



CERTIFICATE OF ANALYSIS FOR

COPPER ORE REFERENCE
MATERIAL OREAS 96

SUMMARY STATISTICS OREAS 96

Constituent	Recommended value	95% Confidence Interval		Tolerance limits 1- α =0.99, ρ =0.95	
		Low	High	Low	High
<u>4 Acid</u>					
Silver, Ag (ppm)	11.5	11.3	11.7	11.1	11.8
Bismuth, Bi (ppm)	26.3	25.3	27.3	25.5	27.1
Cobalt, Co (ppm)	49.9	47.6	52.1	48.9	50.8
Copper, Cu (wt.%)	3.93	3.87	3.99	3.88	3.98
Lead, Pb (ppm)	101	96	106	99	104
Sulphur, S (wt.%)	4.19	3.58	4.79	4.12	4.25
Antimony, Sb (ppm)	5.09	4.68	5.51	5.02	5.17
Selenium, Se (ppm)	40.7	38.5	42.8	39.4	41.9
Tin, Sn (ppm)	65.6	62.9	68.3	63.6	67.5
Zinc, Zn (ppm)	457	445	469	449	464
<u>Aqua Regia</u>					
Silver, Ag (ppm)	11.5	11.2	11.8	11.2	11.8
Bismuth, Bi (ppm)	27.9	27.1	28.7	27.1	28.7
Cobalt, Co (ppm)	49.2	46.7	51.6	47.2	51.1
Copper, Cu (wt.%)	3.91	3.86	3.96	3.83	3.98
Lead, Pb (ppm)	100	95	104	98	102
Sulphur, S (wt.%)	4.38	4.13	4.62	4.25	4.50
Antimony, Sb (ppm)	4.53	4.16	4.89	4.28	4.77
Selenium, Se (ppm)	41.0	38.0	44.0	39.4	42.5
Tin, Sn (ppm)	52.8	49.5	56.2	51.1	54.6
Zinc, Zn (ppm)	448	428	469	439	458
Sulphur, S (wt.%) by LECO	4.33	4.19	4.46	4.24	4.41

"~" approximate values, based on 4 or 5 labs only; intervals may appear asymmetric due to rounding

Prepared by:
Ore Research & Exploration Pty Ltd
February 2006

INTRODUCTION

OREAS certified reference materials (CRMs) are intended to provide a low cost method of evaluating and improving the quality of precious and base metal analysis of geological samples. To the analyst they provide an effective means of calibrating analytical equipment, assessing new techniques and routinely monitoring in-house procedures. To the geologist they provide a means of implementing quality control in analytical data sets generated in exploration, from the grass roots level through to prospect evaluation, and in grade control at mining operations.

SOURCE MATERIAL

Reference material OREAS 96 is one of a suite of nine copper CRMs (OREAS 90 to OREAS 98) prepared from material from the CSA mine located near the town Cobar in central western New South Wales, Australia. The copper ore body is hosted by the Early Devonian CSA Siltstone, a thinly bedded turbiditic sequence of carbonaceous siltstones and mudstones with minor coarser units. The CSA Siltstone is part of the Cobar Supergroup, consisting of lower syn-rift sediments and upper post-rift sag phase sediments. The mineralisation is structurally controlled and confined to a number of steeply dipping bodies within a major shear zone on the eastern margin of the Early Devonian Cobar Basin. It is characterised by low-grade greenschist alteration and epigenetic low-grade mineralisation enveloping higher-grade shoots of vein complexes or sub-massive to massive sulphides. The sulphides include chalcopyrite, pyrrhotite, pyrite, sphalerite, galena, bornite and cubanite. Iron-rich chlorite and silica are prominent alterations in the siltstone host.

Table 1. Indicative (uncertified) major and trace element composition of OREAS 96 (values are means of duplicate determinations; SiO₂ to C in wt.%, As to Zr in ppm).

Constituent	Mean value	Constituent	Mean value	Constituent	Mean value
SiO ₂	55.8	As	16.0	Ni	39.3
Al ₂ O ₃	12.7	Ba	353	Pr	9.32
CaO	0.46	Be	2.17	Rb	141
Fe ₂ O ₃	14.3	Cd	1.00	Re	<0.1
K ₂ O	2.51	Ce	81.70	Sb	5.53
MgO	3.50	Cs	4.97	Sc	11.0
Na ₂ O	0.09	Dy	4.87	Sm	6.47
P ₂ O ₅	0.15	Er	2.73	Sr	18.5
SO ₃	11.0	Eu	1.00	Ta	0.80
TiO ₂	0.62	Ga	13.5	Tb	0.80
MnO	0.13	Gd	5.40	Te	<0.2
LOI	4.01	Hf	3.47	Th	14.5
		Ho	0.96	Tl	0.77
C	0.10	In	3.67	Tm	0.38
		La	39.1	U	3.77
		Li	31.2	W	4.67
		Lu	0.36	Y	23.8
		Mo	0.50	Yb	2.52
		Nb	10.5	Zr	109
		Nd	34.3		

The approximate major and trace element composition of OREAS 96 has been determined by various total methods. These values, presented in Table 1, are based on the means of duplicate determinations at one laboratory and are uncertified. The constituents SiO₂ to MnO (excluding Na₂O) have been determined by borate fusion X-ray fluorescence analysis, LOI by thermo-gravimetric analysis, C by total combustion analysis, Na₂O, Co, Ni and Sc by 4-acid ICPOES and the remaining trace constituents by 4-acid ICP-MS.

COMMUNITION AND HOMOGENISATION PROCEDURES

The material constituting OREAS 96 was prepared in the following manner:

- a) *drying to constant mass at 65^o C;*
- b) *crushing;*
- c) *milling to minus 75 microns;*
- d) *homogenisation;*
- e) *packaging into 10g lots under nitrogen in laminated foil pouches.*

ANALYTICAL PROGRAM FOR OREAS 96

Sixteen commercial laboratories participated in the analytical program to certify Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn by both total and partial methods. Their results together with uncorrected means, medians, one sigma standard deviations, relative standard deviations and percent deviation of lab means from the corrected mean of means (PDM³) are presented in an appendix (Tables A2 – A22). The analytical methods employed by each laboratory are indicated as codes at the head of each laboratory data set and explained in Table A1 of the appendix.

The intent of the certification program was to characterise the analytes by a) total methods (mainly HF-HCl-HNO₃-HClO₄ digest ICP-OES and ICP-MS), and b) aqua regia digest ICP-OES, ICP-MS or AAS. A batch of five dried and vacuum-packed samples were submitted to each of the participating laboratories for analysis. Each batch was composed of two 10g sub-samples scoop-split from each of two separate 1kg test units taken during the bagging stage and immediately following homogenisation. This two-stage nested design for the interlaboratory programme was amenable to analysis of variance (ANOVA) treatment and enables a comparative assessment of within- and between-unit homogeneity. A fifth randomly chosen sample was included from a third 1kg test unit to make up batches of five samples.

STATISTICAL EVALUATION OF OREAS 96

Recommended Value and Confidence Limits

The certified value is the mean of means of accepted replicate values of accepted participating laboratories computed according to the formulae

$$\bar{x}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} x_{ij}$$

$$\bar{\bar{x}} = \frac{1}{p} \sum_{i=1}^p \bar{x}_i$$

where

x_{ij} is the j th result reported by laboratory i ;
 p is the number of participating laboratories;
 n_i is the number of results reported by laboratory i ;
 \bar{x}_i is the mean for laboratory i ;
 $\bar{\bar{x}}$ is the mean of means.

The confidence limits were obtained by calculation of the variance of the consensus value (mean of means) and reference to Student's- t distribution with degrees of freedom $(p-1)$.

$$\hat{V}(\bar{\bar{x}}) = \frac{1}{p(p-1)} \sum_{i=1}^p (\bar{x}_i - \bar{\bar{x}})^2$$

$$\text{Confidence limits} = \bar{\bar{x}} \pm t_{1-x/2}(p-1)(\hat{V}(\bar{\bar{x}}))^{1/2}$$

where $t_{1-x/2}(p-1)$ is the $1-x/2$ fractile of the t -distribution with $(p-1)$ degrees of freedom.

The distribution of the values are assumed to be symmetrical about the mean in the calculation of the confidence limits.

The test for rejection of individual outliers from each laboratory data set was based on z scores (rejected if $|z_i| > 2.5$) computed from the robust estimators of location and scale, T and S , respectively, according to the formulae

$$S = 1.483 \frac{\text{median}_{j=1, \dots, n} |x_j - \text{median}_{i=1, \dots, n}(x_i)|}{}$$

$$z_i = \frac{x_i - T}{S}$$

where

T is the median value in a data set;
 S is the median of all absolute deviations from the sample median multiplied by 1.483, a correction factor to make the estimator consistent with the usual parameter of a normal distribution.

Individual outliers and, more rarely, laboratory means deemed to be outlying are shown in bold in the tabulated results (Appendix) and have been omitted in the determination of recommended values. The magnitude of the confidence interval is inversely proportional to the number of participating laboratories and interlaboratory agreement. It is a measure of the reliability of the recommended value, i.e. the narrower the confidence interval the greater the certainty in the recommended value.

Table 2. Recommended values and 95% confidence intervals for OREAS 96

Constituent	Recommended value	95% Confidence Interval	
		Low	High
4 Acid			
Silver, Ag (ppm)	11.5	11.3	11.7
Bismuth, Bi (ppm)	26.3	25.3	27.3
Cobalt, Co (ppm)	49.9	47.6	52.1
Copper, Cu (wt.%)	3.93	3.87	3.99
Lead, Pb (ppm)	101	96	106
Sulphur, S (wt.%)	4.19	3.58	4.79
Antimony, Sb (ppm)	5.09	4.68	5.51
Selenium, Se (ppm)	40.7	38.5	42.8
Tin, Sn (ppm)	65.6	62.9	68.3
Zinc, Zn (ppm)	457	445	469
Aqua Regia			
Silver, Ag (ppm)	11.5	11.2	11.8
Bismuth, Bi (ppm)	27.9	27.1	28.7
Cobalt, Co (ppm)	49.2	46.7	51.6
Copper, Cu (wt.%)	3.91	3.86	3.96
Lead, Pb (ppm)	100	95	104
Sulphur, S (wt.%)	4.38	4.13	4.62
Antimony, Sb (ppm)	4.53	4.16	4.89
Selenium, Se (ppm)	41.0	38.0	44.0
Tin, Sn (ppm)	52.8	49.5	56.2
Zinc, Zn (ppm)	448	428	469
Sulphur, S (wt.%) by LECO	4.33	4.19	4.46

Intervals may appear asymmetric due to rounding

Statement of Homogeneity

The standard deviation of each laboratory data set includes error due to both the imprecision of the analytical method employed and to possible inhomogeneity of the material analysed. The standard deviation of the pooled individual analyses of all participating laboratories includes error due to the imprecision of each analytical method, to possible inhomogeneity of the material analysed and, in particular, to deficiencies in accuracy of each analytical method. In determining tolerance intervals the component of error attributable to measurement inaccuracy was eliminated by transformation of the individual results of each data set to a common mean (the uncorrected grand mean) according to the formula:

$$x'_{ij} = x_{ij} - \bar{x}_i + \frac{\sum_{i=1}^p \sum_{j=1}^{n_i} x_{ij}}{\sum_{i=1}^p n_i}$$

where

x_{ij} is the j th raw result reported by laboratory i ;
 x'_{ij} is the j th transformed result reported by laboratory i ;
 n_i is the number of results reported by laboratory i ;
 p is the number of participating laboratories;
 \bar{x}_i is the raw mean for laboratory i .

The homogeneity of each constituent was determined from tables of factors for two-sided tolerance limits for normal distributions (ISO 3207) in which

$$\begin{aligned} \text{Lower limit is } \bar{x} - k'_2(n, p, 1 - \alpha) s_g'' \\ \text{Upper limit is } \bar{x} + k'_2(n, p, 1 - \alpha) s_g'' \end{aligned}$$

where

n is the number of results;
 $1 - \alpha$ is the confidence level;
 p is the proportion of results expected within the tolerance limits;
 k'_2 is the factor for two – sided tolerance limits (m, α unknown);
 s_g'' is the corrected grand standard deviation.

The meaning of these tolerance limits may be illustrated for copper by 4 acid digest, where 99% of the time at least 95% of subsamples will have concentrations lying between 3.88 and 3.98% (see Table 3). Put more precisely, this means that if the same number of subsamples were taken and analysed in the same manner repeatedly, 99% of the tolerance intervals so constructed would cover at least 95% of the total population, and 1% of the tolerance intervals would cover less than 95% of the total population (ISO Guide 35).

The corrected grand standard deviation, s_g'' , used to compute the tolerance intervals is the weighted means of standard deviations of all data sets for a particular constituent according to the formula:

$$s_g'' = \frac{\sum_{i=1}^p (s_i (1 - \frac{s_i}{s'_g}))}{\sum_{i=1}^p (1 - \frac{s_i}{s'_g})}$$

where

$1 - (\frac{s_i}{s'_g})$ is the weighting factor for laboratory i ;
 s'_g is the grand standard deviation computed from the transformed (i.e. means - adjusted) results

according to the formula:

$$s'_g = \left[\frac{\sum_{i=1}^p \sum_{j=i}^{n_i} (x'_{ij} - \bar{x}'_i)^2}{\sum_{i=1}^p n_i - 1} \right]^{1/2}$$

where \bar{x}'_i is the transformed mean for laboratory i

Table 3. Recommended values and tolerance limits for OREAS 96

Constituent	Recommended value	Tolerance limits 1- α =0.99, ρ =0.95	
		Low	High
4 Acid			
Silver, Ag (ppm)	11.5	11.1	11.8
Bismuth, Bi (ppm)	26.3	25.5	27.1
Cobalt, Co (ppm)	49.9	48.9	50.8
Copper, Cu (wt.%)	3.93	3.88	3.98
Lead, Pb (ppm)	101	99	104
Sulphur, S (wt.%)	4.19	4.12	4.25
Antimony, Sb (ppm)	5.09	5.02	5.17
Selenium, Se (ppm)	40.7	39.4	41.9
Tin, Sn (ppm)	65.6	63.6	67.5
Zinc, Zn (ppm)	457	449	464
Aqua Regia			
Silver, Ag (ppm)	11.5	11.2	11.8
Bismuth, Bi (ppm)	27.9	27.1	28.7
Cobalt, Co (ppm)	49.2	47.2	51.1
Copper, Cu (wt.%)	3.91	3.83	3.98
Lead, Pb (ppm)	100	98	102
Sulphur, S (wt.%)	4.38	4.25	4.50
Antimony, Sb (ppm)	4.53	4.28	4.77
Selenium, Se (ppm)	41.0	39.4	42.5
Tin, Sn (ppm)	52.8	51.1	54.6
Zinc, Zn (ppm)	448	439	458
Sulphur, S (wt.%) by LECO	4.33	4.24	4.41

Intervals may appear asymmetric due to rounding

The weighting factors were applied to compensate for the considerable variation in analytical precision amongst participating laboratories. Hence, weighting factors for each data set have been constructed so as to be inversely proportional to the standard deviation of that data set. A weighting factor of zero was applied to those data sets where $s_i / 2s'_g > 1$ (i.e. where the weighting factor $1 - s_i / 2s'_g < 0$). It should be noted that estimates of tolerance by this method are considered conservative as a significant proportion of the observed variance, even in those laboratories exhibiting the best analytical precision, can presumably be attributed to measurement error. Outliers were removed prior to the calculation of tolerance intervals and a weighting factor of zero was applied to those data sets where $s_i / 2s'_g > 1$ (i.e. where the weighting factor $1 - s_i / 2s'_g < 0$).

Performance Gates

Performance gates provide an indication of a level of performance that might reasonably be expected for a particular analyte from a laboratory being monitored by this standard in a QA/QC program. They incorporate errors attributable to measurement (analytical bias and precision) and standard variability. For an effective standard the contribution of the latter should be negligible in comparison to measurement errors. Two methods have been employed to calculate performance gates.

Table 4. Performance gates for OREAS 96

Constituent	Recommended value	Performance Gates							
		1 σ		2 σ		3 σ		5%	
		Low	High	Low	High	Low	High	Low	High
4 Acid									
Silver, Ag (ppm)	11.5	11.0	11.9	10.6	12.4	10.2	12.8	10.9	12.1
Bismuth, Bi (ppm)	26.3	24.6	28.0	22.9	29.7	21.2	31.4	25.0	27.6
Cobalt, Co (ppm)	49.9	45.9	53.8	42.0	57.7	38.0	61.7	47.4	52.4
Copper, Cu (ppm)	3.93	3.82	4.04	3.71	4.15	3.60	4.26	3.73	4.13
Lead, Pb (ppm)	101	92	110	83	120	74	129	96	106
Sulphur, S (ppm)	4.19	3.73	4.64	3.28	5.10	2.82	5.55	3.98	4.39
Antimony, Sb (ppm)	5.09	4.26	5.92	3.44	6.75	2.61	7.58	4.84	5.35
Selenium, Se (ppm)	40.7	37.1	44.2	33.6	47.8	30.0	51.3	38.6	42.7
Tin, Sn (ppm)	65.6	61.1	70.0	56.6	74.5	52.2	79.0	62.3	68.8
Zinc, Zn (ppm)	457	435	478	414	499	392	521	434	479
Aqua Regia									
Silver, Ag (ppm)	11.5	11.0	12.0	10.5	12.4	10.1	12.9	10.9	12.1
Bismuth, Bi (ppm)	27.9	26.4	29.3	25.0	30.7	23.6	32.2	26.5	29.3
Cobalt, Co (ppm)	49.2	44.9	53.4	40.6	57.7	36.3	62.0	46.7	51.6
Copper, Cu (ppm)	3.91	3.79	4.02	3.68	4.14	3.56	4.26	3.71	4.10
Lead, Pb (ppm)	100	92	107	85	115	77	123	95	105
Sulphur, S (ppm)	4.38	4.28	4.47	4.19	4.56	4.10	4.65	4.16	4.59
Antimony, Sb (ppm)	4.53	4.06	4.99	3.60	5.46	3.13	5.92	4.30	4.75
Selenium, Se (ppm)	41.0	36.1	45.9	31.2	50.8	26.2	55.7	38.9	43.0
Tin, Sn (ppm)	52.8	47.3	58.4	41.7	63.9	36.2	69.5	50.2	55.5
Zinc, Zn (ppm)	448	415	481	382	514	349	547	426	471
Sulphur, S (wt.%) by LECO	4.33	4.12	4.53	3.92	4.73	3.72	4.93	4.11	4.54

Intervals may appear asymmetric due to rounding

The first method uses the standard deviation of the pooled individual analyses generated from the certification program. All individual and lab dataset (batch) outliers are removed prior to determination of the standard deviation. These outliers can only be removed if they can be confidently deemed to be analytical rather than arising from inhomogeneity of the CRM. Performance gates have been calculated for one, two and three standard deviations of the accepted pool of certification data and are presented in Table 4. As a guide these intervals may be regarded as informational (1 σ), warning or rejection for multiple outliers (2 σ), or rejection for individual outliers (3 σ) in QC monitoring although their precise application should be at the discretion of the QC manager concerned.

For the second method a $\pm 5\%$ error bar on the recommended value is used as the window of acceptability (refer Table 4).

Both methods should be used with caution when concentration levels approach lower limits of detection of the analytical methods employed, as performance gates calculated from standard deviations tend to be excessively wide whereas those determined by the 5% method are too narrow.

PARTICIPATING LABORATORIES

Acme Analytical Laboratories, Vancouver, BC, Canada
Activation Laboratories, Ancaster, ON, Canada
Actlabs Pacific, Redcliffe, WA, Australia
ALS Chemex, Malaga, WA, Australia
ALS Chemex, Stafford, QLD, Australia
ALS Chemex, North Vancouver, BC, Canada
Amdel Laboratories, Thebarton, SA, Australia
Amdel Laboratories, Wangara, WA, Australia
Genalysis Laboratory Services, Maddington, WA, Australia
Intertek Testing Services, Jakarta, Indonesia
Kalgoorlie Assay Laboratories, Kalgoorlie WA, Australia
McPhar Geoservices (Phil.) Inc., Makati, Philippines
OMAC Laboratories, Loughrea, Co. Galway, Ireland
SGS, Don Mills, Ontario, Canada
SGS, Welshpool, WA, Australia
Ultra Trace Laboratories, Canning Vale, WA, Australia

PREPARER AND SUPPLIER OF THE REFERENCE MATERIAL

The siltstone reference material OREAS 96 has been prepared and certified and is supplied by:

Ore Research & Exploration Pty Ltd
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It is available in unit sizes of 10g in laminated foil packets.

INTENDED USE

OREAS 96 is a reference material intended for the following:

- i) for the calibration of instruments used in the determination of the concentration of Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn;
- ii) for the verification of analytical methods for Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn;
- iii) for the preparation of secondary reference materials of similar composition;

STABILITY AND STORAGE INSTRUCTIONS

OREAS 96 has been prepared from a sediment-hosted sulphide-bearing copper ore. To prolong its shelf life it has been packaged under nitrogen in robust foil laminate pouches. It is considered to have long-term stability under normal storage conditions.

INSTRUCTIONS FOR THE CORRECT USE OF THE REFERENCE MATERIAL

The recommended values for OREAS 96 refer to the concentration levels of Ag, Bi, Co, Cu, Pb, S, Sb, Se, Sn and Zn after removal of hygroscopic moisture by drying in air to constant mass at the reduced temperature of 65⁰ C. If the reference material is not dried prior to analysis, the recommended value should be corrected to the moisture-bearing basis.

LEGAL NOTICE

Ore Research & Exploration Pty Ltd has prepared and statistically evaluated the property values of this reference material to the best of its ability. The Purchaser by receipt hereof releases and indemnifies Ore Research & Exploration Pty Ltd from and against all liability and costs arising from the use of this material and information.

CERTIFYING OFFICER

Dr Paul Hamlyn

CERTIFICATION DATE

February 25, 2006

REFERENCES

ISO Guide 35 (1985), Certification of reference materials - General and statistical principals.
ISO Guide 3207 (1975), Statistical interpretation of data - Determination of a statistical tolerance interval.
Kleeman, A. W. (1967), *J. Geol. Soc. Australia*,

APPENDIX

Analytical Results for OREAS 96

Table A1. Explanation of abbreviations used in Tables A2 – A22.

Abbreviation	Explanation
Std.Dev.	one sigma standard deviation
Rel.Std.Dev.	one sigma relative standard deviation
PDM ³	percent deviation of lab mean from corrected mean of means
-	outlying values shown in bold
AF	alkali fusion
BF	borate fusion
4A	four acid (HF-HNO ₃ -HClO ₄ -HCl) digestion
AR	aqua regia digest
OES	inductively coupled plasma optical emission spectrometry
MS	inductively coupled plasma mass spectrometry
AAS	atomic absorption spectrometry
Leco	Leco infrared furnace

Table A2. Analytical results for 4 acid silver in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	11.0	11.6	11.2	12.2	11.1	11.2	11.3	11.5	12.2	13.5	9.61	11.4	13.2	11.5	9.47	11
2	11.0	12.0	11.0	11.7	11.5	11.0	11.5	11.1	11.8	13.2	9.78	11.2	12.0	11.4	9.76	11
3	11.0	11.7	12.3	12.0	10.8	11.0	11.5	10.6	12.0	13.5	9.73	11.2	12.0	11.6	9.62	11
4	11.0	11.9	11.3	12.4	11.3	12.0	11.6	13.6	11.7	13.8	9.73	11.4	12.2	11.6	9.38	11
5	11.0	11.5	11.8	11.9	11.1	11.2	11.8	11.4	11.8	13.4	9.67	11.3	12.4	11.7	9.29	11
Mean	11.0	11.7	11.5	12.0	11.1	11.3	11.5	11.6	11.9	13.5	9.7	11.3	12.4	11.6	9.5	11.0
Median	11.0	11.7	11.3	12.0	11.1	11.2	11.5	11.4	11.8	13.5	9.7	11.3	12.2	11.6	9.5	11.0
Std.Dev.	0.00	0.21	0.53	0.26	0.28	0.41	0.18	1.14	0.20	0.21	0.07	0.10	0.50	0.11	0.19	0.00
Rel.Std.Dev.	0.00%	1.77%	4.57%	2.13%	2.55%	3.68%	1.57%	9.84%	1.68%	1.58%	0.67%	0.88%	4.03%	0.99%	1.98%	0.00%
PDM ³	-4.21%	2.24%	0.32%	4.67%	-3.08%	-1.77%	0.49%	1.28%	3.63%	17.3%	-15.5%	-1.60%	7.63%	0.67%	-17.2%	-4.21%

Table A3. Analytical results for 4 acid bismuth in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	28.7	26.1	25.1	26.3	23.6	34.8	26.9	24.2	30.9	25.7	25.9	25.0	27.7	30	27.0	NR
2	28.4	26.1	24.9	25.4	24.9	34.8	27.7	23.0	31.4	24.8	26.3	25.5	27.0	30	27.5	NR
3	28.6	25.9	25.3	26.2	23.1	35.5	27.7	22.5	31.6	26.1	26.2	24.7	26.0	29	26.8	NR
4	29.0	26.1	26.2	26.0	23.8	36.1	27.7	25.7	31.1	26.0	26.2	25.3	27.8	27	27.0	NR
5	29.4	26.6	25.3	26.0	24.9	34.3		23.5	31.7	25.4	26.6	24.8	27.1	30	25.7	NR
Mean	28.8	26.2	25.4	26.0	24.1	35.1	27.5	23.8	31.3	25.6	26.2	25.1	27.1	29.2	26.8	
Median	28.7	26.1	25.3	26.0	23.8	34.8	27.7	23.5	31.4	25.7	26.2	25.0	27.1	30.0	27.0	
Std.Dev.	0.4	0.3	0.5	0.3	0.8	0.7	0.4	1.2	0.3	0.5	0.2	0.3	0.7	1.3	0.7	
Rel.Std.Dev.	1.35%	1.03%	1.96%	1.34%	3.36%	2.00%	1.45%	5.20%	1.07%	2.03%	0.89%	1.34%	2.65%	4.47%	2.49%	
PDM ³	9.57%	-0.55%	-3.59%	-1.23%	-8.53%	33.4%	4.55%	-9.60%	19.1%	-2.70%	-0.22%	-4.73%	3.10%	11.0%	1.89%	

Table A4. Analytical results for 4 acid cobalt in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	54	49.8	52	46.3	40.2	56	50.5	50.0	57.5	46.0	46.7	49.1	49.6	50	41.5	50
2	55	50.0	51	44.6	42.0	61	50.6	47.7	55.5	44.6	47.3	49.1	49.1	49	42.5	50
3	56	50.6	52	46.0	39.7	58	51.3	47.1	56.0	46.1	47.3	48.5	48.2	49	42.1	50
4	55	50.4	53	45.5	40.8	56	50.5	51.2	56.5	46.1	47.3	49.6	50.0	48	41.2	50
5	52	49.3	52	45.5	39.8	57	51.9	51.1	55.5	45.6	47.3	50.2	49.6	50	40.2	50
Mean	54.4	50.0	52.0	45.6	40.5	57.6	51.0	49.4	56.2	45.7	47.2	49.3	49.3	49.2	41.5	50.0
Median	55.0	50.0	52.0	45.5	40.2	57.0	50.6	50.0	56.0	46.0	47.3	49.1	49.6	49.0	41.5	50.0
Std.Dev.	1.52	0.51	0.71	0.65	0.94	2.07	0.62	1.91	0.84	0.64	0.27	0.64	0.69	0.84	0.89	0.00
Rel.Std.Dev.	2.79%	1.02%	1.36%	1.42%	2.33%	3.60%	1.22%	3.86%	1.49%	1.40%	0.57%	1.29%	1.41%	1.70%	2.13%	0.00%
PDM ³	9.11%	0.33%	4.30%	-8.58%	-18.8%	15.5%	2.21%	-0.86%	12.7%	-8.43%	-5.38%	-1.12%	-1.12%	-1.32%	-16.8%	0.3%

Table A5. Analytical results for 4 acid copper in OREAS 96 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	4.11	3.88	3.93	NR	3.67	3.99	3.86	4.00	4.53	3.91	3.64	3.92	4.13	4.04	3.98	3.92
2	4.13	3.72	3.92	NR	3.69	4.01	3.80	3.83	4.61	3.93	3.66	3.88	4.05	4.02	3.92	3.92
3	4.10	3.90	3.93	NR	3.70	3.99	3.81	3.83	4.57	3.93	3.81	3.86	3.89	4.05	3.90	3.95
4	4.12	3.89	3.97	NR	3.67	4.03	3.81	3.77	4.71	3.94	3.61	3.86	4.00	4.02	3.99	4.01
5	4.08	3.85	3.98	NR	3.71	4.00	3.87	3.88	4.68	3.94	3.56	3.93	4.06	4.04	3.93	3.96
Mean	4.11	3.85	3.95		3.69	4.00	3.83	3.86	4.62	3.93	3.66	3.89	4.03	4.04	3.94	3.95
Median	4.11	3.88	3.93		3.69	4.00	3.81	3.83	4.61	3.93	3.64	3.88	4.05	4.04	3.93	3.95
Std.Dev.	0.02	0.07	0.03		0.02	0.02	0.03	0.09	0.07	0.01	0.10	0.03	0.09	0.01	0.04	0.04
Rel.Std.Dev.	0.47%	1.88%	0.68%		0.49%	0.46%	0.85%	2.24%	1.62%	0.37%	2.60%	0.89%	2.21%	0.32%	0.99%	0.94%
PDM ³	4.53%	-2.13%	0.41%		-6.16%	1.81%	-2.54%	-1.73%	17.6%	-0.02%	-6.98%	-1.01%	2.44%	2.69%	0.36%	0.56%

Table A6. Analytical results for 4 acid lead in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	96	94	93	106	93	97	94	106	121	102.1	78.9	111	118	106	94.5	110
2	96	94	92	102	97	100	95	103	119	98.5	80.8	111	113	105	98.9	110
3	96	93	92	104	92	98	98	102	120	103.0	81.9	110	110	105	95.8	112
4	100	94	93	104	95	104	98	105	117	103.0	81.9	108	115	108	95.4	111
5	103	95	95	105	88	96	99	104	116	100.7	81.5	110	115	105	91.1	109
Mean	98	94	93	104	93	99	97	104	119	101	81	110	114	106	95	110
Median	96	94	93	104	93	98	98	104	119	102	82	110	115	105	95	110
Std.Dev.	3	1	1	2	3	3	2	2	2	2	1	1	3	1	3	1
Rel.Std.Dev.	3.25%	0.75%	1.32%	1.57%	3.50%	3.21%	2.24%	1.57%	1.75%	1.87%	1.59%	1.11%	2.58%	1.23%	2.94%	1.03%
PDM ³	-3.01%	-7.16%	-8.14%	2.62%	-7.99%	-2.30%	-4.39%	2.69%	17.1%	0.19%	-20.0%	8.65%	12.8%	4.50%	-6.03%	9.04%

Table A7. Analytical results for 4 acid sulphur in OREAS 96 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	4.62	NR	4.53	NR	3.98	NR	NR	NR	NR	NR	4.14	NR	NR	NR	3.35	NR
2	4.63	NR	4.70	NR	3.97	NR	NR	NR	NR	NR	4.24	NR	NR	NR	3.48	NR
3	4.49	NR	4.73	NR	3.99	NR	NR	NR	NR	NR	4.30	NR	NR	NR	3.52	NR
4	4.51	NR	4.69	NR	3.97	NR	NR	NR	NR	NR	4.10	NR	NR	NR	3.59	NR
5	4.58	NR	4.72	NR	3.51	NR	NR	NR	NR	NR	4.18	NR	NR	NR	3.46	NR
Mean	4.57		4.67		3.88						4.19				3.48	
Median	4.58		4.70		3.97						4.18				3.48	
Std.Dev.	0.06		0.08		0.21						0.08				0.09	
Rel.Std.Dev.	1.39%		1.76%		5.39%						1.90%				2.53%	
PDM ³	9.09%		11.7%		-7.20%						0.19%				-16.9%	

Table A8. Analytical results for 4 acid antimony in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	5.2	5.52	6.4	5.18	4.35	5.4	5.5	5.41	NR	4.86	4.61	4.6	6.0	NR	4.35	6
2	5.2	5.48	6.3	4.98	4.55	5.8	5.7	5.02	NR	4.70	4.67	4.5	6.0	NR	4.78	2
3	5.2	5.48	6.4	5.13	4.27	5.7	5.7	5.09	NR	4.84	4.64	4.4	5.7	NR	4.33	5
4	5.3	5.49	6.6	5.11	4.32	5.6	5.8	5.52	NR	4.78	4.64	4.5	5.9	NR	3.95	3
5	5.2	5.50	6.7	5.16	4.89	4.6	5.7	5.20	NR	4.77	4.63	4.7	6.0	NR	4.36	3
Mean	5.22	5.49	6.48	5.11	4.48	5.42	5.68	5.25		4.790	4.64	4.54	5.92		4.35	3.80
Median	5.20	5.49	6.40	5.13	4.35	5.60	5.70	5.20		4.782	4.64	4.50	6.00		4.35	3.00
Std.Dev.	0.04	0.02	0.16	0.08	0.25	0.48	0.11	0.21		0.06	0.02	0.11	0.13		0.29	1.64
Rel.Std.Dev.	0.86%	0.30%	2.54%	1.54%	5.69%	8.89%	1.93%	4.05%		1.33%	0.49%	2.51%	2.20%		6.75%	43.2%
PDM ³	2.50%	7.88%	27.2%	0.38%	-12.1%	6.43%	11.5%	3.09%		-5.95%	-8.97%	-10.9%	16.2%		-14.5%	-25.4%

Table A9. Analytical results for 4 acid selenium in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	35	46	40	45.0	43	NR	40	42.1	40.1	35.3	39.6	35.8	50.8	NR	41.0	52.0
2	35	47	40	43.7	44	NR	40	42.1	39.6	34.7	41.1	35.0	44.3	NR	43.0	51.0
3	35	47	40	44.8	41	NR	40	43.2	38.7	35.5	40.2	35.9	43.5	NR	42.0	52.0
4	35	47	40	43.6	41	NR	40	42.3	39.1	35.6	40.2	36.3	44.2	NR	44.0	54.0
5	35	45	40	44.1	45	NR	40	44.1	38.7	35.4	40.5	36.3	46.2	NR	40.0	51.0
Mean	35.0	46.4	40.0	44.2	42.8		40.0	42.8	39.2	35.3	40.3	35.9	45.8		42.0	52.0
Median	35.0	47.0	40.0	44.1	43.0		40.0	42.3	39.1	35.4	40.2	35.9	44.3		42.0	52.0
Std.Dev.	0.0	0.9	0.0	0.6	1.8		0.0	0.9	0.6	0.4	0.6	0.5	3.0		1.6	1.2
Rel.Std.Dev.	0.00%	1.93%	0.00%	1.43%	4.18%		0.00%	2.01%	1.55%	1.01%	1.41%	1.48%	6.48%		3.76%	2.36%
PDM ³	-13.9%	14.1%	-1.63%	8.80%	5.26%		-1.63%	5.14%	-3.50%	-13.2%	-0.83%	-11.8%	12.6%		3.29%	27.9%

Table A10. Analytical results for 4 acid tin in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	63	64.4	66	64.7	50.1	60.0	65.7	67.18	72	74.87	76.62	60.8	72.1	NR	58.3	61
2	65	65.6	66	62.5	52.9	64.6	66.9	63.92	74	72.77	77.24	60.3	69.7	NR	58.8	67
3	64	65.6	67	64.3	50.8	60.8	67.1	62.09	73	75.06	78.11	61.5	67.1	NR	57.8	64
4	65	65.7	68	63.6	50.9	62.6	67.5	66.64	70	74.92	78.11	60.5	70.5	NR	57.8	59
5	63	64.6	68	63.8	53.7	66.2	68.6	65.24	71	73.35	78.04	61.9	68.9	NR	55.8	61
Mean	64.0	65.2	67.0	63.8	51.7	62.8	67.2	65.0	72.0	74.2	77.6	61.0	69.7		57.7	62.4
Median	64.0	65.6	67.0	63.8	50.9	62.6	67.1	65.2	72.0	74.9	78.0	60.8	69.7		57.8	61.0
Std.Dev.	1.0	0.6	1.0	0.8	1.5	2.6	1.0	2.1	1.6	1.1	0.7	0.7	1.9		1.1	3.1
Rel.Std.Dev.	1.56%	0.96%	1.49%	1.31%	2.97%	4.11%	1.56%	3.19%	2.20%	1.43%	0.86%	1.11%	2.67%		1.98%	5.02%
PDM ³	-2.39%	-0.59%	2.18%	-2.73%	-21.2%	-4.16%	2.43%	-0.85%	9.81%	13.2%	18.4%	-6.97%	6.24%		-12.0%	-4.83%

Table A11. Analytical results for 4 acid zinc in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	480	485	440	NR	431	500	447	468	530	489	432	443	450	459	443	451
2	470	473	430	NR	438	500	445	445	545	481	436	441	480	461	447	455
3	465	485	450	NR	433	500	446	443	530	487	460	436	450	457	449	440
4	460	491	450	NR	428	500	443	441	550	472	427	443	460	458	442	445
5	465	475	460	NR	414	500	454	456	530	500	421	446	480	459	427	450
Mean	468	482	446		429	500	447	451	537	486	435	442	464	459	442	448
Median	465	485	450		431	500	446	445	530	487	432	443	460	459	443	450
Std.Dev.	7.6	7.6	11.4		9.0	0.0	4.2	11.3	9.7	10.1	15.1	3.7	15.2	1.5	8.6	5.8
Rel.Std.Dev.	1.62%	1.57%	2.56%		2.11%	0.00%	0.94%	2.52%	1.82%	2.07%	3.47%	0.84%	3.27%	0.32%	1.96%	1.30%
PDM ³	2.50%	5.52%	-2.32%		-6.09%	9.50%	-2.10%	-1.32%	17.6%	6.38%	-4.70%	-3.24%	1.62%	0.48%	-3.29%	-1.84%

Table A12. Analytical results for aqua regia silver in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	10.7	12.1	NR	11.9	9.9	9.1	11.6	11.3	10.4	11.9	11.7	11.7	7.58	11.5	>10	NR
2	10.6	12.3	NR	12.1	9.8	9.4	11.5	11.1	10.8	11.7	11.6	11.5	8.28	11.4	>10	NR
3	11.0	12.4	NR	12.3	9.5	10.9	11.4	11.4	11.1	11.4	11.5	11.7	7.31	11.4	>10	NR
4	10.8	12.0	NR	12.0	9.5	9.1	12.0	11.3	10.8	11.9	11.5	11.9	7.48	11.4	>10	NR
5	11.1	11.8	NR	12.0	9.2	9.1	11.4	10.9	10.5	11.7	12.0	11.5	7.49	11.5	>10	NR
Mean	10.8	12.1		12.0	9.58	9.52	11.6	11.2	10.7	11.7	11.7	11.7	7.63	11.4	>10	
Median	10.8	12.1		12.0	9.52	9.10	11.5	11.3	10.8	11.7	11.6	11.7	7.49	11.4	>10	
Std.Dev.	0.21	0.25		0.15	0.26	0.78	0.25	0.18	0.28	0.19	0.21	0.17	0.38	0.05	-	
Rel.Std.Dev.	1.91%	2.06%		1.22%	2.76%	8.22%	2.15%	1.58%	2.59%	1.66%	1.84%	1.44%	4.95%	0.48%	-	
PDM ³	-5.69%	5.18%		4.75%	-16.7%	-17.2%	0.75%	-2.43%	-6.73%	1.82%	1.38%	1.44%	-33.6%	-0.47%	-	

Table A13. Analytical results for aqua regia bismuth in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	26.9	24.3	NR	27.4	28.3	28.8	28.1	28.5	30.9	26.4	27.0	28.5	34.5	30	21.6	NR
2	27.2	25.6	NR	27.4	27.8	30.1	28.4	27.6	30.4	26.3	26.5	27.6	34.0	28	29.5	NR
3	27.8	26.0	NR	27.9	26.6	29.7	27.4	29.6	30.8	25.3	27.2	27.1	33.4	26	28.8	NR
4	28.2	25.8	NR	27.5	26.5	30.5	29.1	29.4	30.7	26.7	25.9	27.2	34.6	27	29.3	NR
5	27.9	25.4	NR	27.5	26.1	27.7	27.9	27.5	30.1	26.1	27.7	26.3	33.7	29	29.0	NR
Mean	27.6	25.4		27.5	27.1	29.4	28.2	28.5	30.6	26.2	26.9	27.3	34.0	28.0	27.6	
Median	27.8	25.6		27.5	26.6	29.7	28.1	28.5	30.7	26.3	27.0	27.2	34.0	28.0	29.0	
Std.Dev.	0.5	0.7		0.2	0.9	1.1	0.6	1.0	0.3	0.5	0.7	0.8	0.5	1.6	3.4	
Rel.Std.Dev.	1.93%	2.63%		0.75%	3.47%	3.82%	2.24%	3.45%	1.07%	1.96%	2.51%	2.93%	1.51%	5.65%	12.3%	
PDM ³	-0.96%	-8.78%		-1.17%	-2.89%	5.36%	1.13%	2.35%	9.74%	-6.11%	-3.62%	-1.89%	22.2%	0.48%	-0.81%	

Table A14. Analytical results for aqua regia cobalt in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	50.0	54.4	NR	44.8	42.9	50.7	53.6	55.2	45.0	53.5	50.4	49.1	44.2	48	45.9	NR
2	52.5	56.5	NR	45.8	42.9	48.3	52.7	57.8	46.5	52.3	49.0	47.8	45.1	49	47.8	NR
3	53.5	59.7	NR	46.9	41.5	52.0	52.1	55.2	46.5	50.6	50.7	46.7	44.3	48	46.3	NR
4	50.0	56.7	NR	45.6	40.7	48.3	55.6	61.2	45.0	52.6	46.9	47.6	47.7	49	48.0	NR
5	53.0	53.9	NR	45.3	39.6	44.4	53.2	55.9	44.5	50.9	50.7	46.1	47.9	48	46.7	NR
Mean	51.8	56.2		45.7	41.5	48.7	53.4	57.1	45.5	52.0	49.5	47.5	45.8	48.4	46.9	
Median	52.5	56.5		45.6	41.5	48.3	53.2	55.9	45.0	52.3	50.4	47.6	45.1	48.0	46.7	
Std.Dev.	1.7	2.3		0.8	1.4	2.9	1.3	2.6	0.9	1.2	1.7	1.1	1.8	0.5	0.9	
Rel.Std.Dev.	3.24%	4.08%		1.71%	3.44%	5.95%	2.49%	4.48%	2.06%	2.35%	3.33%	2.41%	3.98%	1.13%	1.97%	
PDM ³	5.37%	14.4%		-7.08%	-15.5%	-0.85%	8.71%	16.1%	-7.45%	5.70%	0.72%	-3.46%	-6.75%	-1.55%	-4.52%	

Table A15. Analytical results for aqua regia copper in OREAS 96 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	3.86	3.89	4.03	3.89	>1	3.81	3.90	3.99	4.47	3.93	4.05	3.90	4.02	3.84	NR	NR
2	4.04	3.87	4.03	3.72	>1	3.82	4.25	4.12	4.53	3.91	3.91	3.89	3.97	3.86	NR	NR
3	3.86	3.72	3.99	3.91	>1	3.75	3.86	3.87	4.56	3.93	3.99	3.88	4.02	3.88	NR	NR
4	3.92	3.86	4.10	3.84	>1	3.76	3.45	3.98	4.60	3.91	3.95	3.86	3.95	3.91	NR	NR
5	3.97	3.85	3.97	3.79	>1	3.73	3.74	3.98	4.48	3.90	3.99	3.94	4.00	3.89	NR	NR
Mean	3.93	3.84	4.02	3.83		3.77	3.84	3.99	4.53	3.92	3.98	3.89	3.99	3.88		
Median	3.92	3.86	4.03	3.84		3.76	3.86	3.98	4.53	3.91	3.99	3.89	4.00	3.88		
Std.Dev.	0.08	0.07	0.05	0.08		0.04	0.29	0.09	0.05	0.01	0.05	0.03	0.03	0.03		
Rel.Std.Dev.	1.95%	1.73%	1.24%	2.01%		1.04%	7.53%	2.28%	1.20%	0.26%	1.36%	0.82%	0.78%	0.66%		
PDM ³	0.56%	-1.79%	2.97%	-2.00%		-3.41%	-1.74%	2.04%	15.9%	0.19%	1.73%	-0.37%	2.15%	-0.76%		

Table A16. Analytical results for aqua regia lead in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	87	96	NR	95	95	94	101	114	110	98	80	101	110	102	102	NR
2	86	102	NR	96	93	94	101	112	110	97	81	98	109	103	100	NR
3	89	101	NR	98	90	94	97	118	105	94	80	99	107	103	100	NR
4	89	101	NR	96	89	97	104	117	110	98	79	97	109	105	97	NR
5	88	103	NR	96	86	91	99	112	105	96	81	93	107	103	99	NR
Mean	88	101		96	91	94	100	115	108	97	80	97	108	103	100	
Median	88	101		96	90	94	101	114	110	97	80	98	109	103	100	
Std.Dev.	1	3		1	3	2	3	3	3	2	1	3	1	1	2	
Rel.Std.Dev.	1.49%	2.69%		1.14%	3.73%	2.56%	2.60%	2.23%	2.54%	1.80%	1.01%	3.31%	1.24%	1.06%	1.84%	
PDM ³	-12.1%	0.70%		-3.51%	-9.33%	-5.83%	0.50%	14.6%	8.11%	-3.39%	-20.1%	-2.44%	8.51%	3.30%	-0.34%	

Table A17. Analytical results for aqua regia sulphur in OREAS 96 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	NR	NR	NR	NR	3.34	NR	NR	NR	NR	4.28	4.56	NR	NR	NR	4.47	NR
2	NR	NR	NR	NR	2.68	NR	NR	NR	NR	4.23	4.37	NR	NR	NR	4.49	NR
3	NR	NR	NR	NR	3.07	NR	NR	NR	NR	4.23	4.40	NR	NR	NR	4.40	NR
4	NR	NR	NR	NR	3.44	NR	NR	NR	NR	4.28	4.44	NR	NR	NR	4.46	NR
5	NR	NR	NR	NR	3.23	NR	NR	NR	NR	4.30	4.42	NR	NR	NR	4.69	NR
Mean					3.15					4.26	4.44				4.50	
Median					3.23					4.28	4.42				4.47	
Std.Dev.					0.30					0.03	0.07				0.11	
Rel.Std.Dev.					9.44%					0.76%	1.66%				2.45%	
PDM ³					-28.0%					-2.55%	1.45%				2.89%	

Table A18. Analytical results for aqua regia antimony in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	3.70	3.86	NR	4.43	1.95	4.6	4.8	4.86	NR	4.34	5.44	4.5	2.5	NR	1.91	NR
2	3.82	3.62	NR	4.53	2.19	4.2	4.9	4.67	NR	4.31	5.27	4.4	2.5	NR	2.53	NR
3	3.86	3.98	NR	4.71	2.30	4.4	4.6	4.74	NR	4.20	5.29	4.7	2.5	NR	2.50	NR
4	3.74	3.81	NR	4.65	2.24	4.9	5.0	4.98	NR	4.42	5.32	5.0	2.5	NR	2.56	NR
5	3.90	3.90	NR	4.55	2.27	4.3	4.6	4.72	NR	4.39	5.54	5.2	2.4	NR	2.40	NR
Mean	3.80	3.83		4.57	2.19	4.48	4.78	4.79		4.33	5.37	4.76	2.48		2.38	
Median	3.82	3.86		4.55	2.24	4.40	4.80	4.74		4.34	5.32	4.70	2.50		2.50	
Std.Dev.	0.08	0.13		0.11	0.14	0.28	0.18	0.13		0.09	0.11	0.34	0.04		0.27	
Rel.Std.Dev.	2.18%	3.52%		2.38%	6.40%	6.19%	3.74%	2.61%		2.00%	2.14%	7.06%	1.80%		11.3%	
PDM ³	-16.0%	-15.3%		1.05%	-51.6%	-1.03%	5.60%	5.89%		-4.30%	18.6%	5.16%	-45.2%		-47.4%	

Table A19. Analytical results for aqua regia selenium in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	31	48	NR	39.1	41.1	47	38	46.76	40.8	40.27	36.60	36.8	45.5	NR	33	NR
2	31	46	NR	39.9	40.7	47	38	46.39	40.3	40.89	36.01	35.5	48.9	NR	43	NR
3	31	48	NR	40.7	39.3	48	37	41.93	40.7	39.40	37.08	35.8	44.2	NR	42	NR
4	31	48	NR	39.9	40.0	48	39	48.06	40.4	41.86	35.65	36.2	46.3	NR	44	NR
5	32	47	NR	39.8	39.0	41	38	43.98	40.1	40.33	37.27	34.8	49.3	NR	43	NR
Mean	31.2	47.4		39.9	40.0	46.2	38.0	45.4	40.5	40.6	36.5	35.8	46.8		41.0	
Median	31.0	48.0		39.9	40.0	47.0	38.0	46.4	40.4	40.3	36.6	35.8	46.3		43.0	
Std.Dev.	0.4	0.9		0.6	0.9	2.9	0.7	2.5	0.3	0.9	0.7	0.7	2.2		4.5	
Rel.Std.Dev.	1.43%	1.89%		1.42%	2.23%	6.38%	1.86%	5.39%	0.71%	2.23%	1.89%	2.09%	4.70%		11.0%	
PDM ³	-23.8%	15.7%		-2.66%	-2.32%	12.8%	-7.25%	10.9%	-1.25%	-1.03%	-10.9%	-12.6%	14.3%		0.07%	

Table A20. Analytical results for aqua regia tin in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	52.4	57.7	NR	54.6	47.3	55	55	47.3	58.0	56.9	62.4	47.5	49.9	NR	36.2	NR
2	52.0	57.1	NR	55.5	46.8	56	55	46.3	59.0	56.1	61.3	45.9	47.3	NR	49.4	NR
3	53.8	62.3	NR	56.7	43.6	54	53	46.0	58.0	54.7	63.4	46.2	47.2	NR	47.9	NR
4	53.0	59.7	NR	55.1	45.9	56	57	47.8	56.0	57.8	60.9	47.1	47.1	NR	48.7	NR
5	54.0	60.6	NR	55.0	42.6	52	54	44.3	56.0	57.0	63.4	45.8	48.0	NR	47.4	NR
Mean	53.0	59.5		55.4	45.2	54.6	54.8	46.3	57.4	56.5	62.3	46.5	47.9		45.9	
Median	53.0	59.7		55.1	45.9	55.0	55.0	46.3	58.0	56.9	62.4	46.2	47.3		47.9	
Std.Dev.	0.9	2.1		0.8	2.0	1.7	1.5	1.3	1.3	1.2	1.2	0.8	1.2		5.5	
Rel.Std.Dev.	1.63%	3.60%		1.45%	4.53%	3.06%	2.71%	2.88%	2.34%	2.07%	1.89%	1.63%	2.45%		11.9%	
PDM ³	0.37%	12.6%		4.80%	-14.4%	3.32%	3.70%	-12.3%	8.62%	6.92%	17.8%	-12.0%	-9.36%		-13.1%	

Table A21. Analytical results for aqua regia zinc in OREAS 96 (abbreviations as in Table A1; values in ppm).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	420	434	400	400	388	500	454	446	440	484	516	450	650	437	437	NR
2	434	439	400	400	380	500	455	445	460	488	501	460	650	436	430	NR
3	426	426	400	400	368	500	444	470	455	494	509	460	650	436	427	NR
4	432	433	400	400	361	500	449	455	460	487	504	460	550	433	428	NR
5	436	431	400	400	354	500	449	428	445	486	511	450	600	432	449	NR
Mean	430	433	400	400	370	500	450	449	452	488	508	456	620	435	434	
Median	432	433	400	400	368	500	449	446	455	487	509	460	650	436	430	
Std.Dev.	7	5	0	0	14	0	4	15	9	4	6	5	45	2	9	
Rel.Std.Dev.	1.52%	1.09%	0.00%	0.00%	3.74%	0.00%	0.99%	3.43%	2.01%	0.78%	1.18%	1.20%	7.21%	0.50%	2.11%	
PDM ³	-4.18%	-3.52%	-10.8%	-10.8%	-17.4%	11.5%	0.41%	0.14%	0.81%	8.75%	13.3%	1.70%	38.3%	-3.02%	-3.16%	

Table A22. Analytical results for leco sulphur in OREAS 96 (abbreviations as in Table A1; values in wt.%).

Replicate No.	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
1	NR	4.53	4.27	4.23	4.26	4.31	4.35	3.80	NR	NR	4.38	4.79	4.59	NR	4.04	4.19
2	NR	4.54	4.31	4.13	4.24	4.43	4.30	3.44	NR	NR	4.33	4.84	4.90	NR	4.14	4.18
3	NR	4.59	4.39	4.23	4.19	4.34	4.11	3.85	NR	NR	4.33	4.83	4.94	NR	4.13	4.21
4	NR	4.55	4.34	4.29	4.19	4.54	4.26	3.61	NR	NR	4.45	4.84	4.29	NR	4.02	4.15
5	NR	4.55	4.26	4.06	4.20	4.47	4.20	3.93	NR	NR	4.32	4.84	4.78	NR	4.15	4.21
Mean		4.55	4.31	4.19	4.22	4.42	4.24	3.73			4.36	4.83	4.70		4.10	4.19
Median		4.55	4.31	4.23	4.20	4.43	4.26	3.80			4.33	4.84	4.78		4.13	4.19
Std.Dev.		0.02	0.05	0.09	0.03	0.09	0.09	0.20			0.05	0.02	0.27		0.06	0.02
Rel.Std.Dev.		0.50%	1.23%	2.19%	0.76%	2.13%	2.19%	5.33%			1.21%	0.45%	5.67%		1.49%	0.59%
PDM ³		5.23%	-0.27%	-3.18%	-2.53%	2.14%	-1.89%	-13.9%			0.82%	11.6%	8.65%		-5.31%	-3.18%