | 0.816953317 | 0.45670454 | 3.521893261 | | | | | | | |
| Within groups | 9.25E-13 | 19 | 4.86842E-14 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 1.00455E-12 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 2.20645E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.021057731 | | | | | | | | |
| s_bb_min | 5.05481E-08 | | | | | | | | | | | | |
| u_bb | 5.05481E-08 | | | 0.000240045 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 0.1220163 | | | | | |

## Zinc in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.004151238 | 0.004224762 | | | | | | | | | | | |
| r_in | 0.00433 | 0.004282 | 0.004321 | 0.004216 | 0.004243 | 0.004176 | 0.004213 | | | | | | |
| r_out | 0.004213 | 0.004195 | 0.004269 | 0.00417 | 0.00418 | 0.004213 | 0.004333 | 0.004185 | 0.004234 | 0.004254 | 0.004258 | 0.004182 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 8.15357E-09 | 2 | 4.07679E-09 | 1.517344287 | 0.246052492 | 3.554557146 |
| Within groups | 4.83622E-08 | 18 | 2.68679E-09 | | | |
| Total | 5.65158E-08 | 20 | | | | |

| within-sd | 5.18343E-05 | | | | | |
|---|---|---|---|---|---|---|
| effective n | 5.81 | | | | | |
| s_bb | 1.54681E-05 | | | u_bb(rel.) | 0.365622165 | |
| s_bb_min | 1.24161E-05 | | | | | |
| u_bb | 1.54681E-05 | | | 0.004230619 | | |

| at: | | N7-3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.0043357 | 0.0044263 | | | | | | | | | | | |
| r_in | 0.004344 | 0.004381 | 0.004305 | 0.004338 | 0.004334 | 0.004353 | 0.004332 | 0.004437 | | | | | |
| r_out | 0.004262 | 0.004556 | 0.004373 | 0.00431 | 0.004326 | 0.004307 | 0.004428 | 0.004392 | 0.004356 | 0.004306 | 0.004355 | 0.004346 | |

| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* |
|---|---|---|---|---|---|---|
| Unterschiede | 1.26161E-09 | 2 | 6.30807E-10 | 0.152078092 | 0.859956322 | 3.521893261 |
| Innerhalb de | 7.88104E-08 | 19 | 4.14791E-09 | | | |
| Gesamt | 8.0072E-08 | 21 | | | | |

| within-sd | 6.44043E-05 | | | | | |
|---|---|---|---|---|---|---|
| effective n | 6.18 | | | | | |
| s_bb | 0 | | | u_bb(rel.) | 0.338467002 | |
| s_bb_min | 1.47545E-05 | | | | | |
| u_bb | 1.47545E-05 | | | 0.004359227 | | |

| at: | | N7-4 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.004192286 | 0.004261714 | | | | | | | | | | | |
| r_in | 0.004122 | 0.004186 | 0.004282 | 0.004253 | 0.004167 | 0.004158 | 0.004333 | 0.004187 | | | | | |
| r_out | 0.004215 | 0.004185 | 0.004175 | 0.004202 | 0.004143 | 0.004177 | 0.00416 | 0.004202 | 0.004149 | 0.004199 | 0.004201 | 0.004146 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 6.97736E-09 | 2 | 3.48868E-09 | 1.476175942 | 0.253564926 | 3.521893261 |
| Within groups | 4.49032E-08 | 19 | 2.36332E-09 | | | |
| Total | 5.18805E-08 | 21 | | | | |

| within-sd | 4.8614E-05 | | | | | |
|---|---|---|---|---|---|---|
| effective n | 6.18 | | | | | |
| s_bb | 1.34923E-05 | | | u_bb(rel.) | 0.321608139 | |
| s_bb_min | 1.11371E-05 | | | | | |
| u_bb | 1.34923E-05 | | | 0.004195273 | | |

| at: | | N7-5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.004130054 | 0.004189946 | | | | | | | | | | | |
| r_in | 0.004218 | 0.004261 | 0.00425 | 0.004214 | 0.004267 | 0.004245 | 0.004177 | 0.004169 | | | | | |
| r_out | 0.004222 | 0.00414 | 0.004151 | 0.004177 | 0.004095 | 0.004148 | 0.004204 | 0.004139 | 0.004133 | 0.004246 | 0.004221 | 0.004199 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 1.51606E-08 | 2 | 7.58029E-09 | 4.209629783 | 0.030664073 | 3.521893261 |
| Within groups | 3.42133E-08 | 19 | 1.8007E-09 | | | |
| Total | 4.93739E-08 | 21 | | | | |

| within-sd | 4.24347E-05 | | | | | |
|---|---|---|---|---|---|---|
| effective n | 6.18 | | | | | |
| s_bb | 3.05767E-05 | | | u_bb(rel.) | 0.729626841 | |
| s_bb_min | 9.72147E-06 | | | | | |
| u_bb | 3.05767E-05 | | | 0.004190727 | | |

| at: | | N7-6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 0.004128026 | 0.004191974 | | | | | | | | | | | |
| r_in | 0.004263 | 0.004209 | 0.004253 | 0.004287 | 0.004232 | 0.004368 | 0.004257 | 0.004288 | | | | | |
| r_out | 0.004218 | 0.004245 | 0.004242 | 0.004198 | 0.004209 | 0.004198 | 0.004174 | 0.004181 | 0.00426 | 0.004185 | 0.00433 | 0.004233 | |

| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* |
|---|---|---|---|---|---|---|
| Between groups | 2.26237E-08 | 2 | 1.13118E-08 | 5.542898694 | 0.01269769 | 3.521893261 |
| Within groups | 3.87749E-08 | 19 | 2.04078E-09 | | | |
| Total | 6.13985E-08 | 21 | | | | |

| within-sd | 4.5175E-05 | | | | | |
|---|---|---|---|---|---|---|
| effective n | 6.18 | | | | | |
| s_bb | 3.87264E-05 | | | u_bb(rel.) | 0.914632263 | |
| s_bb_min | 1.03493E-05 | | | | | |
| u_bb | 3.87264E-05 | | | 0.004234091 | | |

| | | | | | | | Mean: | 0.5866138 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## Aluminium in BAM-M109a:

| at: | | N7-1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r_0 | 7.51223E-05 | 7.68777E-05 | | | | | | | | | | | |
| r_in | 0.000076 | 0.000077 | 0.000076 | 0.000077 | 0.000076 | 0.000076 | 0.000077 | | | | | | |
| r_out | 0.000078 | 0.000081 | 0.000077 | 0.000076 | 0.000079 | 0.000078 | 0.000081 | 0.00008 | 0.000078 | 0.000078 | 0.000078 | 0.000078 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 2.44286E-11 | 2 | 1.22143E-11 | 7.781188766 | 0.003670947 | 3.554557146 | | | | | | | |
| Within groups | 2.8255E-11 | 18 | 1.56972E-12 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 5.26835E-11 | 20 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.25288E-06 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 5.81 | | | | | | | | | | | | |
| s_bb | 1.35361E-06 | | | u_bb(rel.) | 1.744985896 | | | | | | | | |
| s_bb_min | 3.0011E-07 | | | | | | | | | | | | |
| u_bb | 1.35361E-06 | | | 7.75714E-05 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| at: | | N7-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 7.99652E-05 | 8.20348E-05 | | | | | | | | | | | |
| r_in | 0.000081 | 0.000081 | 0.00008 | 0.000082 | 0.000081 | 0.000081 | 0.000082 | 0.000081 | | | | | |
| r_out | 0.000085 | 0.000085 | 0.000085 | 0.000083 | 0.000083 | 0.000083 | 0.000088 | 0.000083 | 0.000084 | 0.000085 | 0.000086 | 0.000081 | |
| | | | | | | | | | | | | | |
| *reuungsursac* | *dratsummen (* | *heitsgrade (e* | *Quadratsum* | *rüfgröße (F)* | *P-Wert* | *tischer F-Wert* | | | | | | | |
| Unterschiede | 5.41477E-11 | 2 | 2.70739E-11 | 12.46538186 | 0.000348222 | 3.521893261 | | | | | | | |
| Innerhalb de | 4.12666E-11 | 19 | 2.17192E-12 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Gesamt | 9.54143E-11 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.47374E-06 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 2.00705E-06 | | | u_bb(rel.) | 2.423442843 | | | | | | | | |
| s_bb_min | 3.37624E-07 | | | | | | | | | | | | |
| u_bb | 2.00705E-06 | | | 8.28182E-05 | | | | | | | | | |
| | | | | | | | | | | | | | |
| at: | | N7-4 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 7.48936E-05 | 7.71064E-05 | | | | | | | | | | | |
| r_in | 0.000073 | 0.000074 | 0.000074 | 0.000076 | 0.000076 | 0.000074 | 0.000072 | 0.000076 | | | | | |
| r_out | 0.00008 | 0.000077 | 0.000076 | 0.000076 | 0.000076 | 0.000078 | 0.000077 | 0.000076 | 0.000076 | 0.00008 | 0.000079 | 0.000076 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 3.96932E-11 | 2 | 1.98466E-11 | 8.096639827 | 0.002862804 | 3.521893261 | | | | | | | |
| Within groups | 4.65731E-11 | 19 | 2.45121E-12 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 8.62662E-11 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.56564E-06 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.67749E-06 | | | u_bb(rel.) | 2.204580919 | | | | | | | | |
| s_bb_min | 3.58675E-07 | | | | | | | | | | | | |
| u_bb | 1.67749E-06 | | | 7.60909E-05 | | | | | | | | | |
| | | | | | | | | | | | | | |
| at: | | N7-5 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 7.4412E-05 | 7.5588E-05 | | | | | | | | | | | |
| r_in | 0.000076 | 0.000075 | 0.000076 | 0.000076 | 0.000076 | 0.000077 | 0.000076 | 0.000077 | | | | | |
| r_out | 0.000077 | 0.000077 | 0.000076 | 0.000076 | 0.000076 | 0.000077 | 0.000078 | 0.000079 | 0.000077 | 0.000077 | 0.000078 | 0.000078 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 1.07765E-11 | 2 | 5.38826E-12 | 7.736352484 | 0.003484522 | 3.521893261 | | | | | | | |
| Within groups | 1.32332E-11 | 19 | 6.96486E-13 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 2.40097E-11 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 8.34557E-07 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 8.71185E-07 | | | u_bb(rel.) | 1.137452091 | | | | | | | | |
| s_bb_min | 1.91191E-07 | | | | | | | | | | | | |
| u_bb | 8.71185E-07 | | | 7.65909E-05 | | | | | | | | | |
| | | | | | | | | | | | | | |
| at: | | N7-6 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| r_0 | 7.40865E-05 | 7.59135E-05 | | | | | | | | | | | |
| r_in | 0.000078 | 0.000077 | 0.000075 | 0.000076 | 0.000076 | 0.000078 | 0.000075 | 0.000076 | | | | | |
| r_out | 0.00008 | 0.00008 | 0.000078 | 0.00008 | 0.000079 | 0.00008 | 0.000079 | 0.000078 | 0.00008 | 0.000078 | 0.000076 | 0.000077 | |
| | | | | | | | | | | | | | |
| *Source of variation* | *sums of squares (SS)* | *degrees of freedom (df)* | *Mean squares (MS)* | *F-value* | *P-value* | *critical F-value* | | | | | | | |
| Between groups | 4.13295E-11 | 2 | 2.06648E-11 | 12.3492724 | 0.000366204 | 3.521893261 | | | | | | | |
| Within groups | 3.17938E-11 | 19 | 1.67336E-12 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | 7.31234E-11 | 21 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| within-sd | 1.29358E-06 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| effective n | 6.18 | | | | | | | | | | | | |
| s_bb | 1.75275E-06 | | | u_bb(rel.) | 2.260290093 | | | | | | | | |
| s_bb_min | 2.9635E-07 | | | | | | | | | | | | |
| u_bb | 1.75275E-06 | | | 7.75455E-05 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | Mean: | 2.0090265 | | | | | |