G-Probe 25a — an International Proficiency Test for Microanalytical Laboratories — Report on Round 25a (Phonolite glass, KPho-2G) / November 2021

Dieter Garbe-Schönberg[1], Peter C. Webb[2]*, Donald B. Dingwell[3] and Philip J. Potts[2]

[1]CAU Kiel University, Institute of Geosciences, Ludewig-Meyn-Strasse 10, 24098 Kiel, Germany.
[2] Retired from the Faculty of Science, Technology, Engineering and Mathematics, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.
[3] Department of Earth and Environmental Sciences, LMU - University of Munich, Theresienstrasse 41, 80333 München, Germany
*Corresponding author, Peter Webb: e-mail gprobe.iag@gmail.com

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Abstract

Results are presented for Round 25a of the G-Probe Proficiency Testing programme for microanalytical laboratories, organised by the International Association of Geoanalysts (IAG). The test material distributed in this round of G-Probe was the Phonolite glass, KPho-2G, prepared at Kiel University, after remelting at LMU Munich. In this report, the data contributed by 35 laboratories are listed, together with an assessment of consensus values as composition location estimators, consequent *z*-scores and a series of charts that show the distribution of contributed results and reveal the overall performance of participating laboratories. Assigned values were conferred for 40 elements, and provisional values for a further 9, out of 71 elements reported but 8 were in insufficient numbers to assess in any way.

Introduction

This twenty-fifth round of G-Probe, the international proficiency testing programme for microanalytical laboratories, was conducted in a similar manner to recent rounds. The programme is organised by the IAG and is conducted in a manner that conforms with the recently published G-Probe Protocol (IAG, 2020).

To accommodate difficulties encountered with shipments and delays in laboratory readiness due to the Coronavirus pandemic, the original deadline for submission of results for this round was extended by several weeks with the benefit that 35 laboratories reported their results. All data submitted were processed using the online system, as were the automated sections of this report.

The overall aim of the programme is to provide participating laboratories with *z*-score information for their reported measurement results so that each laboratory can decide whether the quality of their data is satisfactory in relation both to the G-Probe fitness-for-purpose criterion and to the results submitted by other laboratories contributing to the round. In circumstances where *z*-scores are unsatisfactory, a participating laboratory is encouraged to investigate its procedures for unsuspected analytical bias and to take corrective action if it appears justified. The programme is designed to be part of the routine quality assurance procedures employed by microanalytical geochemistry laboratories.

G-Probe Steering Committee:

D. Garbe-Schönberg (principal organiser and provider of KPho original rock glass), P.C. Webb (results coordinator and website administrator), D.B. Dingwell (producer of KPho-2G glass), P.J. Potts (results reviewer), M. Thompson (statistical advisor), C.J.B. Gowing (distribution coordinator), L. Danyushevsky, R. Mertz-Kraus and A. Kronz (analytical advisors).

Timetable for Round 25a of G-Probe:

Distribution of test material: June 2021
Results submission deadline: 6th October 2021
Release of report: November 2021

G-Probe 25a Test Material details

The phonolite starting material for this test sample was collected from the Society Seamounts in the SW Pacific during cruise SONNE 65 MIDPLATE-II (Stoffers et al., 1990). A dredge deployed north of the volcanic island, Mehetia recovered glassy tephriphonolite from ~3000 m water depth. The original submarine glass was pulverized and re-melted twice for homogenization and removal of water by fusion in an iron-saturated platinum crucible in air, and then stirred at 1500 °C for 24 h at 40 r.p.m. This procedure was undertaken in Don Dingwell's laboratory at LMU Munich. The mass of glass obtained was drilled carefully, avoiding glass that was in direct contact with the crucible, then it was fragmented, and chips were hand-picked, discarding those with a lustre from the melt surface. Two chips were distributed as test materials to each participant either as loose fragments or mounted into ½" epoxy plugs manufactured and polished at University of Göttingen, Germany (A. Kronz).

For homogeneity testing following ISO Guide 35:2017, subsets of 10 chips were distributed to 4 international laboratories for analysis of 10 points per chip by EPMA and LA-ICP-MS to assess between-chip heterogeneity. In addition, one chip was analysed at 100 points for estimating within-chip micro-heterogeneity. After careful assessment of all these homogeneity data, the phonolite glass fragments were considered suitable for use in this proficiency test. However, it was considered that certain specific elements (noted later) were heterogeneously distributed amongst the glass fragments.

Submission of results

For G-Probe 25a, participants were instructed to apply their routine measurement procedures to provide a measurement result for each glass fragment representative of its average composition (Result A and Result B).

A total of 2340 measurement results submitted by 35 laboratories are listed in Table 1. Where results A and B were provided, the average was used for the subsequent data assessment. Of the resultant 1329 values reported for individual analytes, 1267 values were by LA-ICP-MS from 25 laboratories, 137 by EPMA from 12 laboratories, 27 by SEM from three laboratories, and one laboratory provided 35 values without defining its method.

Target values and results summary

Robust statistical procedures were used to derive a consensus value from the contributed data for each elemental component in the test material. These procedures included the evaluation of the Huber robust mean, the median for the dataset or a mode derived from a kernel density distribution as detailed by Thompson (2017). Evaluations of consensus values involved a critical assessment of distributions of results from ordered sequential charts for each analyte.

Consensus values were credited with assigned status on the basis that:

(i) sufficient laboratories had contributed data for estimating a measurand (usually a minimum of 15);
(ii) visual assessment gave confidence that a substantial proportion of the results distribution was symmetrically disposed about the consensus;
(iii) the ratio of the uncertainty in the location estimate to the target precision (as defined below) was an acceptably small value; and
(iv) where possible, an evaluation of measurement results by procedure was judged to provide no clear evidence of procedural bias among the measurement results from which the consensus was derived.

Where these criteria were nearly, but not fully met, measurands were credited with 'provisional' rather than 'assigned' status. Instances of provisional status were identified because either:

(i) a smaller number of results (less than 15 but more than 8) contributed to the consensus, or
(ii) the results were unduly dispersed in relation to the target precision (H_a, see below), or
(iii) the distribution of results was significantly skewed (but not severely enough to preclude the recognition of a clear consensus), or

(iv) procedural bias was identified but a target value could nevertheless be recognised based on the most coherent part of the overall data distribution conforming approximately to a random sample from a normal distribution.

Where data were either insufficient in number, or the distribution was too variable or too highly skewed for the confident estimation of a consensus to provide *z*-scores, data distributions are presented for information only.

The resulting consensus values were those judged to be the best available estimates of the true composition of the test material and therefore suitable for use as target values for proficiency testing. It should be noted, however, that in many cases, these estimates are derived from a single analytical method.

Data distributions for those analytes given 'assigned' or 'provisional' status are presented in Figure 1, and those for which no status could be conferred are shown in Figure 2, 'for information'. Measurement results in the Figure 1 and 2 data distribution plots are presented in order of increasing magnitude and identified according to laboratory code. Data symbols are coded by colour and shape according to the method of measurement. For major elements, results were obtained by EPMA, SEM and LA-ICP-MS. In contrast with results of the basanite test material of the previous round, electron beam results are generally in good agreement with LA-ICP-MS results with the exception of Na_2O where method bias from some systematically low EPMA results is evident. Consensus values were generally well defined for most major elements, but less so for Na_2O and P_2O_5 which were credited only with provisional status.

For most trace elements there is no option other than to make assessments based on LA-ICP-MS data, and therefore concerns about the possibility of single method bias, noted above, must be kept in mind and the outcomes should be regarded with caution in the reflection of true values. Nevertheless, the derived consensus values represent the best that currently can be obtained and therefore are considered appropriate for the purposes of this proficiency test.

Several laboratories in this round required values of a major element oxide for internal standardisation of LA-ICP-MS data. Values of 17.63 for Al_2O_3, 55.68 for SiO_2 and 3.48 for CaO were provided for laboratories coded D4, D18, D20, D21, D37, D45, D51 and D53. Inspection of the results provided by these participants showed no detectable evidence that the use of these values had been responsible for any significant bias in datasets.

Table 2 lists assigned and provisional values for 9 major components and 39 trace elements in G-Probe 25a (KPho-2G). Data distribution charts for the 48 measurands that were judged to have satisfactory distributions for consensus values to be conferred with assigned or provisional status are shown in Figure 1. These are: SiO_2, TiO_2, Al_2O_3, Fe_2O_3T, MgO, CaO, Na_2O*, K_2O, P_2O_5*, Ba, Be, Bi*, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Gd, Hf, Ho, In*, La, Li, Lu, Mn, Mo*, Nb, Nd, Ni*, Pb*, Pr, Rb, Sb*, Sm, Sr, Ta, Tb, Th, Tm, U, V, W, Y, Yb and Zr. Of these, values of the 8 analytes marked '*' were credited with provisional status for reasons given above.

Data distribution plots for the 11 analytes: Ag, As, Au, B, Cd, Cr, Ge, Sc, Sn, Tl, and Zn are plotted in Figure 2 for information only, as the data were either insufficient in number, or the data distribution was too highly dispersed or too highly skewed for the confident estimation of a consensus to provide *z*-scores.

Observations

The form of data distribution plots for most elements provides good justification for conferring assigned values. It was notable, however that data for some major elements exhibited moderately high (SiO_2, TiO_2, Al_2O_3) and low tails (Fe_2O_3, Na_2O, P_2O_5). While high SiO_2 and low P_2O_5 are mainly reported from LA-ICP-MS measurements, high Al_2O_3 and low Na_2O are more obvious in EPMA data, with the latter possibly caused by too high beam currents volatilizing Na during analysis. SEM data are also on the low side for Al_2O_3 and CaO, but high for TiO_2. Minor heterogeneity within and between some chips had been identified by EPMA for K_2O and P_2O_5 during homogeneity pre-tests but there appears to be no significant effect on the results.

A number of trace elements, including Cr, Mo, Ni, Sc and Zn exhibit strikingly high tails, and any consensus values can be regarded at best as provisional. For some elements an analysis of metadata using the Shiny App indicates that systems with a 193 µm laser frequently

tend to provide more coherent data and therefore a better consensus (e.g., for Co, Cu, Nb, Ni). However, this does not necessarily mean that the laser wavelength itself is the cause of these trends.

In some instances, the form of data distributions and evidence from metadata were instrumental in making judgements of status that may not conform to every one of the normally required properties. For example, although the number of contributing data were barely sufficient, the distribution of Bi data was sufficient to warrant provisional status; the distribution of P_2O_5 data was suitable to confer provisional status despite a high statistical uncertainty leading to a relatively high ratio of uncertainty/Horwitz value; the high tail of the Mo distribution was produced exclusively by sector field instruments, whereas the data from quadrupole instruments provided a remarkably coherent dataset sufficient to confer provisional status. Similarly, the high tail in Cr data was produced by ICP-SF-MS and two ICP-MS/MS instruments. The high tail exhibited by Ni results contained only one result produced by a 193 µm laser whereas the remainder of the data from those systems provided a clear consensus and therefore warranted provisional status. The latter results involved the use of USGS materials for matrix-matched calibration while high Ni results were from calibrations using NIST61n series materials only.

The large spread in B data without a clear point of inflection did not allow a valid consensus to be recognised. The three lowest values for B were all reported by ICP-MS/MS instruments. For Sc the most coherent part of the distribution involved the lowest 8 values all of which were produced by 193 µm laser devices, but on account of there being more than half as many values produced in the same way at substantially higher mass fractions and there being no clear point of inflection the dataset could not be credited with better than information status. For Sn although most of the data fall within 3.35 ± 0.5 mg/kg there was no clear consensus or point of inflection in the data, again information status was conferred.

One laboratory (D7) mistakenly entered uncertainty values for Result B and therefore is always anomalous.

Z-score analysis

Assessment of submitted results followed the strategy adopted in recent rounds of G-Probe (Wilson et al. 2019; Wilson et al. 2020; Garbe-Schönberg et al. 2021) and detailed in the G-Probe protocol (IAG, 2020). Based on an assessment of the variation of measurement results in earlier rounds, and in order to provide sufficient discrimination for the proficiency test to be helpful to participating laboratories, the fitness for purpose criterion applied throughout was provided by the modified Horwitz function:

$$H_a = k.X_a^{0.8495}$$

where H_a is the standard deviation for proficiency, also referred to as the target precision, for each measurand; X_a, represented as a mass fraction, is the best estimate of the true composition, also known as the 'target value' (and may be credited with assigned or provisional status). The factor k = 0.01, which is regarded as appropriate for laboratories working to a 'pure geochemistry' standard of performance, where analytical results are designed for geochemical research and where care is taken to provide data of high precision and accuracy, sometimes at the expense of a reduced sample throughput rate.

Z-scores were calculated for the average measurement result submitted by each laboratory from:

$$z = [X - X_a] / H_a$$

where X is the (average) measurement result submitted, X_a is the target value (assigned and provisional) and H_a is the target precision (all as mass fractions).

Z-score values for results submitted to G-Probe 25a are listed in Table 3. *Z*-scores derived from provisional values of measurands are shown in italics.

Participating laboratories are invited to assess their performance using the following criteria:

> *Z*-score results in the range $-2<z<2$ are considered to be 'satisfactory' (in the sense that no action is called for by the participant). If the *z*-score for any element falls outside this range, especially if it is outside the range $-3<z<3$, laboratories are advised to examine their procedures and, if necessary, take

action to ensure that their determinations are not subject to unsuspected analytical bias.

Should a participating laboratory decide that this performance standard is not appropriate for assessment of their measurement results, they are invited to recalculate their *z*-scores by substituting the appropriate value of the standard deviation for proficiency testing, H_a, into the equation for the calculation of *z*-scores (i.e. $z = [X - X_a] / H_a$). Adoption of such an approach should include a justification as to why an amended value of H_a is more appropriate for assessment of their data.

Overall performance

A summary of the overall performance of individual laboratories for this round is plotted in multiple *z*-score charts in Figure 3. In these charts, the *z*-score performance for each element is distinguished by symbols that make it easy to identify whether the measurements results were satisfactory or gave *z*-scores that exceeded the action limits. This chart is designed to help individual laboratories judge their overall performance in this proficiency test. Note, however, that participants should always review their *z*-scores in accordance with their own fitness-for-purpose criteria.

Participation in future rounds

The benefit from proficiency testing arises from regular participation and laboratories are invited to contribute to Round 26 of G-Probe, the test samples for which will be distributed in spring 2022.

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The authors wish to thank Thomas Meisel for development of procedures involving the Shiny App to facilitate the visualisation and analysis of proficiency testing datasets and to permit the derivation of modes according to Thompson (2017).

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ADDENDUM

— IMPORTANT NOTICE TO ANALYSTS

Change in uncertainty estimation for medians:

Note that in 2020 a change was made to the algorithm for estimating the uncertainty of median values compared to that used in previous rounds of G-Probe. The revised procedure was implemented for the first time for round 24 (G-Probe 24). As described in the new G-Probe protocol (IAG, 2020), median uncertainties are now increased by a factor of 1.2533. Therefore, when comparing uncertainties from this and future rounds with those from rounds previous to Round 24, those uncertainty values previously reported for medians should be increased by this factor.

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D2A	D2B	D3A	D3B	D4A	D4B	D6A	D6B	D7A	D7B	D8A	D8B
SiO2	g 100g^{-1}	55.79	56.14	57.06	56.94			55.5	55.7	56.71	0.82	55.42	55.381
TiO2	g 100g^{-1}	1.59	1.59	1.572	1.568			1.58	1.58	1.61	0.007	1.558	1.557
Al2O3	g 100g^{-1}	17.58	17.43	17.32	17.26			17.97	18.01	17.86	0.01	17.685	17.753
Fe2O3T	g 100g^{-1}	7.06	7.03	6.933	6.909			7.02	7.01	7.09	0.01	6.948	6.936
MgO	g 100g^{-1}	2.15	2.15	2.176	2.188			2.26	2.25	2.28	1.45	2.23	2.225
CaO	g 100g^{-1}	3.54	3.51	3.417	3.388			3.63	3.65	3.52	51.2	3.569	3.582
Na2O	g 100g^{-1}	5.39	5.35	5.317	5.362			5.49	5.47	4.86	0.06	5.294	5.255
K2O	g 100g^{-1}	5.27	5.22	5.311	5.398			5.29	5.33	5.46	0.003	5.378	5.377
P2O5	g 100g^{-1}	0.96	0.93	0.918	1.018			0.881	0.899	0.91	0.009	0.919	0.932
Ag	mg kg^{-1}		0.34										
As	mg kg^{-1}	3.15	2.47	1.225	2.969								
Au	mg kg^{-1}												
B	mg kg^{-1}			7.899	7.476	7.31	6.49						
Ba	mg kg^{-1}	985.440	947.720	1024	1024	920.2	1030.200						
Be	mg kg^{-1}	3.73	3.7	3.856	3.973	3.63	3.81						
Bi	mg kg^{-1}	0.033	0.021			0.03	0.03						
Br	mg kg^{-1}												
Cd	mg kg^{-1}	0.17	0.08										
Ce	mg kg^{-1}	204.770	198.060	212.6	212.1	190.6	173.370						
Cl	mg kg^{-1}												
Co	mg kg^{-1}	5.34	5.36	5.288	5.106	5.41	5.68						
Cr	mg kg^{-1}			0.592	0.783	6.04	8.34			1231	62		
Cs	mg kg^{-1}	0.83	0.96	1.064	0.806	0.88	0.78						
Cu	mg kg^{-1}	5.77	5.28	5.595	6.69	5.52	6.33						
Dy	mg kg^{-1}	10.46	10.22	11.04	11.11	10.05	10.67						
Er	mg kg^{-1}	4.75	4.63	4.935	4.939	4.42	4.72						
Eu	mg kg^{-1}	5.59	5.73	5.742	5.707	5.34	5.74						
Ga	mg kg^{-1}	34.79	34.82	30.25	29.74								
Gd	mg kg^{-1}	22.22	22.97	16.37	16.31	14.29	15.51						
Ge	mg kg^{-1}	1.97	1.86										
Hf	mg kg^{-1}	30.04	29.31	31.44	31.69	29.01	31.03						
Hg	mg kg^{-1}												
Ho	mg kg^{-1}	1.8	1.75	1.888	1.89	1.7	1.87						
I	mg kg^{-1}												
In	mg kg^{-1}	0.12	0.11			0.13	0.13						
Ir	mg kg^{-1}												
La	mg kg^{-1}	88.31	86.31	94.41	94.12	86.72	93.89						
Li	mg kg^{-1}	12.78	17.22	13.86	13.87	14.14	15.3						
Lu	mg kg^{-1}	0.55	0.53	0.562	0.552	0.51	0.53						
Mn	mg kg^{-1}	1196.600	1195.890	1223	1226	1267.400	1218.600	1189	1232	1238	70	1239	1231
Mo	mg kg^{-1}		10.06	9.514	8.037		37.9						
Nb	mg kg^{-1}	94.57	94.13	90.75	89.83	106.8	111.2						
Nd	mg kg^{-1}	100.3	97	107.8	107.6	86.6	109.2						
Ni	mg kg^{-1}	5.82	6	5.016	3.695	7.87	5.03			134	76		
Pb	mg kg^{-1}	9.39	7.46	6.691	9.695	9.48	9.14						
Pd	mg kg^{-1}												
Pr	mg kg^{-1}	24.49	23.8	26.21	26.11	23.11	26.45						
Pt	mg kg^{-1}												
Rb	mg kg^{-1}	101.840	101.090	98.77	99.63	87.05	105.3						
Re	mg kg^{-1}												
Rh	mg kg^{-1}												
S	mg kg^{-1}												
Sb	mg kg^{-1}	0.39	0.36			0.36	0.35						
Sc	mg kg^{-1}	13.19	12.86	8.875	8.805	13.87	13.71						
Se	mg kg^{-1}												
Sm	mg kg^{-1}	19.21	18.54	20.65	20.58	18.25	21.14						
Sn	mg kg^{-1}	3.17	2.82	2.753	3.106	3.91	3.67						
Sr	mg kg^{-1}	592.450	585.820	632	629.7	550.9	664.9						
Ta	mg kg^{-1}	4.9	4.88	4.942	4.942	5.07	5.53						
Tb	mg kg^{-1}	2.04	1.99	2.119	2.127	1.78	2.42						
Te	mg kg^{-1}												
Th	mg kg^{-1}	13.29	12.84	13.58	13.61	11.1	14.97						
Tl	mg kg^{-1}	0.06	0.04	0.023	0.061	0.06	0.06						
Tm	mg kg^{-1}	0.77	0.75	0.8	0.810	0.67	0.88						
U	mg kg^{-1}	4.64	4.67	4.835	4.439	4.57	4.42						
V	mg kg^{-1}	13.69	13.77	13.97	13.6	13.49	13.03						
W	mg kg^{-1}	1.44	1.46	1.662	1.523	1.48	1.45						
Y	mg kg^{-1}	51.43	50.7	52.52	52.13	45.41	50.78						
Yb	mg kg^{-1}	3.95	3.9	4.206	4.256	3.81	4.21						
Zn	mg kg^{-1}	168.110	158.640	152.4	160.3	210.690	226.990						
Zr	mg kg^{-1}	1352.430	1330.860	1398	1399	1310.800	1422.700						

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D10A	D10B	D11A	D11B	D12A	D12B	D13A	D13B	D14A	D14B	D16A	D16B
SiO2	g 100g^{-1}	55.29		55.16	55.18					55.83	56.1	58.43	58.33
TiO2	g 100g^{-1}	1.58		1.67	1.68	1.29				1.6	1.56	1.62	1.63
Al2O3	g 100g^{-1}	17.58		17.33	17.36	15.3				17.59	17.71	17.04	17
Fe2O3T	g 100g^{-1}	7.98		6.18	6.22	5.87				7.06	7.07	6.84	6.81
MgO	g 100g^{-1}	2.14		2.21	2.18	1.66				2.27	2.19	2.16	2.16
CaO	g 100g^{-1}	3.5		3.45	3.42	3.13		3.7	3.7	3.55	3.42	3.5	3.5
Na2O	g 100g^{-1}	5.42		5.33	5.32	4.39				5.14	5.1	4.8	4.84
K2O	g 100g^{-1}	5.61		5.51	5.52	5.24				5.36	5.19	5.43	5.47
P2O5	g 100g^{-1}			0.79	0.81	0.694				0.91	0.84	0.86	0.94
Ag	mg kg^{-1}					0.1							
As	mg kg^{-1}					1.57							
Au	mg kg^{-1}												
B	mg kg^{-1}	8.38				10.4							
Ba	mg kg^{-1}	992				905		910.850	905.010	979	981		
Be	mg kg^{-1}					3.83							
Bi	mg kg^{-1}												
Br	mg kg^{-1}												
Cd	mg kg^{-1}												
Ce	mg kg^{-1}	197				185		182.462	182.012				
Cl	mg kg^{-1}					180				274	57		
Co	mg kg^{-1}	5.31				4.76		4.806	4.794				
Cr	mg kg^{-1}	0.947				0.898		3.815	3.724				
Cs	mg kg^{-1}	0.832				0.737		0.934	0.881				
Cu	mg kg^{-1}	5.54				4.68							
Dy	mg kg^{-1}	9.82				9.67		9.547	9.598				
Er	mg kg^{-1}	4.19				4.3		4.247	4.248				
Eu	mg kg^{-1}	5.46						5.029	4.968				
Ga	mg kg^{-1}	30.5				23.5							
Gd	mg kg^{-1}	14.5				14		13.586	13.61				
Ge	mg kg^{-1}	3.09				1.31							
Hf	mg kg^{-1}	28.8				28.8		28.043	28.178				
Hg	mg kg^{-1}												
Ho	mg kg^{-1}	1.72				1.66		1.69	1.685				
I	mg kg^{-1}												
In	mg kg^{-1}					0.113							
Ir	mg kg^{-1}												
La	mg kg^{-1}	92				84.5		84.8	84.582				
Li	mg kg^{-1}	14.6				13.5		12.833	12.636				
Lu	mg kg^{-1}	0.497				0.5		0.501	0.486				
Mn	mg kg^{-1}	1172				1008		1184.350	1182.130	1246	1277		
Mo	mg kg^{-1}	9.02				16.9							
Nb	mg kg^{-1}	78.4				75.6		78.522	78.818				
Nd	mg kg^{-1}	97.4				93.1		93.075	93.192				
Ni	mg kg^{-1}	5.97				8							
Pb	mg kg^{-1}	9.13				6.67		6.957	7.562				
Pd	mg kg^{-1}												
Pr	mg kg^{-1}	23.3				22.9		23.114	22.992				
Pt	mg kg^{-1}												
Rb	mg kg^{-1}	104				86.2		92.964	93.924	89	79		
Re	mg kg^{-1}												
Rh	mg kg^{-1}												
S	mg kg^{-1}												
Sb	mg kg^{-1}					0.359							
Sc	mg kg^{-1}	12.5				8.34							
Se	mg kg^{-1}					3.55							
Sm	mg kg^{-1}	18.9				18.11		17.902	18.112				
Sn	mg kg^{-1}					3.2							
Sr	mg kg^{-1}	614				560		593.074	597.362	694	648		
Ta	mg kg^{-1}	4.45				4.1		4.132	4.174				
Tb	mg kg^{-1}	1.91				1.83		1.876	1.859				
Te	mg kg^{-1}												
Th	mg kg^{-1}	12.5				12.4		12.017	11.886				
Tl	mg kg^{-1}	0.056											
Tm	mg kg^{-1}	0.698				0.705		0.705	0.692				
U	mg kg^{-1}	4.36				4.23		4.202	3.922				
V	mg kg^{-1}	13.3				11.5		12.773	12.53				
W	mg kg^{-1}	1.46				1.39							
Y	mg kg^{-1}	46.2				45.3		45.886	45.734				
Yb	mg kg^{-1}	3.74				3.68		3.732	3.788				
Zn	mg kg^{-1}	190				151							
Zr	mg kg^{-1}	1275				1199		1209.385	1208.510	1219	1187		

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D17A	D17B	D18A	D18B	D19A	D19B	D20A	D20B	D21A	D21B	D22A	D22B
SiO2	g 100g^{-1}	55.57		55.68	55.68	55.64	56.12	54	54.9	58.56		55.93	56.01
TiO2	g 100g^{-1}	1.545		1.51	1.52	1.56	1.52	1.49	1.49	1.675		1.56	1.56
Al2O3	g 100g^{-1}	17.381		17.48	17.47	17.84	17.89	16.9	17.3	18.97		17.54	17.54
Fe2O3T	g 100g^{-1}	6.864		6.6	6.65	6.66	6.8	6.67	6.66	6.864		6.92	6.97
MgO	g 100g^{-1}	2.209		2.18	2.19	2.25	2.24	2.08	2.14			2.19	2.18
CaO	g 100g^{-1}	3.583		3.61	3.62	3.5	3.51					3.54	3.54
Na2O	g 100g^{-1}	5.267		5.13	5.16	5.53	5.26	5.1	5.21			5.39	5.38
K2O	g 100g^{-1}	5.223		5.2	5.26	6.05	5.41	5.21	5.23			5.42	5.44
P2O5	g 100g^{-1}	0.911		0.91	0.91	0.86	1	0.87	0.87	1.203		0.96	0.93
Ag	mg kg^{-1}			0.26	0.23			0.22	0.22				
As	mg kg^{-1}			1.92	2.36			2.8	2.54				
Au	mg kg^{-1}												
B	mg kg^{-1}			6.55	6.4			9.35	10.28				
Ba	mg kg^{-1}	1093.690		987.9	982.3	1143.535	1043.414	1042	997	957.3			
Be	mg kg^{-1}			2.5	2.57			3.96	3.67				
Bi	mg kg^{-1}			0.038	0.038								
Br	mg kg^{-1}												
Cd	mg kg^{-1}							0.24	0.19				
Ce	mg kg^{-1}	218.460		208.6	208	248.555	216.670	214	204	196.1			
Cl	mg kg^{-1}												
Co	mg kg^{-1}	4.96		5.24	5.18	7.047	5.477	5.16	5.19				
Cr	mg kg^{-1}	1.26		2.7	2.92	2.33	1.156	1.37	1.49	2.826			
Cs	mg kg^{-1}	0.78		0.9	0.84	1.075	0.961	0.85	0.81				
Cu	mg kg^{-1}			7.25	7.07			9.69	9.71				
Dy	mg kg^{-1}	10.71		10.86	10.71	11.541	9.275	11	10.3	10.18			
Er	mg kg^{-1}	4.79		4.84	4.81	5.144	3.996	4.87	4.63	4.544			
Eu	mg kg^{-1}	5.94		5.66	5.59	6.02	5.347	5.83	5.5	5.338			
Ga	mg kg^{-1}			28.4	28.2	34.928	32.626	30.1	29.4	31.79			
Gd	mg kg^{-1}	15.82		16.39	16.27	17.304	13.626	15.6	15	14.72			
Ge	mg kg^{-1}			1.97	2.19	2.294	3.259	2.18	2.41				
Hf	mg kg^{-1}	31.77				34.193	24.893	31.1	29.4	29.89			
Hg	mg kg^{-1}												
Ho	mg kg^{-1}	1.85		1.82	1.84	2.01	1.562	1.86	1.78	1.799			
I	mg kg^{-1}												
In	mg kg^{-1}							0.12	0.12				
Ir	mg kg^{-1}												
La	mg kg^{-1}	96.68		94.8	94.5	101.207	86.928	95.2	90.9	88.58			
Li	mg kg^{-1}			13.1	13.4	11.664	16.458	12.9	13.5				
Lu	mg kg^{-1}	0.56		0.55	0.55	0.576	0.458	0.56	0.52	0.525			
Mn	mg kg^{-1}	1196.800		1154.600	1169			1188	1186	1256			
Mo	mg kg^{-1}			9.08	7.3			7.92	8.58				
Nb	mg kg^{-1}	97.15		85.7	86.1	119.131	93.095	88.6	86.1	85.55			
Nd	mg kg^{-1}	108.120		106.3	105.8	111.270	98.004	107.6	102.5	99.41			
Ni	mg kg^{-1}	3.51		5.28	5.18	12.532	9.249	4.92	5.95	12.18			
Pb	mg kg^{-1}	9.24		7.84	8.6	7.625	8.078	9.53	8.62	8.307			
Pd	mg kg^{-1}												
Pr	mg kg^{-1}	26.97		25.4	25.4	29.859	24.748	26.2	25	24.29			
Pt	mg kg^{-1}												
Rb	mg kg^{-1}	98.8		96	96.5	118.891	107.390	101.6	98	100.1			
Re	mg kg^{-1}												
Rh	mg kg^{-1}												
S	mg kg^{-1}												
Sb	mg kg^{-1}			0.38	0.39			0.37	0.37				
Sc	mg kg^{-1}	10.93		9.9	9.77	12.412	9.638	9.06	9.12				
Se	mg kg^{-1}												
Sm	mg kg^{-1}	20.82		20.44	20.04	22.24	18.167	20.3	19.3	18.92			
Sn	mg kg^{-1}			2.87	3.12			3.8	3.76				
Sr	mg kg^{-1}	646.540		614.6	614.4	614.124	611.640	640	621	611.7			
Ta	mg kg^{-1}	5.3				6.04	4.643	4.85	4.6	4.543			
Tb	mg kg^{-1}	2.07				2.316	1.784	2.09	1.99	1.98			
Te	mg kg^{-1}												
Th	mg kg^{-1}	13.83		12	12.5	15.36	11.723	13.6	12.8	12.62			
Tl	mg kg^{-1}							0.08	0.05				
Tm	mg kg^{-1}	0.78		0.77	0.77	0.846	0.653	0.8	0.75	0.743			
U	mg kg^{-1}	4.5		4.47	4.32	5.819	4.913	4.47	4.24	4.384			
V	mg kg^{-1}	13.22		13.6	13.8	16.986	14.39	13.2	13.3	13.24			
W	mg kg^{-1}							1.56	1.45	1.56			
Y	mg kg^{-1}	49.36		52.6	51.6	57.475	41.748	50.2	48.8	47.05			
Yb	mg kg^{-1}	4.15		4.13	4.02	4.478	3.578	4.15	3.95	3.947			
Zn	mg kg^{-1}			180.2	180.3			179	174				
Zr	mg kg^{-1}	1385.730		1371.800	1364.100	1560.186	1101.324	1350	1312	1308			

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D24A	D24B	D27A	D27B	D28A	D28B	D32A	D32B	D33A	D33B	D34A	D34B
SiO2	g 100g^{-1}	55.57	55.56	55.680		56.22	56.01			56.39	56.64	56.36	55.83
TiO2	g 100g^{-1}	1.58	1.57	1.564		1.55	1.56			1.54	1.52	1.569	1.575
Al2O3	g 100g^{-1}	17.91	17.91	17.606		17.52	17.8			17.82	17.8	17.89	17.87
Fe2O3T	g 100g^{-1}	6.97	6.94	7.147		6.97	7.03			6.84	6.87	7.105	7.017
MgO	g 100g^{-1}	2.16	2.17	2.219		2.23	2.21			2.29	2.3	2.166	2.19
CaO	g 100g^{-1}	3.56	3.55	3.571		3.58	3.61			3.62	3.63	3.613	3.603
Na2O	g 100g^{-1}	5.57	5.56	5.296		5.3	5.26			5.02	5	5.441	5.437
K2O	g 100g^{-1}	5.51	5.49	5.341		5.45	5.42			5.5	5.47	5.421	5.405
P2O5	g 100g^{-1}	0.89	0.9	0.908		0.883	0.829			0.96	0.96	0.933	0.927
Ag	mg kg^{-1}			0.170		0.022	0.026						
As	mg kg^{-1}			1.924		1.74	0.99						
Au	mg kg^{-1}			0.033		0.005	0.006						
B	mg kg^{-1}			7.121		7.22	9						
Ba	mg kg^{-1}	1020.140	1017.950	1029.136		1004	1003	1026	1055			972	1025
Be	mg kg^{-1}	4.06	3.92	3.922		4.6	4.16	3.92	4.19				
Bi	mg kg^{-1}					0.04	0.035						
Br	mg kg^{-1}					56.2	42.6						
Cd	mg kg^{-1}			0.236		0.49	0.32	0.19	0.15				
Ce	mg kg^{-1}	211.030	210.850	212.933		203	204	205.7	210.1			199	210
Cl	mg kg^{-1}					530	404						
Co	mg kg^{-1}	5.77	5.76	5.385		5.78	5.43	5.58	5.96			5.072	5.276
Cr	mg kg^{-1}			0.760		6.96	0.36	1.57	1.68			0.839	0.846
Cs	mg kg^{-1}	1.24	1.24	0.945		0.85	0.951					0.771	0.838
Cu	mg kg^{-1}	6.98	6.98	6.001		6.8	6.9	6.51	6.48			6.066	5.461
Dy	mg kg^{-1}	11.27	11.22	10.961		9.9	10.08	13.47	13.15			9.811	10.82
Er	mg kg^{-1}	5	5.03	4.917		4.53	4.29	4.84	4.71			4.367	4.703
Eu	mg kg^{-1}	5.71	5.69	5.714		5.49	5.31	6.51	6.49			5.224	5.632
Ga	mg kg^{-1}	30.1	30.13	29.070		37.1	36.82	28.07	29.28			28.65	29.49
Gd	mg kg^{-1}	16.64	16.51	16.505		15.34	14.95	19.97	19.5			14.66	16
Ge	mg kg^{-1}					8.58	8.6					1.504	1.413
Hf	mg kg^{-1}	31.12	31.2	30.738		29.38	30.1	36.65	35.92			28.29	31.15
Hg	mg kg^{-1}												
Ho	mg kg^{-1}	1.97	1.97	1.867		1.8	1.82	1.93	1.87			1.681	1.851
I	mg kg^{-1}												
In	mg kg^{-1}					0.152	0.158						
Ir	mg kg^{-1}												
La	mg kg^{-1}	94.88	94.72	95.539		90.9	90	101.1	100.9			87.35	94.23
Li	mg kg^{-1}	14.59	14.46	13.923		14.16	13.9	13.73	14.43			12.95	13.6
Lu	mg kg^{-1}	0.57	0.57	0.554		0.528	0.495	0.57	0.58			0.493	0.528
Mn	mg kg^{-1}	1237.410	1240.250	1234.397		1045	1057	1115	1169			1208	1237
Mo	mg kg^{-1}			13.303		31.7	27.1						
Nb	mg kg^{-1}	93.65	93.63	90.054		87.7	89	91.5	94.9			84.05	87.52
Nd	mg kg^{-1}	108.2	108.120	107.991		100.1	100	103.8	103.2			98.19	105
Ni	mg kg^{-1}	15.43	15.56	6.781		5.44	6.1	15.1	19.01			4.716	5.049
Pb	mg kg^{-1}	9.04	9.03	8.088		8.97	8.7	7.8	7.1			9.266	9.509
Pd	mg kg^{-1}												
Pr	mg kg^{-1}	26.71	26.69	26.246		25.44	25.48	26.11	25.95			23.95	25.57
Pt	mg kg^{-1}												
Rb	mg kg^{-1}	102.110	102.040	98.920		100.9	100.8	94.68	99.39			96.51	99.78
Re	mg kg^{-1}												
Rh	mg kg^{-1}												
S	mg kg^{-1}												
Sb	mg kg^{-1}					0.488	0.326	0.39	0.36				
Sc	mg kg^{-1}	10.09	10.1	8.605		9.84	9.7					14.81	14.35
Se	mg kg^{-1}												
Sm	mg kg^{-1}	20.5	20.56	20.441		19.52	18.92	24.25	24.21			18.37	20.22
Sn	mg kg^{-1}			2.965		6.18	5.83	4.28	4.21				
Sr	mg kg^{-1}	633.340	629.690	633.305		599	602	661	686			603	642
Ta	mg kg^{-1}	5.01	5	4.813		4.53	4.46	6	5.88			4.288	4.65
Tb	mg kg^{-1}	2.19	2.2	2.109		1.93	2.01	2.21	2.18			1.869	2.046
Te	mg kg^{-1}												
Th	mg kg^{-1}	13.63	13.57	13.409		12.7	12.63	15.51	15.19			12.16	13.22
Tl	mg kg^{-1}					0.081	0.091						
Tm	mg kg^{-1}	0.82	0.81	0.788		0.732	0.736	0.79	0.78			0.687	0.764
U	mg kg^{-1}	5.9	5.92	4.756		4.36	4.62	3.66	3.84			4.047	4.289
V	mg kg^{-1}	41.46	41.56	13.993		13.46	13.92	12.52	12.92			13.25	13.58
W	mg kg^{-1}					1.59	1.66						
Y	mg kg^{-1}	54.01	54.08	52.231		45.94	45.64	55.32	55.87			46.84	50.88
Yb	mg kg^{-1}	4.35	4.32	4.119		3.98	4.01	4.14	4.02			3.759	4.13
Zn	mg kg^{-1}	165.190	164.630	156.374		187.2	185	142.9	151.3			188	194
Zr	mg kg^{-1}	1413.650	1410.360	1368.409		1252	1238	1610	1623			1260	1356

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D37A	D37B	D42A	D42B	D43A	D43B	D44A	D44B	D45A	D45B	D47A	D47B
SiO2	g 100g^{-1}	55.56		55.6	55.2			55.459	55.318			55.492	55.445
TiO2	g 100g^{-1}	1.68		1.44	1.48			1.678	1.669			1.552	1.563
Al2O3	g 100g^{-1}	17.7		16.8	16.7			18.777	18.795			17.967	17.956
Fe2O3T	g 100g^{-1}	7.03		6.49	6.52			6.898	6.867			6.853	6.853
MgO	g 100g^{-1}	2.35		2.2	2.26			2.15	2.144			2.176	2.178
CaO	g 100g^{-1}	3.36		5.51	5.72			3.517	3.487			3.545	3.539
Na2O	g 100g^{-1}	5.08		5.18	5.12			5.126	4.991			5.372	5.37
K2O	g 100g^{-1}	5.68		4.63	4.72			5.291	5.239			5.468	5.459
P2O5	g 100g^{-1}	0.85		0.65	0.71			0.788	0.778			0.905	0.897
Ag	mg kg^{-1}	0.36		0.62	0.64								
As	mg kg^{-1}	2.26											
Au	mg kg^{-1}	0.02											
B	mg kg^{-1}							5.405				8.2	8
Ba	mg kg^{-1}	973		869	871	983	994	1019.135	1012.934	1026.920	1038.720	1019	1019
Be	mg kg^{-1}	3.5						3.696				3.7	3.6
Bi	mg kg^{-1}			0.075	0.09							0.032	0.026
Br	mg kg^{-1}												
Cd	mg kg^{-1}												
Ce	mg kg^{-1}	203.1		167	165	207	209	214.672	207.511	194.290	195.260	212.9	213.7
Cl	mg kg^{-1}												
Co	mg kg^{-1}	5.2		6.62	6.01	5.05	5.4	5.273	5.241			5.1	5.2
Cr	mg kg^{-1}	0.79		6.94	7.01			0.686	1.202				
Cs	mg kg^{-1}	0.87		1	1.01	0.94	0.94	1.075	1.125			0.79	0.85
Cu	mg kg^{-1}	5.7		8.08	9.9			4.329	4.529			6.5	6.2
Dy	mg kg^{-1}	10.22		8.59	9.02	10.9	11.1	11.103	10.668	10.43	10.61	10.5	10.6
Er	mg kg^{-1}	4.49		3.78	3.68	4.94	4.88	5.097	4.953	4.6	4.68	4.7	4.7
Eu	mg kg^{-1}	5.38				5.67	5.73	5.785	5.67	5.55	5.59	5.4	5.5
Ga	mg kg^{-1}	28.08		28.2	27.4	80.5	79.4	27.549	27.828	26	25.58	40	40.7
Gd	mg kg^{-1}	15.03				15.9	16.2	16.683	16.076	15.24	15.41	15.4	15.4
Ge	mg kg^{-1}	2.5						1.522	1.581	1.31	1.21		
Hf	mg kg^{-1}	29.65		26.2	25.7	31.6	31.6	31.639	30.583	26.43	27.01	29.8	29.9
Hg	mg kg^{-1}												
Ho	mg kg^{-1}	1.81		1.54	1.56	1.97	1.99	1.899	1.838	1.77	1.8	1.82	1.82
I	mg kg^{-1}							0.098	0.096				
In	mg kg^{-1}	0.13								0.11	0.11		
Ir	mg kg^{-1}												
La	mg kg^{-1}	89.04		76	75.8	96.1	97	97.461	94.503	87.03	84.49	93.1	93.3
Li	mg kg^{-1}					13.5	14	13.793	13.73			13.3	13.7
Lu	mg kg^{-1}	0.53		0.44	0.45	0.62	0.62	0.555	0.532	0.55	0.56	0.54	0.54
Mn	mg kg^{-1}	1229		1085	1085	1152	1135	1274	1266			1145	1158
Mo	mg kg^{-1}	11.75				8.84	9.59	7.381	7.187	7.53	15.56		
Nb	mg kg^{-1}	84.54		69.8	69.4	83	83.3	87.306	86.561	76.7	75.66	87	87.2
Nd	mg kg^{-1}	96.99		87.5	86.7	104	105	107.921	104.420	88.3	89.18	100.9	100.8
Ni	mg kg^{-1}	6.15		11.5	10.7			5.918	5.58			4.5	5.4
Pb	mg kg^{-1}	7.96		4.75	5.42	7.68	7.24	5.558	5.945			8.9	8.5
Pd	mg kg^{-1}												
Pr	mg kg^{-1}	24.22		20.2	20.2	26.5	26.8	26.117	25.363	21.47	21.64	24.5	24.5
Pt	mg kg^{-1}												
Rb	mg kg^{-1}	98.01		93.4	92.2	95	93.6	96.11	97.893			97.4	97.3
Re	mg kg^{-1}	0.002											
Rh	mg kg^{-1}												
S	mg kg^{-1}												
Sb	mg kg^{-1}	0.31		0.42	0.51			0.352	0.4				
Sc	mg kg^{-1}	13.17		16	16.6	9.95	9.85	9.408	9.21			8.7	8.9
Se	mg kg^{-1}	2.84											
Sm	mg kg^{-1}	19.25		15.7	15.7	20.2	20	20.479	19.911	17.01	18.02	19.2	19.3
Sn	mg kg^{-1}	3.81		3.06	3.75	2.93	2.77	2.467	2.448				
Sr	mg kg^{-1}	631.7		545	540	612	613	629.736	626.086			583.1	576.9
Ta	mg kg^{-1}	4.46		3.76	3.65	4.6	4.58	4.492	4.441	5.03	5.12	4.4	4.4
Tb	mg kg^{-1}	1.98		1.65	1.71	2.17	2.16	2.095	2.016	1.99	2.03	2.1	2.11
Te	mg kg^{-1}												
Th	mg kg^{-1}	12.81		10.1	10.5	13.9	14.1	13.548	13.041			12.4	12.4
Tl	mg kg^{-1}	0.049		0.12	0.14								
Tm	mg kg^{-1}	0.758		0.63	0.73	0.85	0.88	0.789	0.762	0.76	0.77	0.76	0.77
U	mg kg^{-1}	4.25		3.48	3.39	4.84	4.62	4.546	4.724			4.1	4.3
V	mg kg^{-1}	13.16		17.3	17.1	13.4	13.1	14.194	14.503			13.5	13.8
W	mg kg^{-1}	1.45		1.41	1.43	1.63	1.59	1.499	1.582	1.22	1.27		
Y	mg kg^{-1}	48.23		41.4	41.3	50.9	51.2	52.841	51.341	45.44	45.97	51	51.1
Yb	mg kg^{-1}	3.98		3.11	3.22	4.32	4.17	4.168	4.054	4.02	4.07	4.01	4.01
Zn	mg kg^{-1}	150.9		146	145			170.140	172.533			158.2	154.5
Zr	mg kg^{-1}	1315		1110	1100	1299	1307	1395.526	1374.648	1267.180	1293.400	1285	1268

Table 1 - G-Probe 25a Contributed data for Phonolite, KPho-2G Glass. 15/09/2021

Lab Code		D48A	D48B	D49A	D49B	D50A	D50B	D51A	D51B	D53A	D53B	-	-
SiO2	g 100g^{-1}	55.536		58	57.62	56.67	56.07			55.56	55.61		
TiO2	g 100g^{-1}	1.592		1.57	1.57	1.555	1.571			1.67	1.67		
Al2O3	g 100g^{-1}	17.828		18.24	18.35	17.49	17.48			18.73	18.76		
Fe2O3T	g 100g^{-1}	7.124		7.31	7.3	7.025	7.025			7.03	7.02		
MgO	g 100g^{-1}	2.23		2.25	2.25	2.182	2.208			2.32	2.32		
CaO	g 100g^{-1}	3.635		3.74	3.83	3.54	3.54			3.65	3.66		
Na2O	g 100g^{-1}	4.8		5.27	5.3	5.588	5.598			4.59	4.62		
K2O	g 100g^{-1}	5.281		5.41	5.5	5.562	5.482			5.4	5.39		
P2O5	g 100g^{-1}	0.933		0.81	0.88	0.830	0.865			0.94	0.91		
Ag	mg kg^{-1}			0.11	0.13			0.166	0.153				
As	mg kg^{-1}			1	1.98	1.102	2.076	2.43	2.32				
Au	mg kg^{-1}			0.01	0.02			0.03	0.028				
B	mg kg^{-1}			13.03	12.78	7.47	6.873	6.19	7.06				
Ba	mg kg^{-1}			1053.120	1068.480	1048	1056	966	978	1071.610	1067.340		
Be	mg kg^{-1}			4.24	4.24	3.683	3.788	3.03	3.29				
Bi	mg kg^{-1}			0.02	0.04			0.028	0.035				
Br	mg kg^{-1}												
Cd	mg kg^{-1}			0.24	0.3			0.12	0.115				
Ce	mg kg^{-1}			214.040	216.290	207.8	208.3	195	196	216.650	213.550		
Cl	mg kg^{-1}												
Co	mg kg^{-1}			5.31	5.44	5.273	5.324	5.26	5.19	5.82	5.8		
Cr	mg kg^{-1}					1.386	1.553	1.17	1.16	0.95	0.86		
Cs	mg kg^{-1}			1.09	0.96	0.965	0.821	0.816	0.868	0.94	1.05		
Cu	mg kg^{-1}			6.12	6.13	6.148	5.607	5.44	5.41	5.92	5.93		
Dy	mg kg^{-1}			11.26	11.43	10.13	9.996	9.93	9.96	10.75	10.78		
Er	mg kg^{-1}			4.92	4.84	4.497	4.43	4.46	4.41	4.78	4.72		
Eu	mg kg^{-1}			5.72	5.77	5.502	5.475	5.24	5.29	5.67	5.65		
Ga	mg kg^{-1}			28.27	28.39	31.68	31.06	28.5	28.4				
Gd	mg kg^{-1}			16.81	17.13	15.16	15.02	14.3	14.5	15.58	15.52		
Ge	mg kg^{-1}			1.3	1.44			2.14	2.21				
Hf	mg kg^{-1}			31.6	32.07	30.91	30.31	28.9	29.8	31.26	31.12		
Hg	mg kg^{-1}			0.59	0.72								
Ho	mg kg^{-1}			1.88	1.94	1.79	1.761			1.88	1.89		
I	mg kg^{-1}												
In	mg kg^{-1}			0.11	0.11			0.131	0.124				
Ir	mg kg^{-1}							0.004	0.003				
La	mg kg^{-1}			97.79	99.61	93.17	93.06	88.8	89.9	96.92	96.34		
Li	mg kg^{-1}			14.34	14.53	13.43	13.45	13.4	13.7	15.12	15.04		
Lu	mg kg^{-1}			0.54	0.56	0.548	0.542	0.523	0.529	0.55	0.55		
Mn	mg kg^{-1}	1155.400		1281.880	1282.790	1238	1252	1279	1282	1310.420	1321.340		
Mo	mg kg^{-1}			9.64	8.68	10.32	8.236	10.7	9.4	8.31	9.58		
Nb	mg kg^{-1}			85.98	86.87	94.41	94.24	83.4	83.4	93.5	92.6		
Nd	mg kg^{-1}			113.2	113.750	101.4	101.8	96	98	107.590	107.170		
Ni	mg kg^{-1}			5.17	5.38	5.66	6.131	7.2	5.63	5.59	5.89		
Pb	mg kg^{-1}			7.11	8.79	7.182	7.904	8.97	8.43	9.67	8.49		
Pd	mg kg^{-1}			0.21	0.25			0.131	0.113				
Pr	mg kg^{-1}			26.63	26.88	25.42	25.34	24.1	24.2	26.55	26.42		
Pt	mg kg^{-1}			4.08	2.58			1.94	2.15				
Rb	mg kg^{-1}			99.74	100.170	103.9	104.7	101	99.8	115.080	113.740		
Re	mg kg^{-1}												
Rh	mg kg^{-1}							0.46	0.355				
S	mg kg^{-1}			640.2	595.850								
Sb	mg kg^{-1}			0.4	0.4			0.34	0.328				
Sc	mg kg^{-1}			11.61	11.73	10.41	10.17	8.7	8.9	9.25	9.17		
Se	mg kg^{-1}							1.99	1.89				
Sm	mg kg^{-1}			20.87	21.27	19.27	19.23	18.6	19.1	20.33	20.34		
Sn	mg kg^{-1}			2.55	3.04			3.86	3.73	4.23	3.98		
Sr	mg kg^{-1}			640.470	649.690	618.3	624.2	647	652	655.350	650.820		
Ta	mg kg^{-1}			4.31	4.39	4.787	4.787	4.31	4.35	4.77	4.75		
Tb	mg kg^{-1}			2.09	2.15	2.007	1.973	1.94	1.94	2.12	2.09		
Te	mg kg^{-1}												
Th	mg kg^{-1}			13.51	13.78	12.73	12.68	12.5	12.6	13.44	13.4		
Tl	mg kg^{-1}			0.04	0.05			0.082	0.058				
Tm	mg kg^{-1}			0.79	0.8	0.637	0.621	0.727	0.733	0.78	0.77		
U	mg kg^{-1}			4.94	4.47	5.093	4.63	4.14	4.22	4.6	4.71		
V	mg kg^{-1}			14.35	14.2	13.62	13.12	13.2	13.1	14.43	14.54		
W	mg kg^{-1}			1.49	1.51	1.589	1.46	1.43	1.42	1.55	1.61		
Y	mg kg^{-1}			52.01	52.77	55.47	54.66	47.3	48.1	50.79	50.6		
Yb	mg kg^{-1}			4.17	4.35	3.838	3.772	3.86	4	4.17	4.16		
Zn	mg kg^{-1}			179.650	187.120	153.8	156.9	195	190	210.580	205.350		
Zr	mg kg^{-1}			1451.090	1479.080	1417	1404	1243	1266	1370.200	1356.380		

Table 2 - G-Probe 25a Designated values and statistical summary for Phonolite, KPho-2G Glass.

	Designated Value	Uncertainty of designated value	Horwitz Quality	Horwitz Target Precision	Uncertainty/ Target Precision	Number of reported results	Robust Mean of results	Robust SD of results	Median of results	Status of designated value	Type of designated value
	X_{pt}	$u(x_{pt})$	$k \times 0.01$	σ_{pt}	$u(x_{pt}) / \sigma_{pt}$	n					
	g 100g^{-1}	g 100g^{-1}		g 100g^{-1}			g 100g^{-1}	g 100g^{-1}	g 100g^{-1}		
SiO2	55.64	0.1142	1	0.6078	0.1878	28	55.79	0.571	55.64	Assigned	Median
TiO2	1.57	0.007591	1	0.02934	0.2587	29	1.571	0.06276	1.57	Assigned	Median
Al2O3	17.65	0.08971	1	0.2292	0.3915	29	17.63	0.4611	17.65	Assigned	Median
Fe2O3T	6.942	0.03554	1	0.1037	0.3426	29	6.905	0.2179	6.942	Assigned	Median
MgO	2.199	0.01043	1	0.03906	0.267	28	2.199	0.05519	2.195	Assigned	Robust Mean
CaO	3.565	0.01948	1	0.05889	0.3309	28	3.565	0.1031	3.563	Assigned	Robust Mean
Na2O	5.325	0.0674	1	0.0828	0.814	28	5.211	0.2593	5.277	Provisional	Mode
K2O	5.376	0.02841	1	0.08348	0.3404	28	5.376	0.1503	5.386	Assigned	Robust Mean
P2O5	0.911	0.0214	1	0.01848	1.158	28	0.8885	0.06327	0.9005	Provisional	Mode
	mg kg^{-1}	mg kg^{-1}		mg kg^{-1}			mg kg^{-1}	mg kg^{-1}	mg kg^{-1}		
Ba	1005	9.03	1	28.39	0.318	27	1005	46.92	1004	Assigned	Robust Mean
Be	3.775	0.06649	1	0.2472	0.2689	16	3.795	0.2744	3.775	Assigned	Median
Bi	0.03075	0.001807	1	0.004154	0.435	8	0.03302	0.005449	0.03075	Provisional	Median
Ce	207.9	2.166	1	7.449	0.2907	26	204.6	11.02	207.9	Assigned	Median
Co	5.225	0.0375	1	0.3258	0.1151	24	5.349	0.3257	5.278	Assigned	Mode
Cs	0.895	0.02518	1	0.07279	0.346	23	0.9042	0.0971	0.895	Assigned	Median
Cu	5.878	0.115	1	0.3601	0.3193	20	6.112	0.7956	5.963	Assigned	Mode
Dy	10.46	0.1499	1	0.5878	0.255	26	10.47	0.587	10.46	Assigned	Median
Er	4.64	0.05276	1	0.2946	0.1791	26	4.64	0.269	4.665	Assigned	Robust Mean
Eu	5.583	0.03849	1	0.3447	0.1116	24	5.583	0.1885	5.643	Assigned	Robust Mean
Ga	28.82	0.639	1	1.39	0.4598	22	30.18	3.312	29.41	Assigned	Mode
Gd	15.32	0.27	1	0.8128	0.3322	25	15.58	1.006	15.4	Assigned	Mode
Hf	29.89	0.4051	1	1.434	0.2825	25	30.13	1.347	29.89	Assigned	Median
Ho	1.81	0.01635	1	0.1324	0.1235	25	1.817	0.07643	1.81	Assigned	Median
In	0.12	0.006194	1	0.01321	0.469	9	0.1215	0.01087	0.12	Provisional	Median
La	93.08	1.16	1	3.763	0.3083	26	92.11	4.787	93.08	Assigned	Median
Li	13.91	0.1399	1	0.7487	0.1868	21	13.91	0.6409	13.87	Assigned	Robust Mean
Lu	0.54	0.005867	1	0.04739	0.1238	26	0.5359	0.02741	0.54	Assigned	Median
Mn	1225	21	1	33.59	0.6252	29	1201	65	1211	Assigned	Mode
Mo	9.02	0.292	1	0.5181	0.5636	17	10.46	2.586	9.278	Provisional	Mode
Nb	86.72	1.82	1	3.543	0.5136	26	87.45	7.592	87.02	Assigned	Mode
Nd	101.6	1.2	1	4.055	0.2959	26	101.6	6.119	101.6	Assigned	Robust Mean
Ni	5.77	0.189	1	0.3545	0.5331	24	7.098	2.915	5.94	Provisional	Mode
Pb	8.425	0.448	1	0.4889	0.9163	25	8.235	0.8949	8.22	Provisional	Mode
Pr	25.39	0.4136	1	1.248	0.3314	26	25.1	1.562	25.39	Assigned	Median
Rb	98.86	0.8372	1	3.961	0.2114	26	98.65	4.149	98.86	Assigned	Median
Sb	0.3736	0.008392	1	0.03465	0.2422	12	0.3736	0.02907	0.375	Provisional	Robust Mean
Sm	19.58	0.2116	1	1.001	0.2114	26	19.58	1.079	19.5	Assigned	Robust Mean
Sr	621.9	4.629	1	18.89	0.245	26	621.1	26.44	621.9	Assigned	Median
Ta	4.59	0.08919	1	0.2919	0.3056	25	4.684	0.4314	4.59	Assigned	Median
Tb	2.04	0.02577	1	0.1466	0.1758	25	2.032	0.1093	2.04	Assigned	Median
Th	13.01	0.135	1	0.7072	0.1908	25	13.01	0.6748	13.04	Assigned	Robust Mean
Tm	0.77	0.0075	1	0.06406	0.1171	26	0.7569	0.04144	0.765	Assigned	Mode
U	4.49	0.08919	1	0.2865	0.3113	25	4.462	0.316	4.49	Assigned	Median
V	13.41	0.1059	1	0.7259	0.1459	25	13.6	0.6868	13.41	Assigned	Median
W	1.498	0.02083	1	0.1127	0.1848	17	1.498	0.0859	1.5	Assigned	Robust Mean
Y	49.62	0.6568	1	2.205	0.2978	26	49.62	3.349	49.56	Assigned	Robust Mean
Yb	4.015	0.03544	1	0.2605	0.1361	26	4.015	0.1807	4.019	Assigned	Robust Mean
Zr	1331	19.43	1	36.05	0.5389	27	1323	82.9	1331	Assigned	Median

Table 3 - G-Probe 25a Z-scores for Phonolite, KPho-2G Glass. 15/09/2021

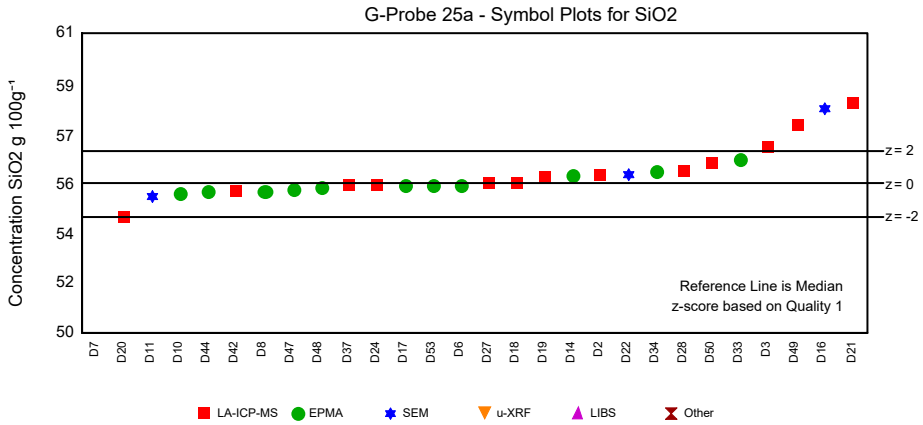
Lab Code	D2	D3	D4	D6	D7	D8	D10	D11	D12	D13	D14	D16	D17
SiO2: 1	0.53	2.24	*	-0.07	-44.22	-0.39	-0.58	-0.77	*	*	0.53	4.51	-0.12
TiO2: 1	0.68	0.00	*	0.34	-25.96	-0.43	0.34	3.58	-9.54	*	0.34	1.87	-0.85
Al2O3: 1	-0.63	-1.57	*	1.48	-38.03	0.30	-0.31	-1.33	-10.25	*	0.00	-2.75	-1.17
Fe2O3T: 1	0.99	-0.20	*	0.70	-32.70	0.00	10.01	-7.15	-10.34	*	1.19	-1.13	-0.75
MgO: 1	-1.25	-0.43	*	1.44	-8.55	0.73	-1.51	-0.10	-13.80	*	0.80	-0.99	0.26
CaO: 1	-0.68	-2.76	*	1.27	404.09	0.18	-1.10	-2.21	-7.39	2.29	-1.36	-1.10	0.30
Na2O: 1	*0.54*	*0.18*	*	*1.87*	*-34.60*	*-0.61*	*1.15*	*0.00*	*-11.29*	*	*-2.48*	*-6.10*	*-0.70*
K2O: 1	-1.57	-0.26	*	-0.79	-31.68	0.02	2.80	1.66	-1.63	*	-1.21	0.88	-1.83
P2O5: 1	*1.84*	*3.08*	*	*-1.14*	*-24.44*	*0.78*	*	*-6.01*	*-11.74*	*	*-1.95*	*-0.60*	*0.00*
Ba: 1	-1.34	0.68	-1.04	*	*	*	-0.45	*	-3.51	-3.41	-0.87	*	3.13
Be: 1	-0.24	0.56	-0.22	*	*	*	*	*	0.22	*	*	*	*
Bi: 1	*-0.90*	*	*-0.18*	*	*	*	*	*	*	*	*	*	*
Ce: 1	-0.88	0.59	-3.49	*	*	*	-1.47	*	-3.08	-3.45	*	*	1.41
Co: 1	0.38	-0.09	0.98	*	*	*	0.26	*	-1.43	-1.30	*	*	-0.81
Cs: 1	0.00	0.55	-0.89	*	*	*	-0.87	*	-2.17	0.17	*	*	-1.58
Cu: 1	-0.98	0.74	0.13	*	*	*	-0.94	*	-3.33	*	*	*	*
Dy: 1	-0.21	1.04	-0.18	*	*	*	-1.10	*	-1.35	-1.52	*	*	0.42
Er: 1	0.17	1.01	-0.24	*	*	*	-1.53	*	-1.15	-1.33	*	*	0.51
Eu: 1	0.22	0.41	-0.12	*	*	*	-0.36	*	*	-1.70	*	*	1.04
Ga: 1	4.31	0.85	*	*	*	*	1.21	*	-3.82	*	*	*	*
Gd: 1	8.94	1.25	-0.52	*	*	*	-1.01	*	-1.63	-2.12	*	*	0.61
Hf: 1	-0.15	1.17	0.09	*	*	*	-0.76	*	-0.76	-1.24	*	*	1.31
Ho: 1	-0.26	0.60	-0.19	*	*	*	-0.68	*	-1.13	-0.93	*	*	0.30
In: 1	*-0.38*	*	*0.76*	*	*	*	*	*	*-0.53*	*	*	*	*
La: 1	-1.53	0.31	-0.74	*	*	*	-0.29	*	-2.28	-2.23	*	*	0.96
Li: 1	1.45	-0.06	1.08	*	*	*	0.92	*	-0.55	-1.57	*	*	*
Lu: 1	0.00	0.36	-0.42	*	*	*	-0.91	*	-0.84	-0.98	*	*	0.42
Mn: 1	-0.84	0.00	0.55	-0.42	-16.98	0.31	-1.56	*	-6.45	-1.23	1.10	*	-0.82
Mo: 1	*2.01*	*-0.47*	*55.74*	*	*	*	*0.00*	*	*15.21*	*	*	*	*
Nb: 1	2.15	1.01	6.29	*	*	*	-2.35	*	-3.14	-2.27	*	*	2.94
Nd: 1	-0.74	1.49	-0.92	*	*	*	-1.05	*	-2.11	-2.10	*	*	1.60
Ni: 1	*0.39*	*-3.99*	*1.92*	*	*279.91*	*	*0.56*	*	*6.29*	*	*	*	*-6.38*
Pb: 1	*0.00*	*-0.47*	*1.81*	*	*	*	*1.44*	*	*-3.59*	*-2.38*	*	*	*1.67*
Pr: 1	-1.00	0.62	-0.49	*	*	*	-1.67	*	-1.99	-1.87	*	*	1.27
Rb: 1	0.66	0.09	-0.68	*	*	*	1.30	*	-3.20	-1.37	-3.75	*	-0.02
Sb: 1	*0.04*	*	*-0.54*	*	*	*	*	*	*-0.42*	*	*	*	*
Sm: 1	-0.70	1.03	0.11	*	*	*	-0.68	*	-1.47	-1.57	*	*	1.24
Sr: 1	-1.73	0.48	-0.74	*	*	*	-0.42	*	-3.28	-1.41	2.60	*	1.31
Ta: 1	1.03	1.21	2.43	*	*	*	-0.48	*	-1.68	-1.50	*	*	2.43
Tb: 1	-0.17	0.57	0.41	*	*	*	-0.89	*	-1.43	-1.18	*	*	0.20
Th: 1	0.08	0.83	0.04	*	*	*	-0.72	*	-0.86	-1.50	*	*	1.16
Tm: 1	-0.16	0.54	0.08	*	*	*	-1.12	*	-1.01	-1.12	*	*	0.16
U: 1	0.58	0.51	0.02	*	*	*	-0.45	*	-0.91	-1.49	*	*	0.03
V: 1	0.43	0.51	-0.21	*	*	*	-0.16	*	-2.64	-1.05	*	*	-0.27
W: 1	-0.43	0.84	-0.29	*	*	*	-0.34	*	-0.96	*	*	*	*
Y: 1	0.65	1.23	-0.69	*	*	*	-1.55	*	-1.96	-1.73	*	*	-0.12
Yb: 1	-0.34	0.83	-0.02	*	*	*	-1.05	*	-1.28	-0.98	*	*	0.52
Zr: 1	0.30	1.88	1.00	*	*	*	-1.55	*	-3.65	-3.38	-3.54	*	1.52

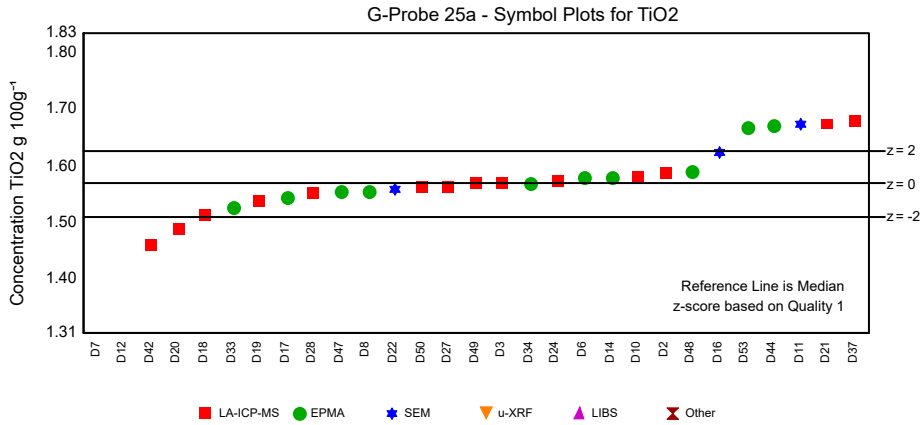
Table 3 - G-Probe 25a Z-scores for Phonolite, KPho-2G Glass. 15/09/2021

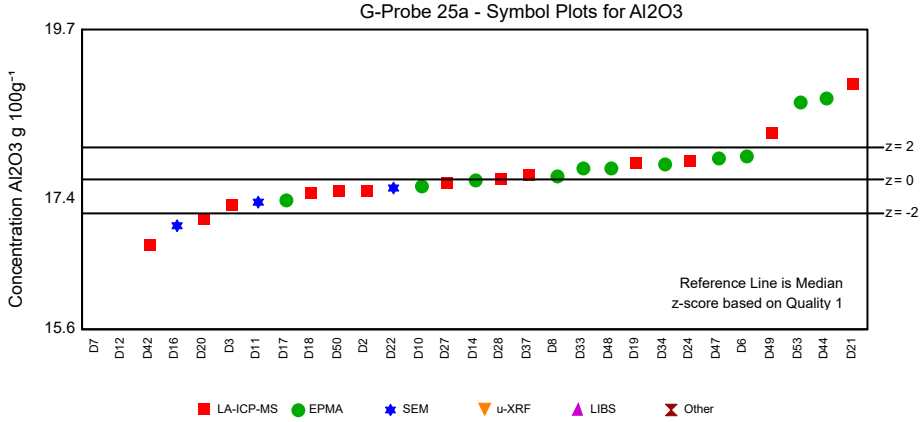
Lab Code	D18	D19	D20	D21	D22	D24	D27	D28	D32	D33	D34	D37	D42
SiO2: 1	0.07	0.40	-1.96	4.80	0.54	-0.12	0.07	0.78	*	1.44	0.75	-0.13	-0.39
TiO2: 1	-1.87	-1.02	-2.73	3.58	-0.34	0.17	-0.21	-0.51	*	-1.36	0.07	3.75	-3.75
Al2O3: 1	-0.76	0.94	-2.40	5.76	-0.48	1.13	-0.19	0.04	*	0.70	1.00	0.22	-3.93
Fe2O3T: 1	-3.06	-2.04	-2.67	-0.75	0.03	0.13	1.98	0.56	*	-0.84	1.15	0.85	-4.21
MgO: 1	-0.35	1.18	-2.27	*	-0.35	-0.87	0.51	0.54	*	2.46	-0.53	3.87	0.80
CaO: 1	0.85	-1.02	*	*	-0.43	-0.17	0.10	0.51	*	1.02	0.73	-3.48	34.81
Na2O: 1	*-2.17*	*0.85*	*-2.05*	*	*0.72*	*2.90*	*-0.35*	*-0.54*	*	*-3.80*	*1.38*	*-2.96*	*-2.11*
K2O: 1	-1.75	4.24	-1.87	*	0.65	1.48	-0.42	0.71	*	1.30	0.44	3.64	-8.40
P2O5: 1	*-0.05*	*1.03*	*-2.22*	*15.80*	*1.84*	*-0.87*	*-0.16*	*-2.98*	*	*2.65*	*1.03*	*-3.30*	*-12.50*
Ba: 1	-0.69	3.13	0.52	-1.67	*	0.50	0.86	-0.04	1.26	*	-0.22	-1.12	-4.74
Be: 1	-5.02	*	0.16	*	*	0.87	0.59	2.45	1.13	*	*	-1.11	*
Bi: 1	*1.75*	*	*	*	*	*	*	*1.63*	*	*	*	*	*12.46*
Ce: 1	0.05	3.31	0.14	-1.59	*	0.40	0.67	-0.60	-0.01	*	-0.46	-0.65	-5.63
Co: 1	-0.05	3.18	-0.15	*	*	1.66	0.49	1.17	1.67	*	-0.16	-0.08	3.35
Cs: 1	-0.34	1.69	-0.89	*	*	4.74	0.69	0.08	*	*	-1.24	-0.34	1.51
Cu: 1	3.56	*	10.61	*	*	3.06	0.34	2.70	1.71	*	-0.32	-0.49	8.64
Dy: 1	0.55	-0.10	0.32	-0.48	*	1.33	0.84	-0.81	4.84	*	-0.25	-0.42	-2.82
Er: 1	0.63	-0.24	0.37	-0.33	*	1.27	0.94	-0.78	0.46	*	-0.36	-0.51	-3.09
Eu: 1	0.12	0.29	0.24	-0.71	*	0.34	0.38	-0.53	2.66	*	-0.45	-0.59	*
Ga: 1	-0.37	3.57	0.67	2.14	*	0.93	0.18	5.86	-0.10	*	0.18	-0.53	-0.73
Gd: 1	1.24	0.17	-0.03	-0.74	*	1.54	1.45	-0.22	5.43	*	0.01	-0.36	*
Hf: 1	*	-0.24	0.25	0.00	*	0.89	0.59	-0.10	4.46	*	-0.12	-0.17	-2.75
Ho: 1	0.15	-0.18	0.08	-0.08	*	1.21	0.43	0.00	0.68	*	-0.33	0.00	-1.96
In: 1	*	*	*0.00*	*	*	*	*	*2.65*	*	*	*	*0.76*	*
La: 1	0.42	0.26	-0.01	-1.20	*	0.46	0.65	-0.70	2.10	*	-0.61	-1.07	-4.57
Li: 1	-0.88	0.20	-0.95	*	*	0.82	0.01	0.16	0.22	*	-0.85	*	*
Lu: 1	0.21	-0.49	0.00	-0.32	*	0.63	0.30	-0.60	0.74	*	-0.62	-0.21	-2.00
Mn: 1	-1.87	*	-1.12	0.94	*	0.43	0.29	-5.17	-2.46	*	-0.06	0.13	-4.15
Mo: 1	*-1.60*	*	*-1.49*	*	*	*	*8.27*	*39.33*	*	*	*	*5.27*	*
Nb: 1	-0.23	5.47	0.18	-0.33	*	1.95	0.94	0.46	1.83	*	-0.26	-0.62	-4.83
Nd: 1	1.09	0.74	0.84	-0.55	*	1.61	1.57	-0.39	0.46	*	-0.01	-1.15	-3.59
Ni: 1	*-1.52*	*14.44*	*-0.94*	*18.08*	*	*27.43*	*2.85*	*0.00*	*31.83*	*	*-2.50*	*1.07*	*15.04*
Pb: 1	*-0.42*	*-1.17*	*1.33*	*-0.24*	*	*1.25*	*-0.69*	*0.84*	*-1.99*	*	*1.97*	*-0.95*	*-6.83*
Pr: 1	0.01	1.53	0.17	-0.88	*	1.05	0.69	0.06	0.51	*	-0.50	-0.94	-4.16
Rb: 1	-0.66	3.61	0.24	0.31	*	0.81	0.02	0.50	-0.46	*	-0.18	-0.21	-1.53
Sb: 1	*0.33*	*	*-0.10*	*	*	*	*	*0.96*	*0.04*	*	*	*-1.84*	*2.64*
Sm: 1	0.66	0.62	0.22	-0.66	*	0.95	0.86	-0.36	4.65	*	-0.29	-0.33	-3.88
Sr: 1	-0.39	-0.48	0.46	-0.54	*	0.51	0.61	-1.13	2.73	*	0.03	0.52	-4.20
Ta: 1	*	2.57	0.46	-0.16	*	1.42	0.76	-0.33	4.63	*	-0.41	-0.45	-3.03
Tb: 1	*	0.07	0.00	-0.41	*	1.06	0.47	-0.48	1.06	*	-0.56	-0.41	-2.46
Th: 1	-1.07	0.75	0.27	-0.55	*	0.83	0.56	-0.49	3.31	*	-0.45	-0.28	-3.83
Tm: 1	0.00	-0.32	0.08	-0.42	*	0.70	0.28	-0.56	0.23	*	-0.69	-0.19	-1.40
U: 1	-0.33	3.06	-0.47	-0.37	*	4.96	0.93	0.00	-2.58	*	-1.12	-0.84	-3.68
V: 1	0.39	3.13	-0.23	-0.24	*	38.70	0.80	0.38	-0.96	*	0.00	-0.35	5.21
W: 1	*	*	0.06	0.55	*	*	*	1.13	*	*	*	-0.43	-0.69
Y: 1	1.12	-0.00	-0.05	-1.17	*	2.01	1.18	-1.74	2.71	*	-0.34	-0.63	-3.75
Yb: 1	0.23	0.05	0.14	-0.26	*	1.23	0.40	-0.08	0.25	*	-0.27	-0.13	-3.26
Zr: 1	1.03	0.00	0.01	-0.63	*	2.25	1.04	-2.38	7.93	*	-0.63	-0.44	-6.26

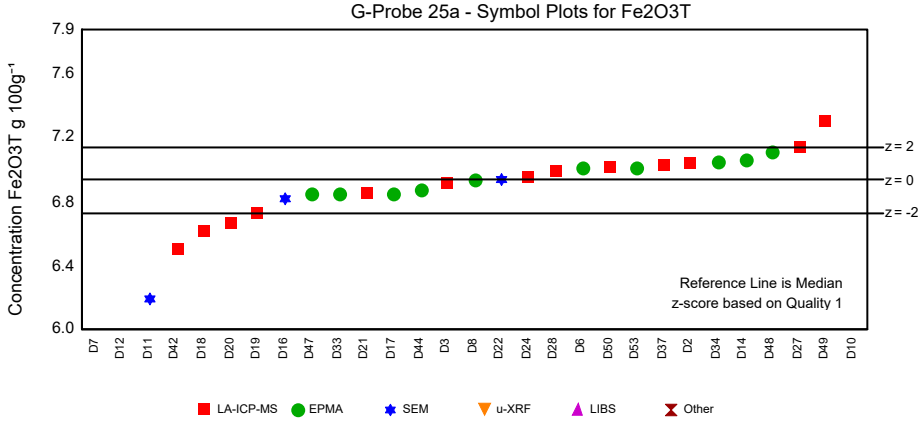
Table 3 - G-Probe 25a Z-scores for Phonolite, KPho-2G Glass. 15/09/2021

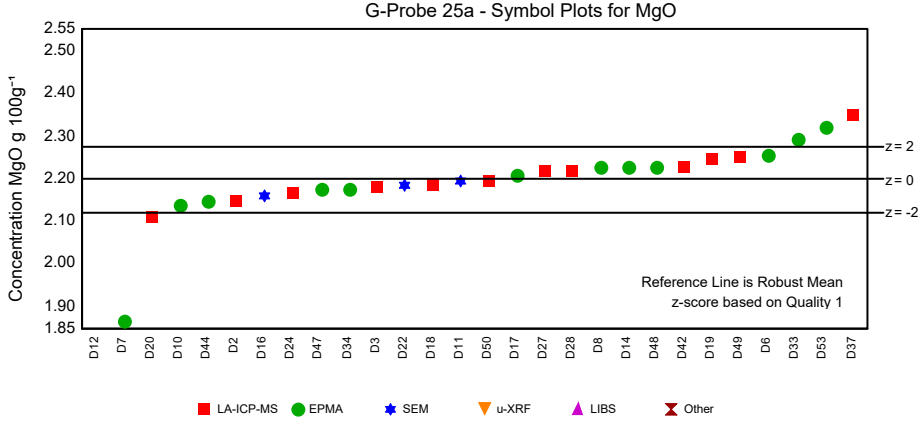
Lab Code	D43	D44	D45	D47	D48	D49	D50	D51	D53
SiO2: 1	*	-0.41	*	-0.28	-0.17	3.57	1.20	*	-0.09
TiO2: 1	*	3.53	*	-0.43	0.75	0.00	-0.24	*	3.41
Al2O3: 1	*	4.96	*	1.36	0.78	2.81	-0.72	*	4.78
Fe2O3T: 1	*	-0.57	*	-0.86	1.75	3.50	0.80	*	0.80
MgO: 1	*	-1.33	*	-0.56	0.80	1.31	-0.10	*	3.10
CaO: 1	*	-1.07	*	-0.39	1.19	3.73	-0.43	*	1.53
Na2O: 1	*	*-3.22*	*	*0.56*	*-6.34*	*-0.48*	*3.24*	*	*-8.70*
K2O: 1	*	-1.33	*	1.05	-1.14	0.94	1.75	*	0.23
P2O5: 1	*	*-6.93*	*	*-0.54*	*1.19*	*-3.57*	*-3.45*	*	*0.76*
Ba: 1	-0.57	0.40	0.99	0.50	*	1.98	1.67	-1.15	2.28
Be: 1	*	-0.32	*	-0.51	*	1.88	-0.16	-2.49	*
Bi: 1	*	*	*	*-0.42*	*	*-0.18*	*	*0.18*	*
Ce: 1	0.01	0.42	-1.77	0.72	*	0.97	0.01	-1.67	0.96
Co: 1	0.00	0.10	*	-0.23	*	0.46	0.23	0.00	1.80
Cs: 1	0.62	2.82	*	-1.03	*	1.79	-0.03	-0.73	1.37
Cu: 1	*	-4.02	*	1.31	*	0.69	-0.00	-1.26	0.13
Dy: 1	0.91	0.72	0.10	0.15	*	1.50	-0.68	-0.88	0.51
Er: 1	0.92	1.31	-0.00	0.20	*	0.81	-0.60	-0.70	0.37
Eu: 1	0.34	0.42	-0.04	-0.39	*	0.47	-0.27	-0.92	0.22
Ga: 1	36.79	-0.81	-2.18	8.30	*	-0.35	1.84	-0.26	*
Gd: 1	0.89	1.30	0.00	0.09	*	2.02	-0.29	-1.14	0.28
Hf: 1	1.19	0.85	-2.21	-0.03	*	1.36	0.50	-0.38	0.91
Ho: 1	1.28	0.44	-0.19	0.08	*	0.76	-0.26	*	0.57
In: 1	*	*	*-0.76*	*	*	*-0.76*	*	*0.57*	*
La: 1	0.92	0.77	-1.95	0.03	*	1.49	0.01	-0.99	0.94
Li: 1	-0.22	-0.20	*	-0.55	*	0.70	-0.63	-0.48	1.56
Lu: 1	1.69	0.07	0.32	0.00	*	0.21	0.10	-0.30	0.21
Mn: 1	-2.41	1.35	*	-2.17	-2.06	1.72	0.61	1.67	2.72
Mo: 1	*0.38*	*-3.35*	*4.87*	*	*	*0.27*	*0.50*	*1.99*	*-0.14*
Nb: 1	-1.01	0.06	-2.97	0.11	*	-0.08	2.15	-0.94	1.79
Nd: 1	0.70	1.12	-3.18	-0.20	*	2.92	-0.01	-1.14	1.42
Ni: 1	*	*-0.06*	*	*-2.31*	*	*-1.40*	*0.35*	*1.82*	*-0.08*
Pb: 1	*-1.97*	*-5.47*	*	*0.56*	*	*-0.97*	*-1.80*	*0.56*	*1.34*
Pr: 1	1.01	0.28	-3.07	-0.71	*	1.09	-0.01	-0.99	0.88
Rb: 1	-1.15	-0.47	*	-0.38	*	0.28	1.37	0.39	3.93
Sb: 1	*	*0.07*	*	*	*	*0.76*	*	*-1.14*	*
Sm: 1	0.52	0.61	-2.06	-0.33	*	1.49	-0.33	-0.73	0.75
Sr: 1	-0.50	0.32	*	-2.22	*	1.23	-0.03	1.46	1.65
Ta: 1	0.00	-0.42	1.66	-0.65	*	-0.82	0.67	-0.89	0.58
Tb: 1	0.85	0.11	-0.20	0.44	*	0.55	-0.34	-0.68	0.44
Th: 1	1.40	0.40	*	-0.86	*	0.90	-0.43	-0.65	0.58
Tm: 1	1.48	0.09	-0.08	-0.08	*	0.39	-2.20	-0.62	0.08
U: 1	0.84	0.51	*	-1.01	*	0.75	1.30	-1.08	0.58
V: 1	-0.23	1.29	*	0.32	*	1.18	-0.06	-0.37	1.47
W: 1	0.99	0.38	-2.24	*	*	0.02	0.23	-0.65	0.73
Y: 1	0.65	1.12	-1.78	0.65	*	1.26	2.47	-0.87	0.49
Yb: 1	0.88	0.37	0.12	-0.02	*	0.94	-0.80	-0.33	0.58
Zr: 1	-0.77	1.51	-1.40	-1.50	*	3.73	2.21	-2.12	0.90

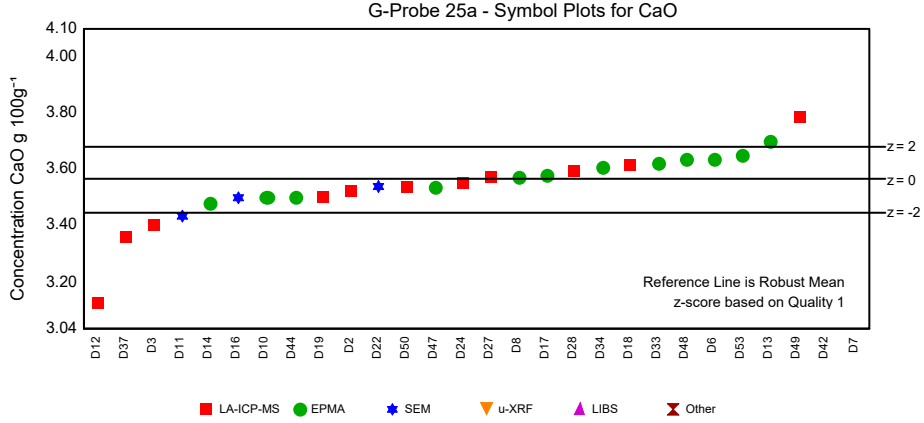

G-Probe 25a - Symbol Plots for SiO2
Concentration SiO2 g 100g⁻¹
61
59
57
56
54
52
50
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D7 D20 D11 D10 D44 D42 D8 D47 D48 D37 D24 D17 D53 D6 D27 D18 D19 D14 D2 D22 D34 D28 D50 D33 D3 D49 D16 D21
LA-ICP-MS EPMA SEM u-XRF LIBS Other

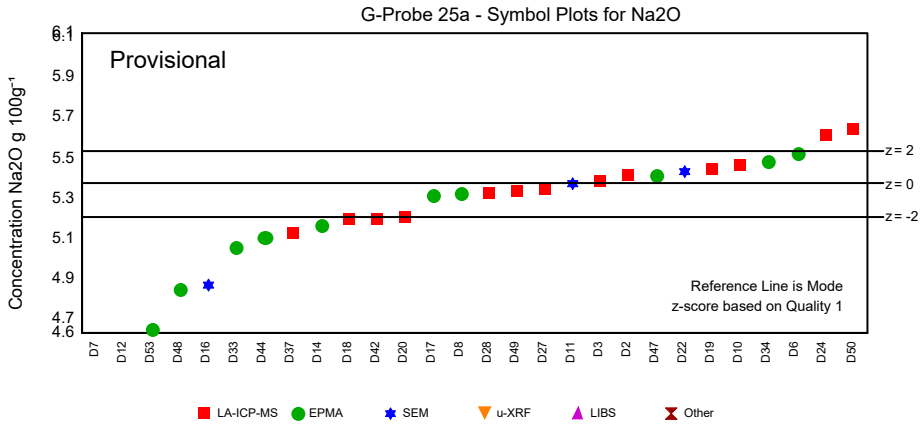

G-Probe 25a - Symbol Plots for TiO2
Concentration TiO2 g 100g⁻¹
1.83
1.80
1.70
1.60
1.50
1.40
1.31
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D7 D12 D42 D20 D18 D33 D19 D17 D28 D47 D8 D22 D50 D27 D49 D3 D34 D24 D6 D14 D10 D2 D48 D16 D53 D44 D11 D21 D37
LA-ICP-MS EPMA SEM u-XRF LIBS Other

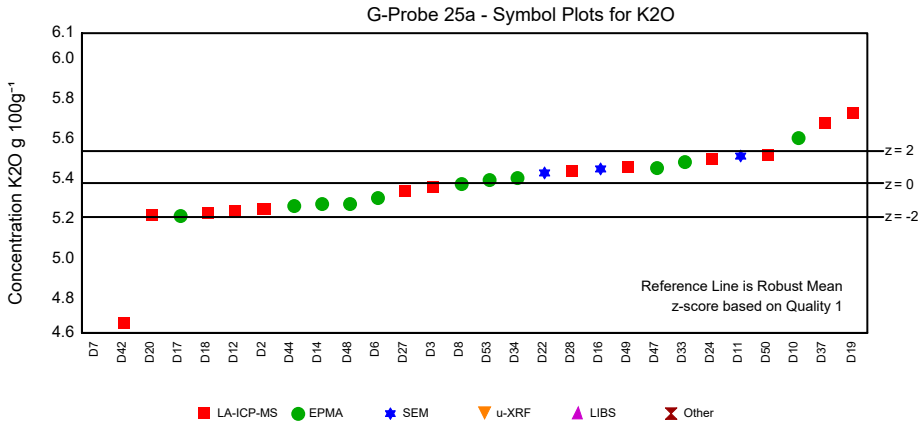

G-Probe 25a - Symbol Plots for Al2O3
Concentration Al2O3 g 100g⁻¹
19.7
17.4
15.6
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D7 D12 D42 D16 D20 D3 D11 D17 D18 D50 D2 D22 D10 D27 D14 D28 D37 D8 D33 D48 D19 D34 D24 D47 D6 D49 D53 D44 D21
LA-ICP-MS EPMA SEM u-XRF LIBS Other

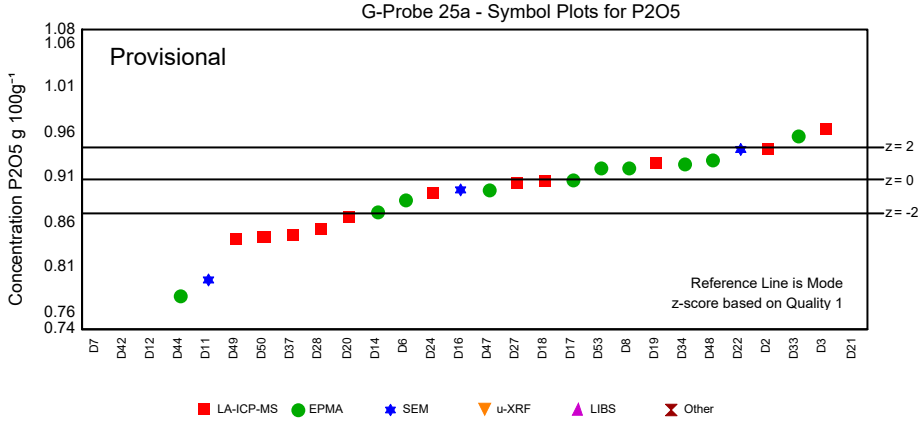

G-Probe 25a - Symbol Plots for Fe2O3T
Concentration Fe2O3T g 100g⁻¹
7.9
7.6
7.2
6.8
6.4
6.0
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D7 D12 D11 D42 D18 D20 D19 D16 D47 D33 D21 D17 D44 D3 D8 D22 D24 D28 D6 D50 D53 D37 D2 D34 D14 D48 D27 D49 D10
LA-ICP-MS EPMA SEM u-XRF LIBS Other

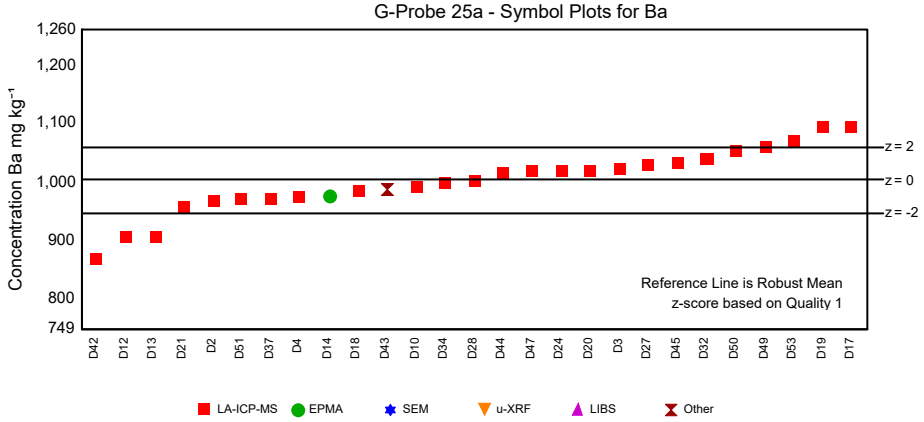

G-Probe 25a - Symbol Plots for MgO
Concentration MgO g 100g⁻¹
2.55
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.85
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D12 D7 D20 D10 D44 D2 D16 D24 D47 D34 D3 D22 D18 D11 D50 D17 D27 D28 D8 D14 D48 D42 D19 D49 D6 D33 D53 D37
LA-ICP-MS EPMA SEM u-XRF LIBS Other

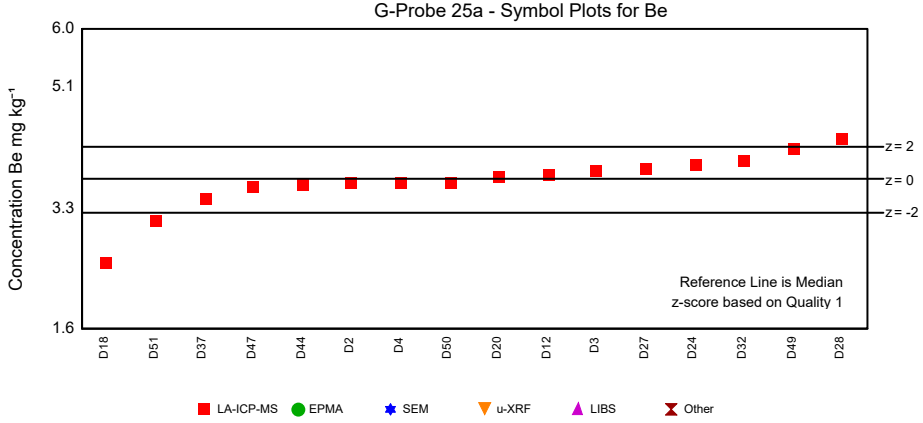

G-Probe 25a - Symbol Plots for CaO
Concentration CaO g 100g⁻¹
4.10
4.00
3.80
3.60
3.40
3.20
3.04
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D12 D37 D3 D11 D14 D16 D10 D44 D19 D2 D22 D50 D47 D24 D27 D8 D17 D28 D34 D18 D33 D48 D6 D53 D13 D49 D42 D7
LA-ICP-MS EPMA SEM u-XRF LIBS Other

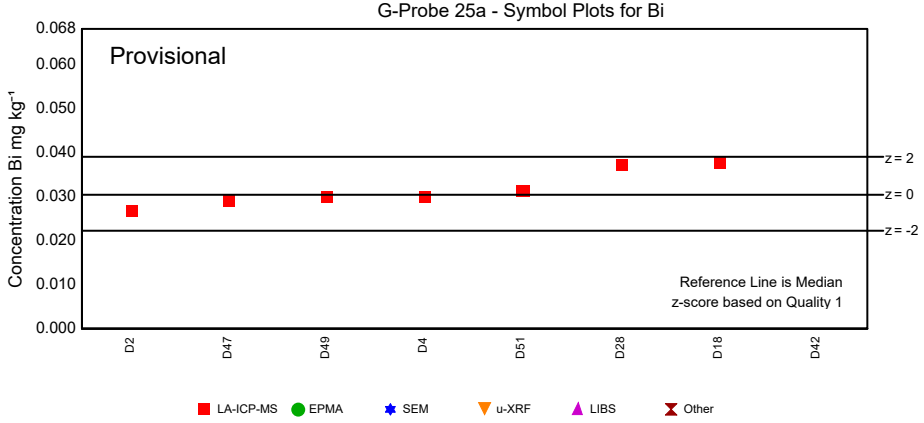

G-Probe 25a - Symbol Plots for Na2O
Provisional
Concentration Na2O g 100g⁻¹
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

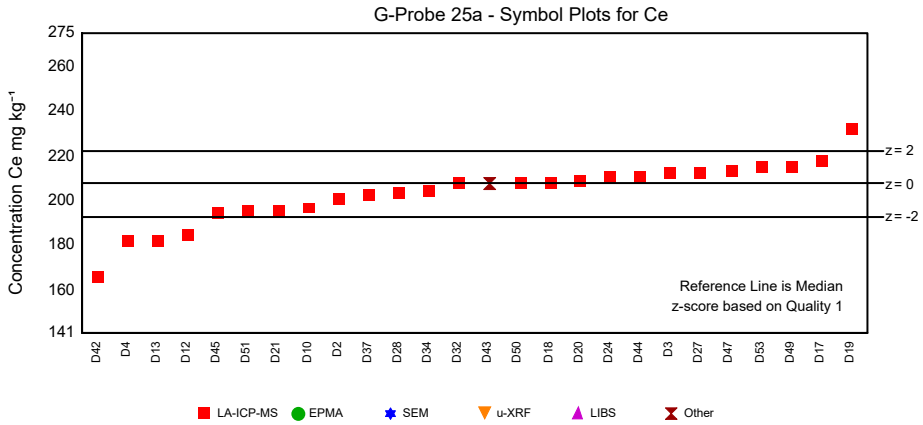

G-Probe 25a - Symbol Plots for K2O
Concentration K2O g 100g⁻¹
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

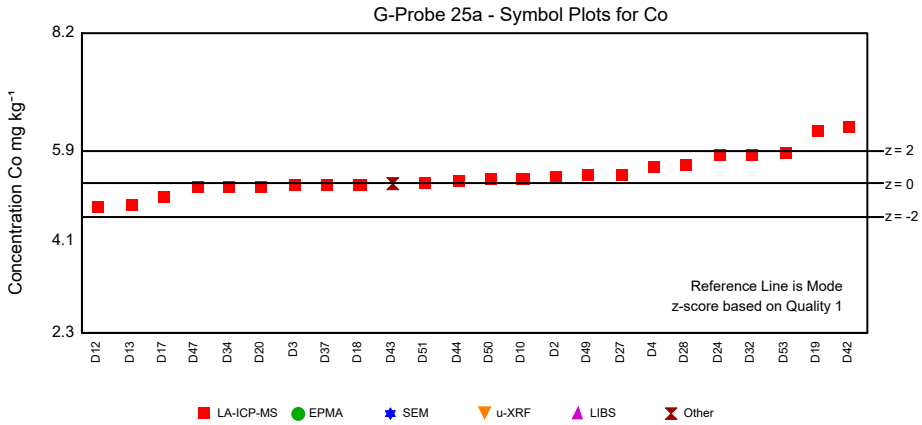

G-Probe 25a - Symbol Plots for P2O5
Provisional
Concentration P2O5 g 100g⁻¹
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

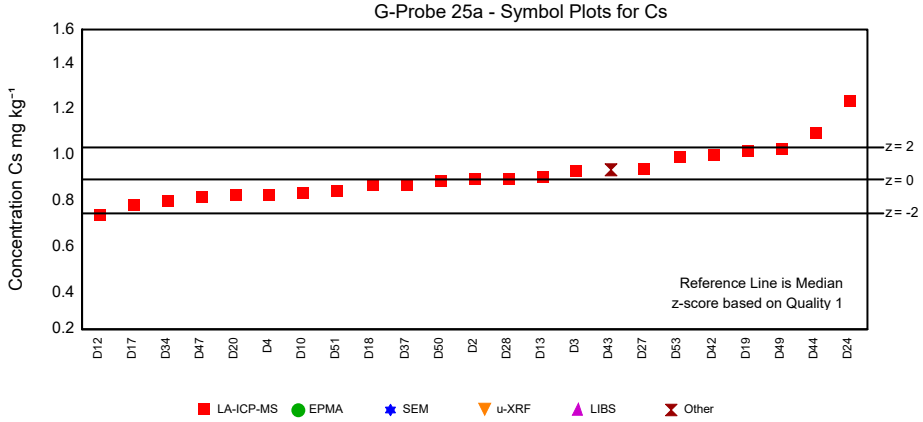

G-Probe 25a - Symbol Plots for Ba
Concentration Ba mg kg⁻¹
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

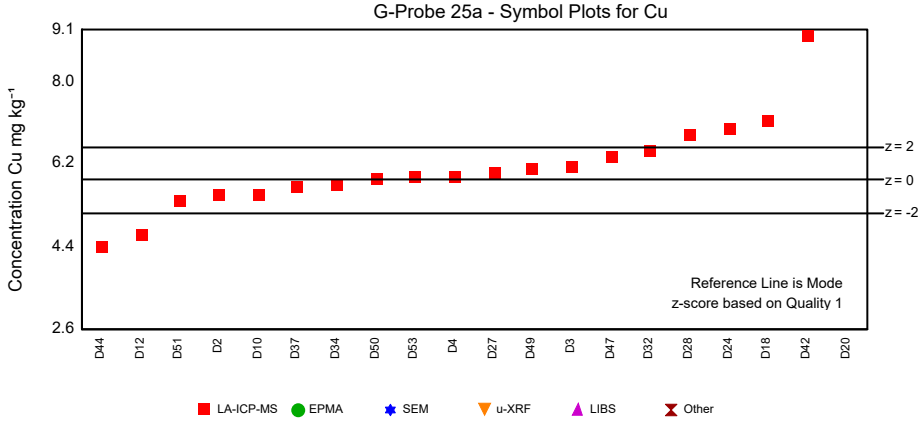

G-Probe 25a - Symbol Plots for Be
Concentration Be mg kg⁻¹
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

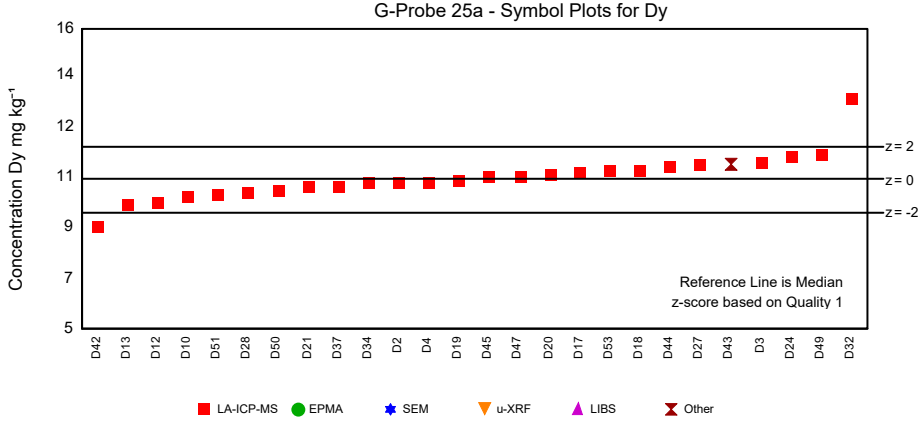

G-Probe 25a - Symbol Plots for Bi
Provisional
Concentration Bi mg kg⁻¹
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

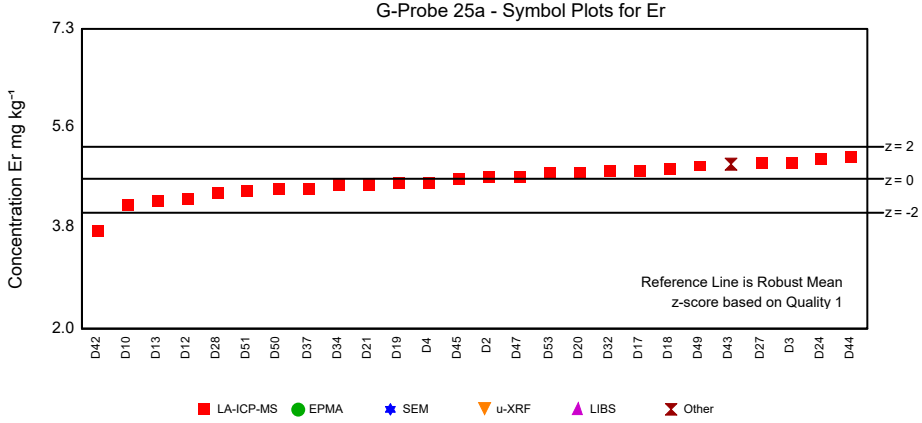

G-Probe 25a - Symbol Plots for Ce
Concentration Ce mg kg⁻¹
275
260
240
220
200
180
160
141
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D4 D13 D12 D45 D51 D21 D10 D2 D37 D28 D34 D32 D43 D50 D18 D20 D24 D44 D3 D27 D47 D53 D49 D17 D19
LA-ICP-MS EPMA SEM u-XRF LIBS Other

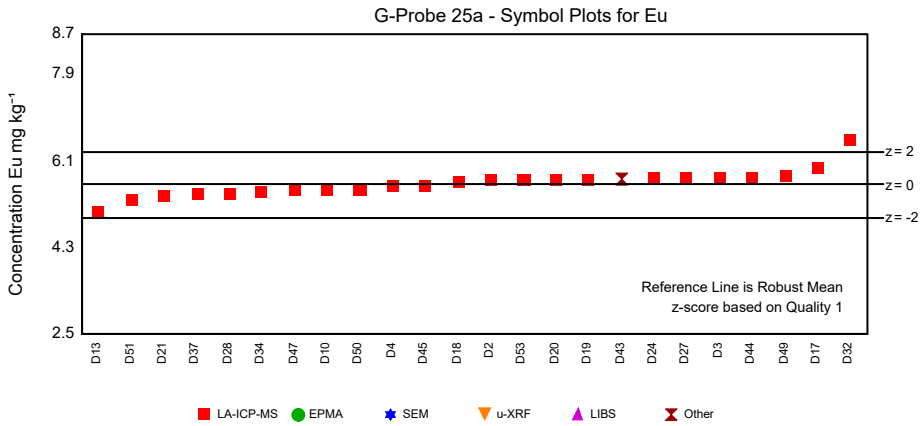

G-Probe 25a - Symbol Plots for Co
Concentration Co mg kg⁻¹
8.2
5.9
4.1
2.3
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D12 D13 D17 D47 D34 D20 D3 D37 D18 D43 D51 D44 D50 D10 D2 D49 D27 D4 D28 D24 D32 D53 D19 D42
LA-ICP-MS EPMA SEM u-XRF LIBS Other

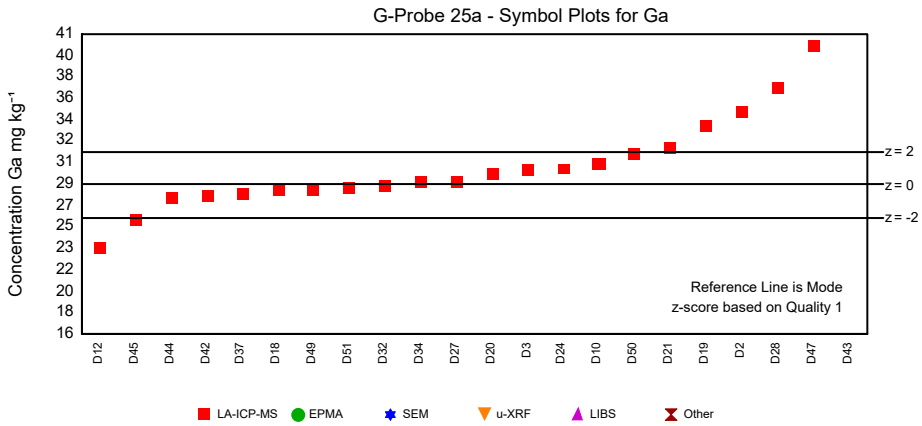

G-Probe 25a - Symbol Plots for Cs
Concentration Cs mg kg⁻¹
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D12 D17 D34 D47 D20 D4 D10 D51 D18 D37 D50 D2 D28 D13 D3 D43 D27 D53 D42 D19 D49 D44 D24
LA-ICP-MS EPMA SEM u-XRF LIBS Other

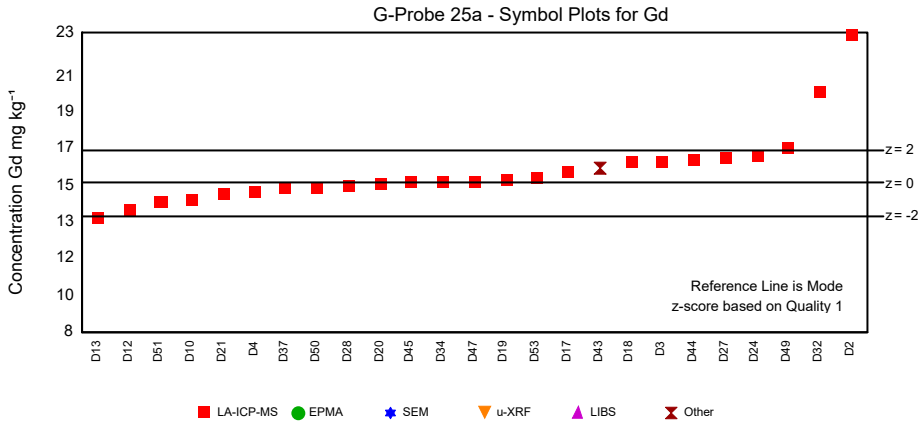

G-Probe 25a - Symbol Plots for Cu
Concentration Cu mg kg⁻¹
9.1
8.0
6.2
4.4
2.6
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D44 D12 D51 D2 D10 D37 D34 D50 D53 D4 D27 D49 D3 D47 D32 D28 D24 D18 D42 D20
LA-ICP-MS EPMA SEM u-XRF LIBS Other

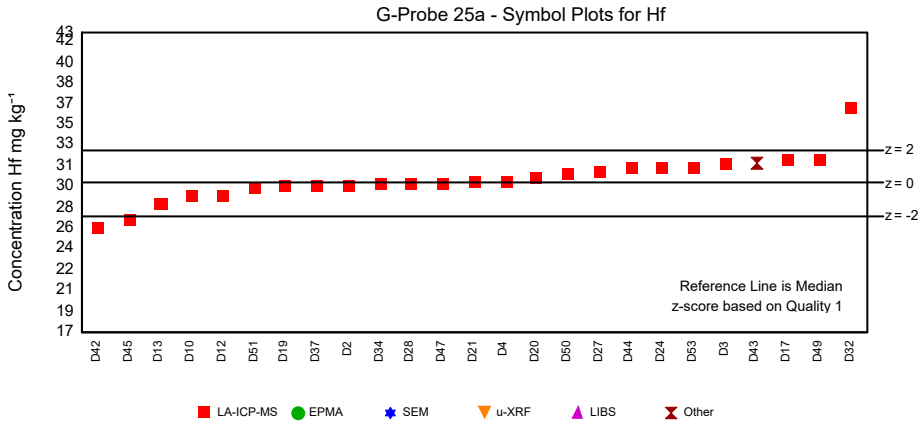

G-Probe 25a - Symbol Plots for Dy
Concentration Dy mg kg⁻¹
16
14
12
11
9
7
5
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D13 D12 D10 D51 D28 D50 D21 D37 D34 D2 D4 D19 D45 D47 D20 D17 D53 D18 D44 D27 D43 D3 D24 D49 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

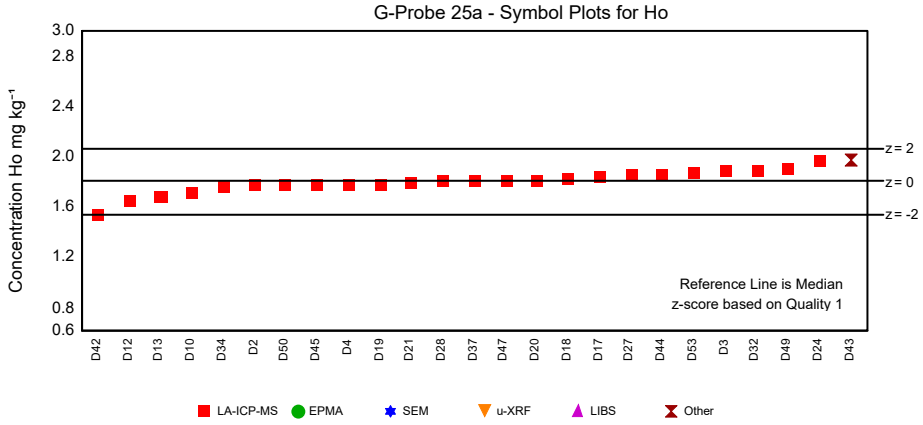

G-Probe 25a - Symbol Plots for Er
Concentration Er mg kg⁻¹
7.3
5.6
3.8
2.0
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D42 D10 D13 D12 D28 D51 D50 D37 D34 D21 D19 D4 D45 D2 D47 D53 D20 D32 D17 D18 D49 D43 D27 D3 D24 D44
LA-ICP-MS EPMA SEM u-XRF LIBS Other

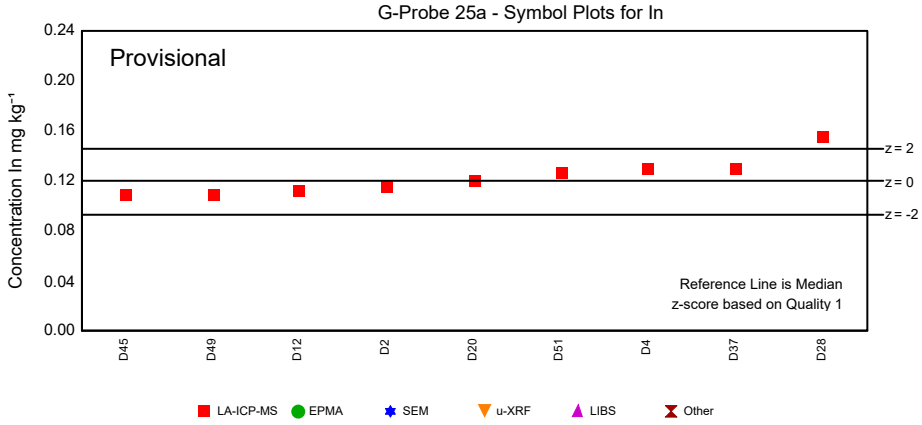

G-Probe 25a - Symbol Plots for Eu
Concentration Eu mg kg⁻¹
8.7
7.9
6.1
4.3
2.5
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D13 D51 D21 D37 D28 D34 D47 D10 D50 D4 D45 D18 D2 D53 D20 D19 D43 D24 D27 D3 D44 D49 D17 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

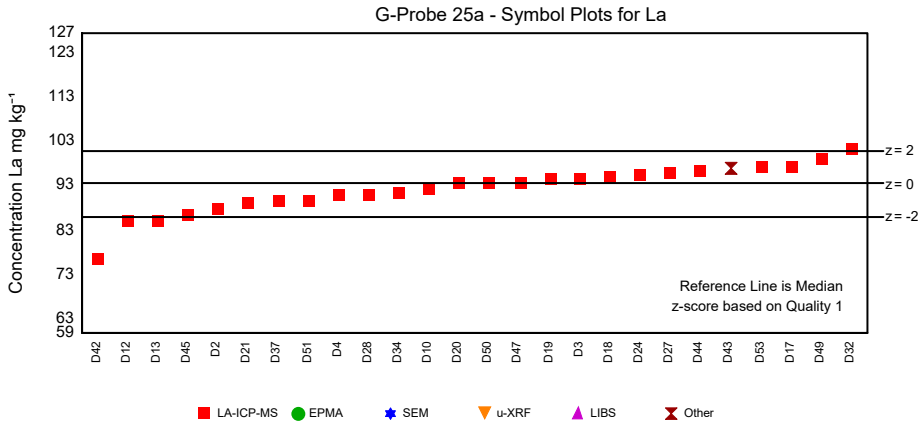

G-Probe 25a - Symbol Plots for Ga
Concentration Ga mg kg⁻¹
41 40 38 36 34 32 31 29 27 25 23 22 20 18 16
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D12 D45 D44 D42 D37 D18 D49 D51 D32 D34 D27 D20 D3 D24 D10 D50 D21 D19 D2 D28 D47 D43
LA-ICP-MS EPMA SEM u-XRF LIBS Other

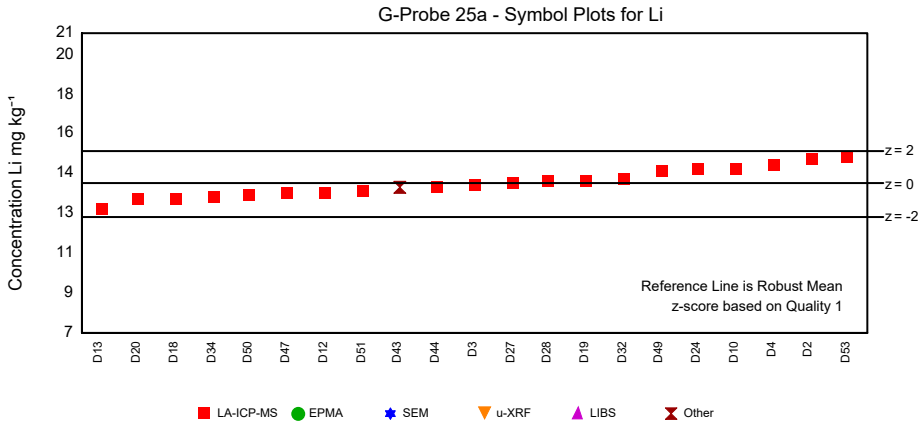

G-Probe 25a - Symbol Plots for Gd
Concentration Gd mg kg⁻¹
23 21 19 17 15 13 12 10 8
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D13 D12 D51 D10 D21 D4 D37 D50 D28 D20 D45 D34 D47 D19 D53 D17 D43 D18 D3 D44 D27 D24 D49 D32 D2
LA-ICP-MS EPMA SEM u-XRF LIBS Other

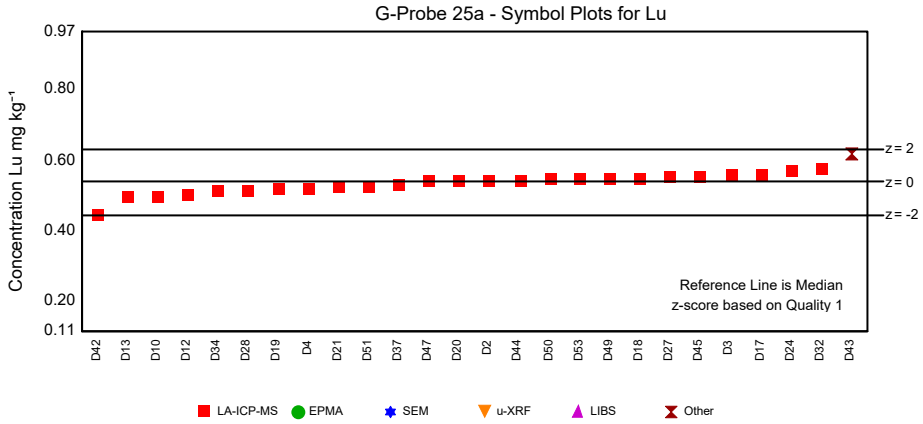

G-Probe 25a - Symbol Plots for Hf
Concentration Hf mg kg⁻¹
43 42 40 38 37 35 33 31 30 28 26 24 22 21 19 17
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D45 D13 D10 D12 D51 D19 D37 D2 D34 D28 D47 D21 D4 D20 D50 D27 D44 D24 D53 D3 D43 D17 D49 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

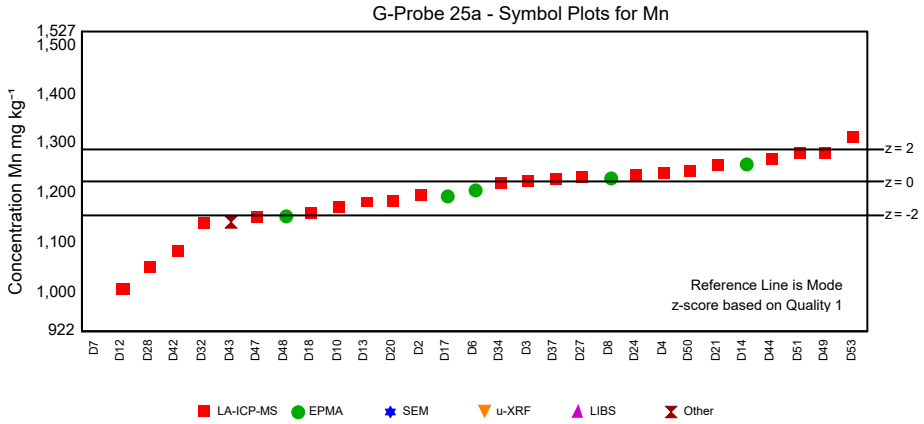

G-Probe 25a - Symbol Plots for Ho
Concentration Ho mg kg⁻¹
3.0 2.8 2.4 2.0 1.6 1.2 0.8 0.6
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D12 D13 D10 D34 D2 D50 D45 D4 D19 D21 D28 D37 D47 D20 D18 D17 D27 D44 D53 D3 D32 D49 D24 D43
LA-ICP-MS EPMA SEM u-XRF LIBS Other

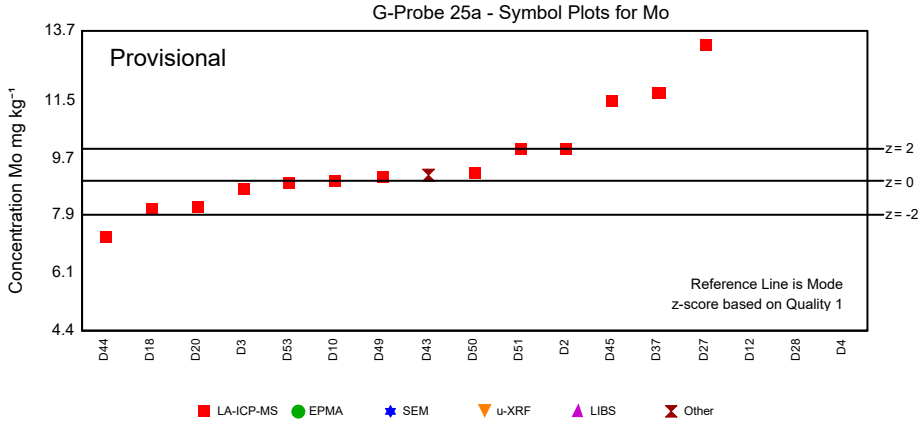

G-Probe 25a - Symbol Plots for In
Provisional
Concentration In mg kg⁻¹
0.24 0.20 0.16 0.12 0.08 0.04 0.00
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D45 D49 D12 D2 D20 D51 D4 D37 D28
LA-ICP-MS EPMA SEM u-XRF LIBS Other

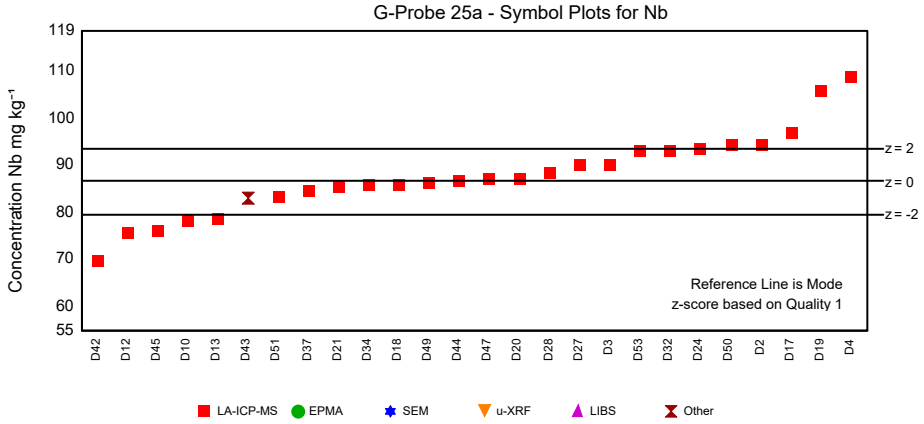

G-Probe 25a - Symbol Plots for La
Concentration La mg kg⁻¹
127
123
113
103
93
83
73
63
59
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D12 D13 D45 D2 D21 D37 D51 D4 D28 D34 D10 D20 D50 D47 D19 D3 D18 D24 D27 D44 D43 D53 D17 D49 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

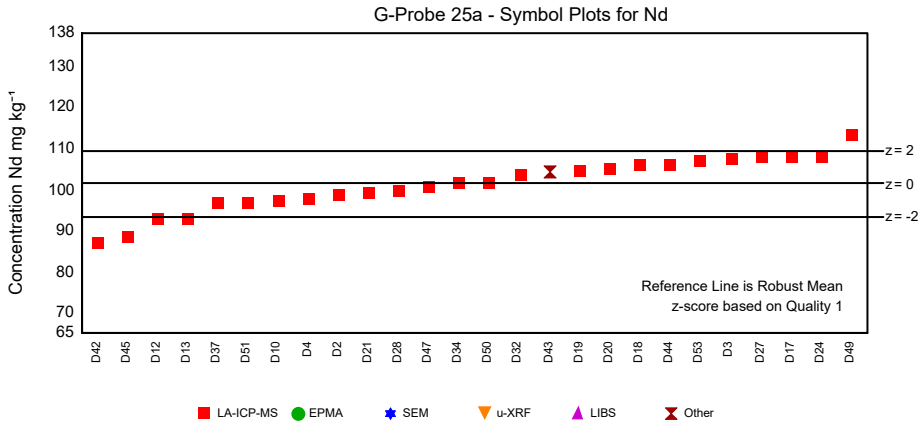

G-Probe 25a - Symbol Plots for Li
Concentration Li mg kg⁻¹
21
20
18
16
14
13
11
9
7
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D13 D20 D18 D34 D50 D47 D12 D51 D43 D44 D3 D27 D28 D19 D32 D49 D24 D10 D4 D2 D53
LA-ICP-MS EPMA SEM u-XRF LIBS Other

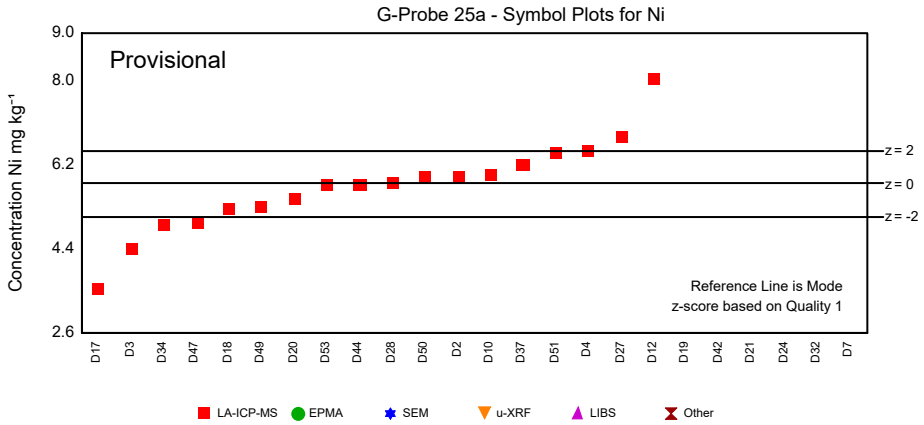

G-Probe 25a - Symbol Plots for Lu
Concentration Lu mg kg⁻¹
0.97
0.80
0.60
0.40
0.20
0.11
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D13 D10 D12 D34 D28 D19 D4 D21 D51 D37 D47 D20 D2 D44 D50 D53 D49 D18 D27 D45 D3 D17 D24 D32 D43
LA-ICP-MS EPMA SEM u-XRF LIBS Other

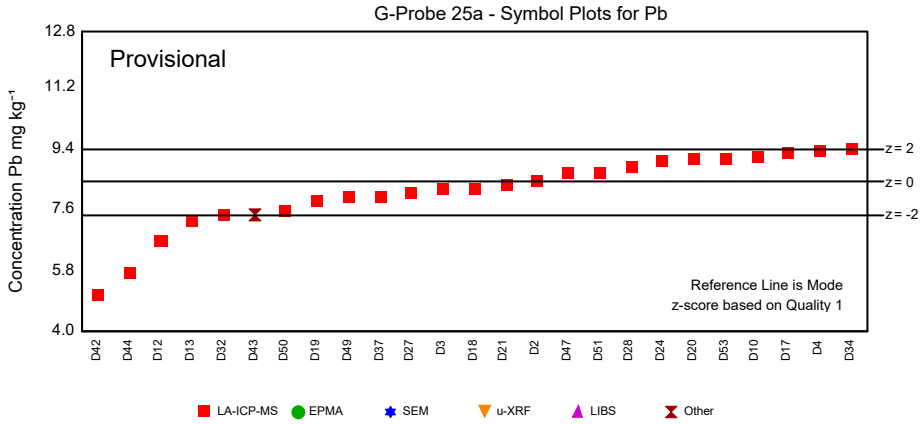

G-Probe 25a - Symbol Plots for Mn
Concentration Mn mg kg⁻¹
1,527
1,500
1,400
1,300
1,200
1,100
1,000
922
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D7 D12 D28 D42 D32 D43 D47 D48 D18 D10 D13 D20 D2 D17 D6 D34 D3 D37 D27 D8 D24 D4 D50 D21 D14 D44 D51 D49 D53
LA-ICP-MS EPMA SEM u-XRF LIBS Other

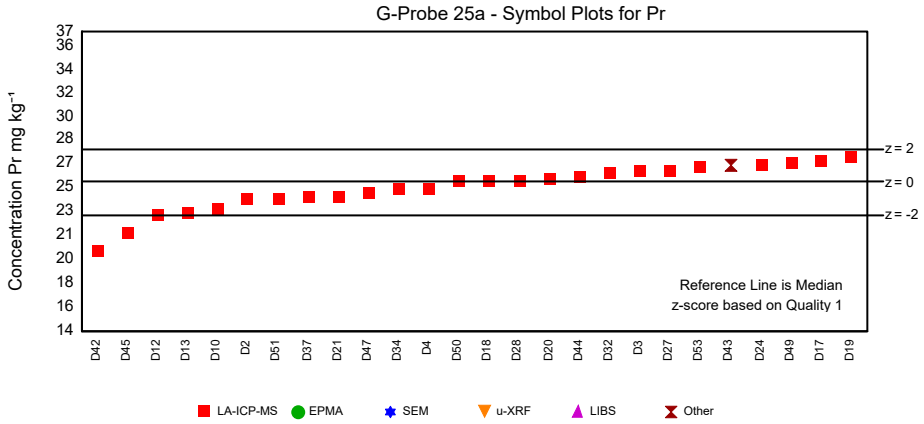

G-Probe 25a - Symbol Plots for Mo
Provisional
Concentration Mo mg kg⁻¹
13.7
11.5
9.7
7.9
6.1
4.4
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D44 D18 D20 D3 D53 D10 D49 D43 D50 D51 D2 D45 D37 D27 D12 D28 D4
LA-ICP-MS EPMA SEM u-XRF LIBS Other

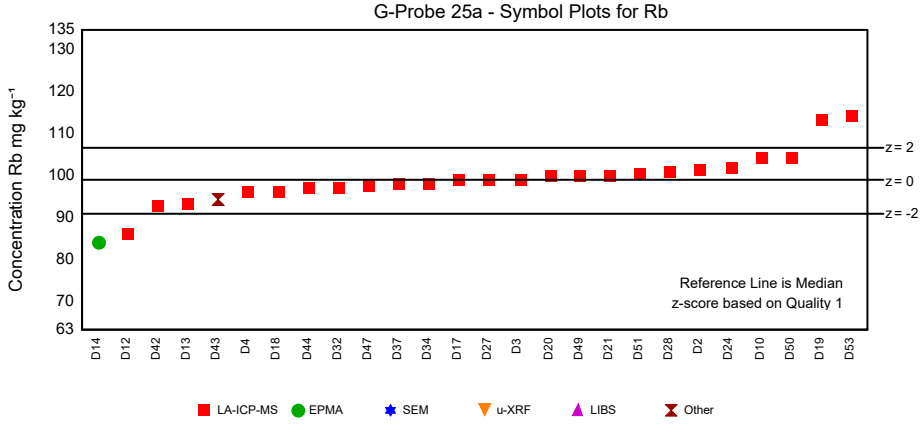

G-Probe 25a - Symbol Plots for Nb
Concentration Nb mg kg⁻¹
119
110
100
90
80
70
60
55
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D42 D12 D45 D10 D13 D43 D51 D37 D21 D34 D18 D49 D44 D47 D20 D28 D27 D3 D53 D32 D24 D50 D2 D17 D19 D4
LA-ICP-MS EPMA SEM u-XRF LIBS Other

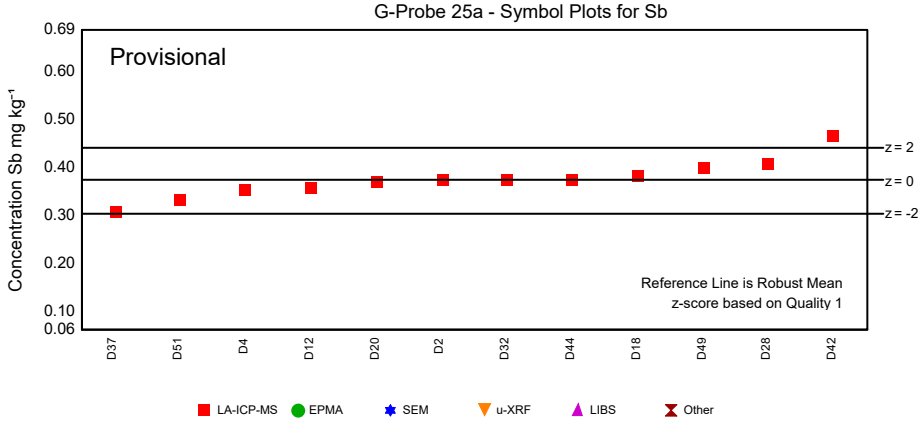

G-Probe 25a - Symbol Plots for Nd
Concentration Nd mg kg⁻¹
138
130
120
110
100
90
80
70
65
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D42 D45 D12 D13 D37 D51 D10 D4 D2 D21 D28 D47 D34 D50 D32 D43 D19 D20 D18 D44 D53 D3 D27 D17 D24 D49
LA-ICP-MS EPMA SEM u-XRF LIBS Other

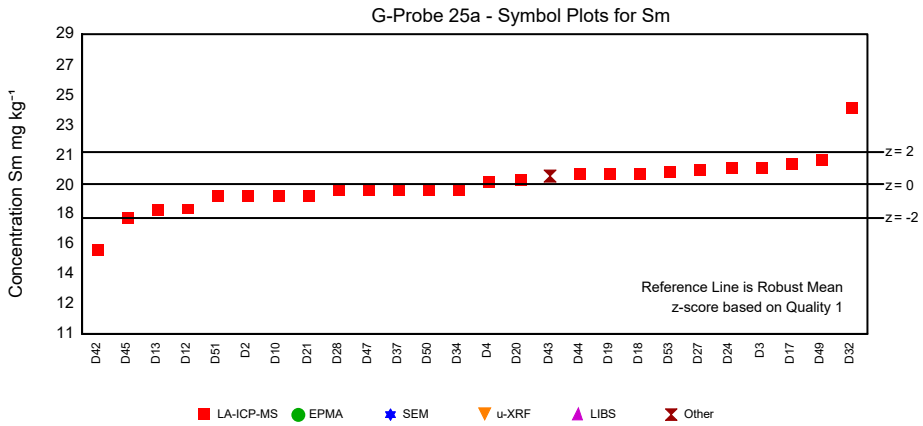

G-Probe 25a - Symbol Plots for Ni
Provisional
Concentration Ni mg kg⁻¹
9.0
8.0
6.2
4.4
2.6
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D17 D3 D34 D47 D18 D49 D20 D53 D44 D28 D50 D2 D10 D37 D51 D4 D27 D12 D19 D42 D21 D24 D32 D7
LA-ICP-MS EPMA SEM u-XRF LIBS Other

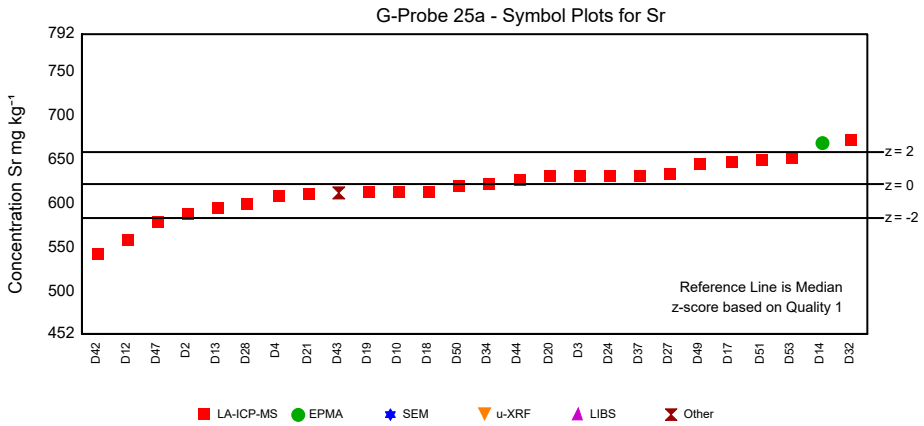

G-Probe 25a - Symbol Plots for Pb
Provisional
Concentration Pb mg kg⁻¹
12.8
11.2
9.4
7.6
5.8
4.0
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D42 D44 D12 D13 D32 D43 D50 D19 D49 D37 D27 D3 D18 D21 D2 D47 D51 D28 D24 D20 D53 D10 D17 D4 D34
LA-ICP-MS EPMA SEM u-XRF LIBS Other

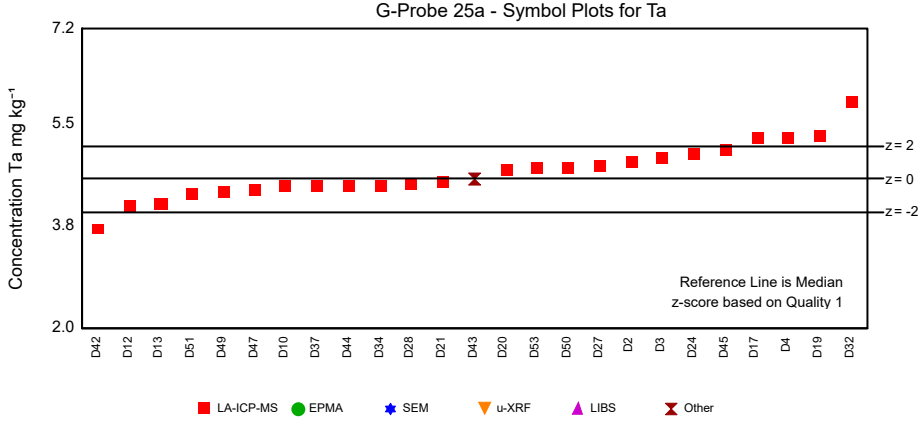

G-Probe 25a - Symbol Plots for Pr
Concentration Pr mg kg⁻¹
37
36
34
32
30
28
27
25
23
21
20
18
16
14
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D45 D12 D13 D10 D2 D51 D37 D21 D47 D34 D4 D50 D18 D28 D20 D44 D32 D3 D27 D53 D43 D24 D49 D17 D19
LA-ICP-MS EPMA SEM u-XRF LIBS Other

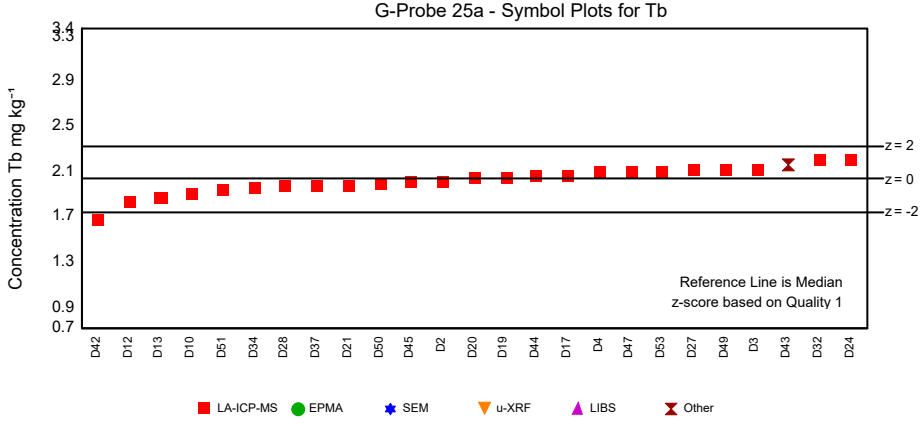

G-Probe 25a - Symbol Plots for Rb
Concentration Rb mg kg⁻¹
135
130
120
110
100
90
80
70
63
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D14 D12 D42 D13 D43 D4 D18 D44 D32 D47 D37 D34 D17 D27 D3 D20 D49 D21 D51 D28 D2 D24 D10 D50 D19 D53
LA-ICP-MS EPMA SEM u-XRF LIBS Other

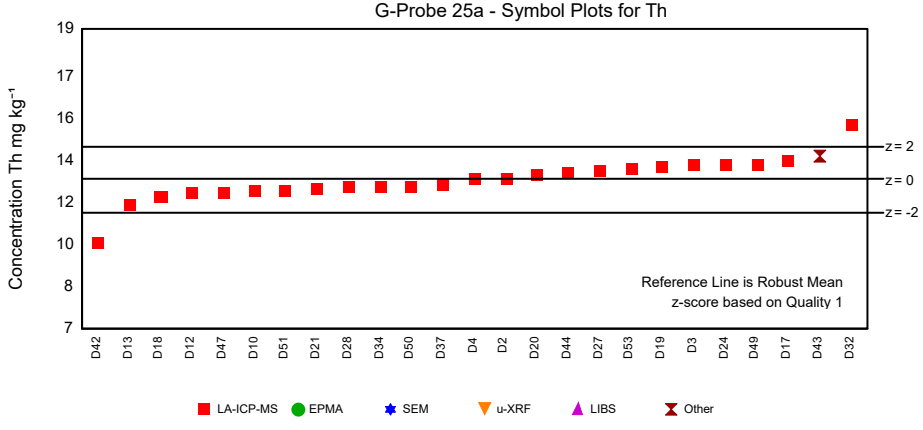

G-Probe 25a - Symbol Plots for Sb
Provisional
Concentration Sb mg kg⁻¹
0.69
0.60
0.50
0.40
0.30
0.20
0.10
0.06
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D37 D51 D4 D12 D20 D2 D32 D44 D18 D49 D28 D42
LA-ICP-MS EPMA SEM u-XRF LIBS Other

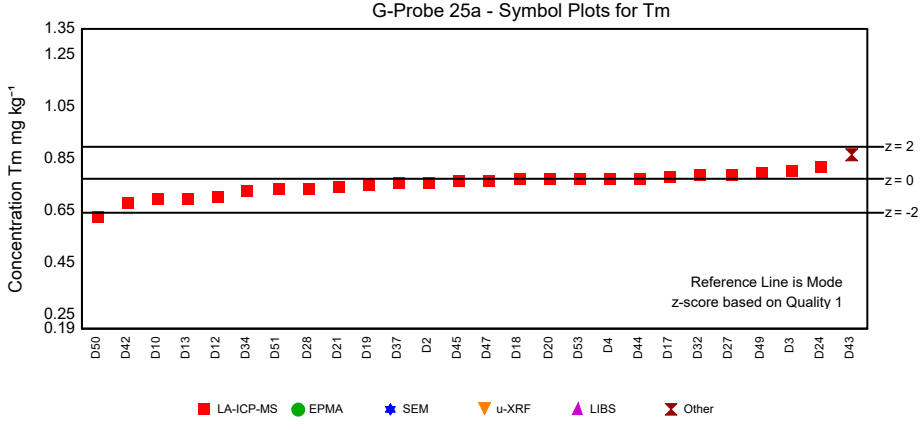

G-Probe 25a - Symbol Plots for Sm
Concentration Sm mg kg⁻¹
29
27
25
23
21
20
18
16
14
12
11
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D42 D45 D13 D12 D51 D2 D10 D21 D28 D47 D37 D50 D34 D4 D20 D43 D44 D19 D18 D53 D27 D24 D3 D17 D49 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

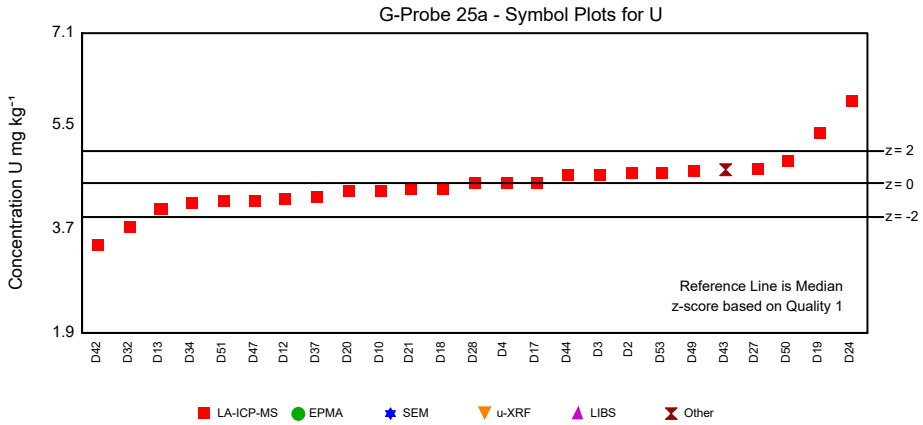

G-Probe 25a - Symbol Plots for Sr
Concentration Sr mg kg⁻¹
792
750
700
650
600
550
500
452
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D12 D47 D2 D13 D28 D4 D21 D43 D19 D10 D18 D50 D34 D44 D20 D3 D24 D37 D27 D49 D17 D51 D53 D14 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

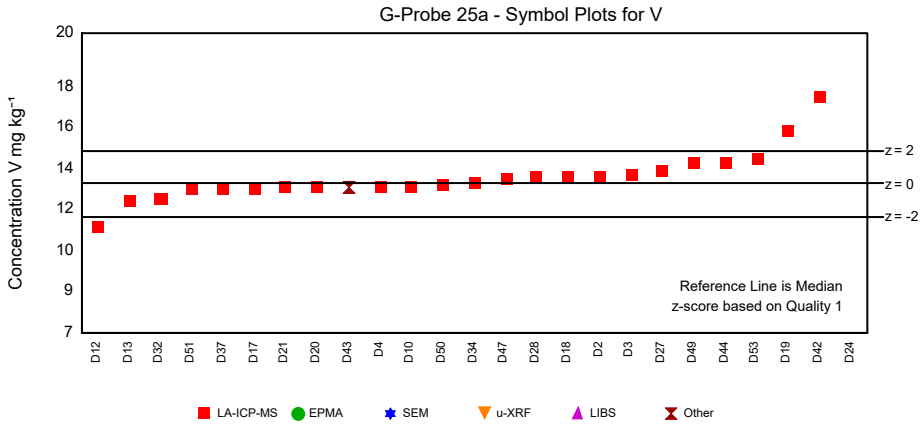

G-Probe 25a - Symbol Plots for Ta
Concentration Ta mg kg⁻¹
7.2
5.5
3.8
2.0
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D12 D13 D51 D49 D47 D10 D37 D44 D34 D28 D21 D43 D20 D53 D50 D27 D2 D3 D24 D45 D17 D4 D19 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

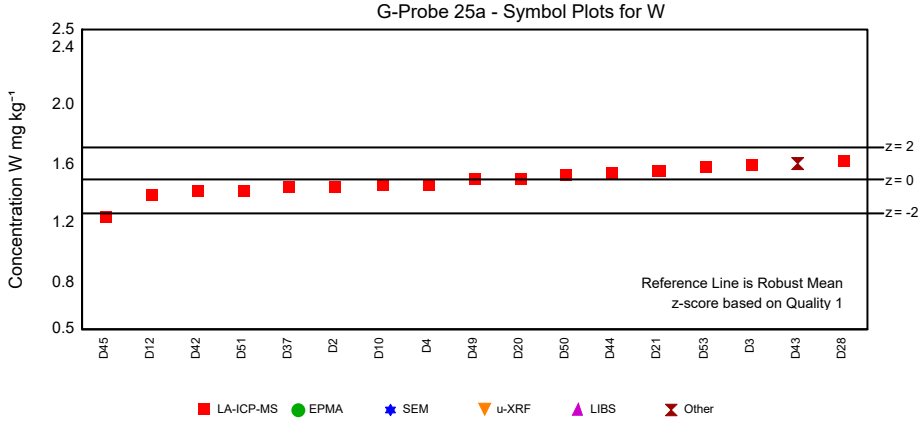

G-Probe 25a - Symbol Plots for Tb
Concentration Tb mg kg⁻¹
3.4
3.3
2.9
2.5
2.1
1.7
1.3
0.9
0.7
z = 2
z = 0
z = -2
Reference Line is Median
z-score based on Quality 1
D42 D12 D13 D10 D51 D34 D28 D37 D21 D50 D45 D2 D20 D19 D44 D17 D4 D47 D53 D27 D49 D3 D43 D32 D24
LA-ICP-MS EPMA SEM u-XRF LIBS Other

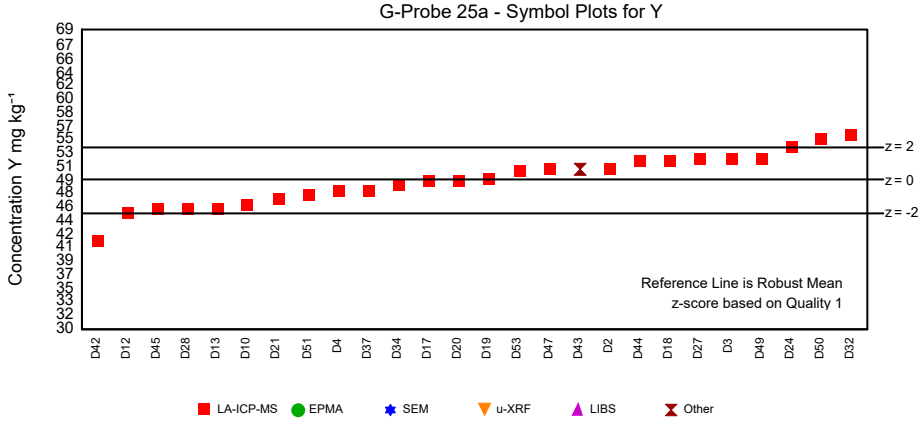

G-Probe 25a - Symbol Plots for Th
Concentration Th mg kg⁻¹
19
17
16
14
12
10
8
7
z = 2
z = 0
z = -2
Reference Line is Robust Mean
z-score based on Quality 1
D42 D13 D18 D12 D47 D10 D51 D21 D28 D34 D50 D37 D4 D2 D20 D44 D27 D53 D19 D3 D24 D49 D17 D43 D32
LA-ICP-MS EPMA SEM u-XRF LIBS Other

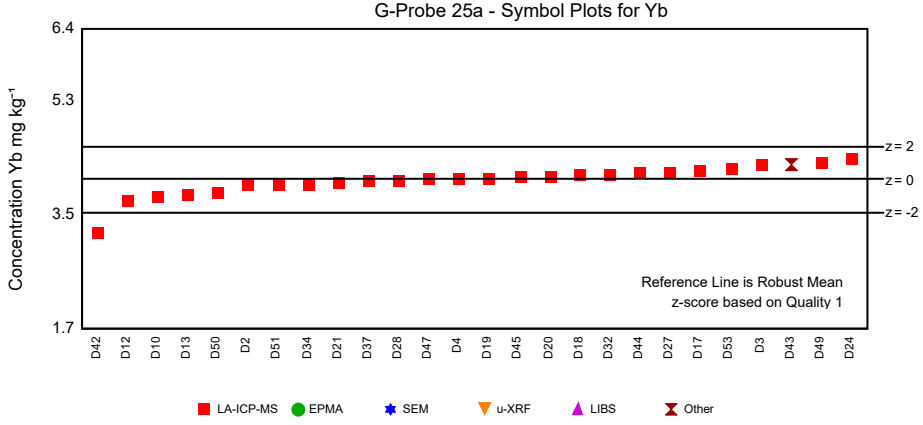

G-Probe 25a - Symbol Plots for Tm
Concentration Tm mg kg⁻¹
1.35
1.25
1.05
0.85
0.65
0.45
0.25
0.19
z = 2
z = 0
z = -2
Reference Line is Mode
z-score based on Quality 1
D50 D42 D10 D13 D12 D34 D51 D28 D21 D19 D37 D2 D45 D47 D18 D20 D53 D4 D44 D17 D32 D27 D49 D3 D24 D43
LA-ICP-MS EPMA SEM u-XRF LIBS Other











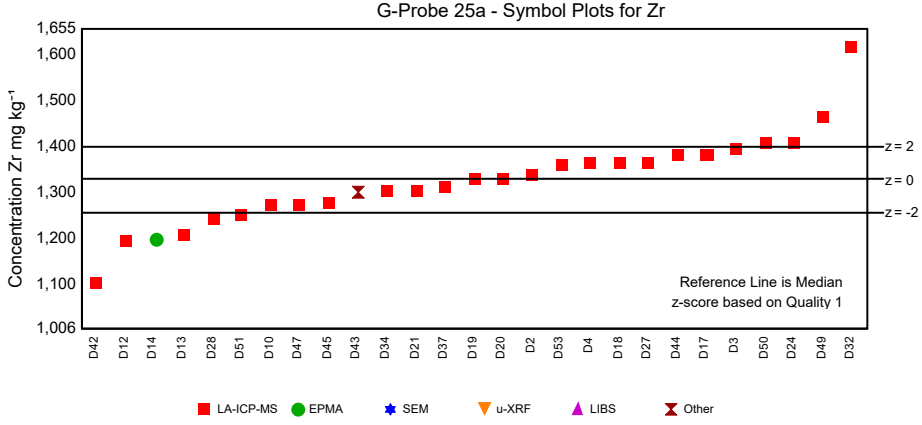
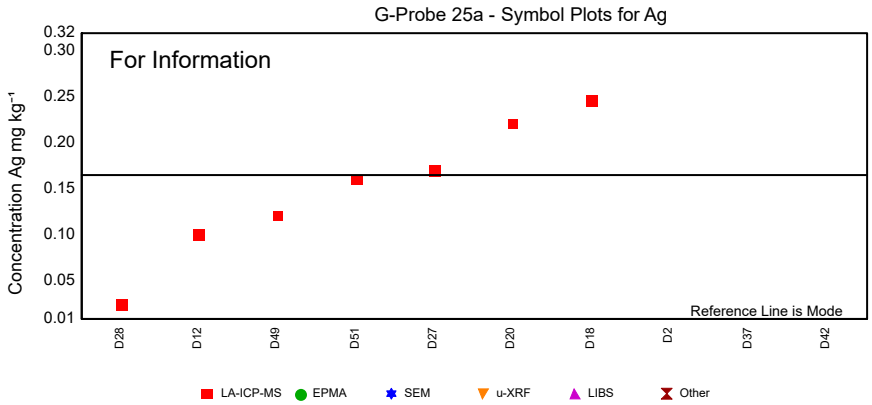
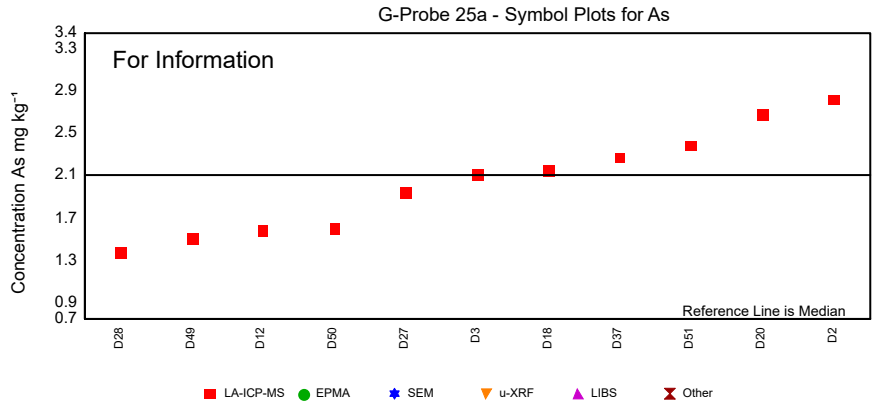
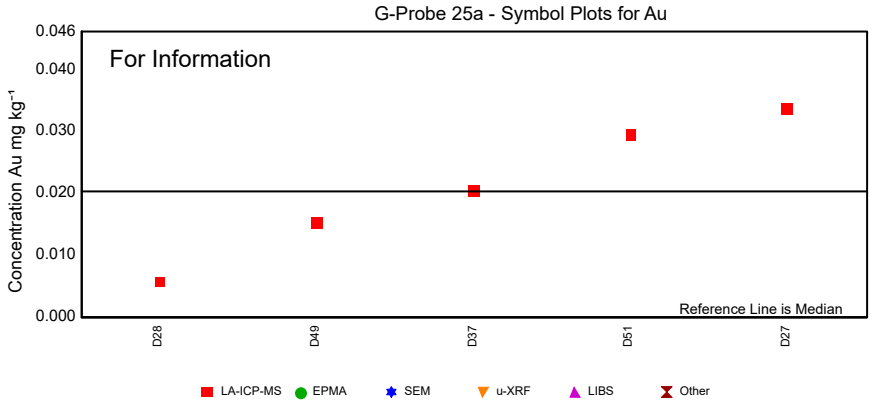
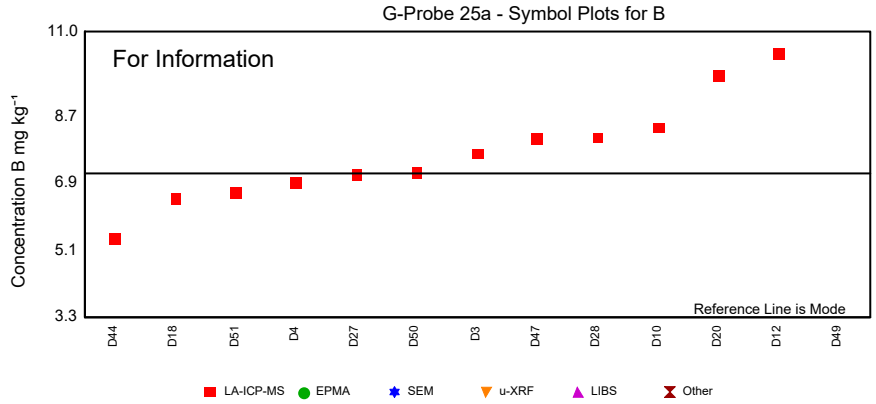


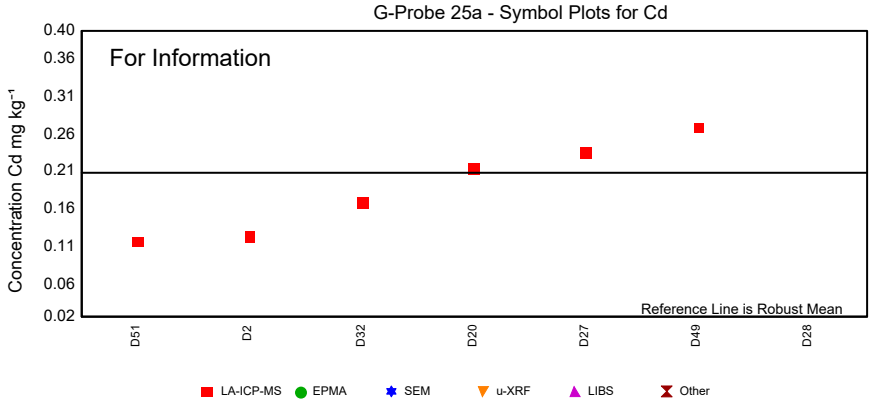
Figure 1: G-Probe 25a - Phonolite, KPho-2G Glass. Data distribution charts for elements for which values were assigned or provisional values given for guidance. Horizontal lines show the limits for -2<z<2 where the z-score is derived according to the Quality specified.

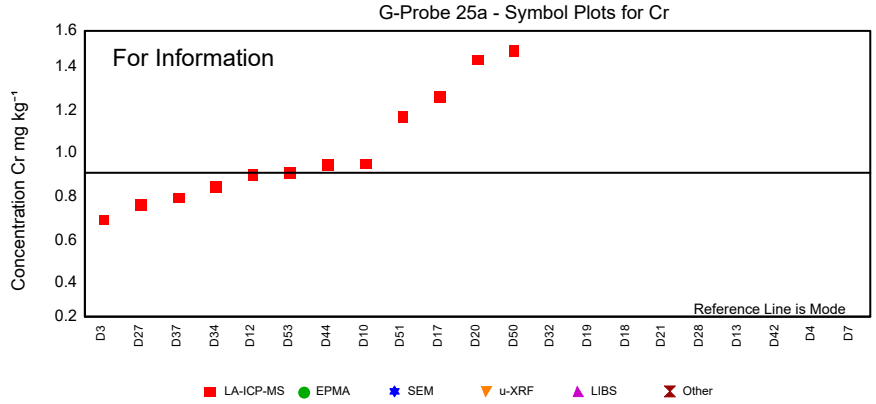

G-Probe 25a - Symbol Plots for Ag
For Information
Concentration Ag mg kg⁻¹
0.32
0.30
0.25
0.20
0.15
0.10
0.05
0.01
Reference Line is Mode
D28
D12
D49
D51
D27
D20
D18
D2
D37
D42
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

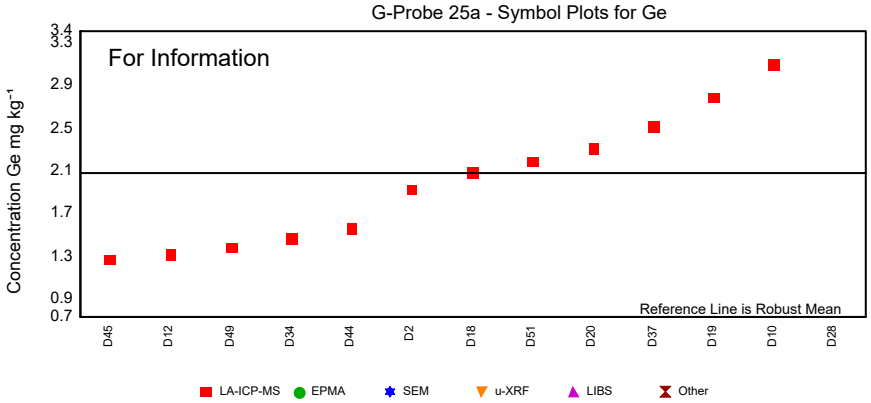

G-Probe 25a - Symbol Plots for As
For Information
Concentration As mg kg⁻¹
3.4
3.3
2.9
2.5
2.1
1.7
1.3
0.9
0.7
Reference Line is Median
D28
D49
D12
D50
D27
D3
D18
D37
D51
D20
D2
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

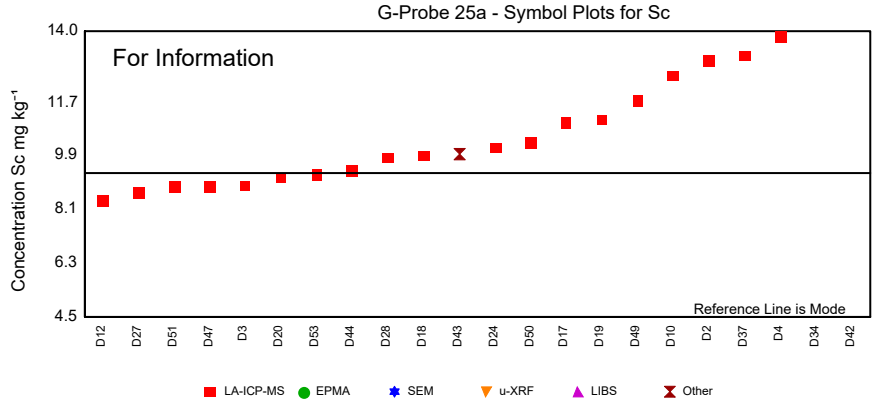

G-Probe 25a - Symbol Plots for Au
For Information
Concentration Au mg kg⁻¹
0.046
0.040
0.030
0.020
0.010
0.000
Reference Line is Median
D28
D49
D37
D51
D27
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

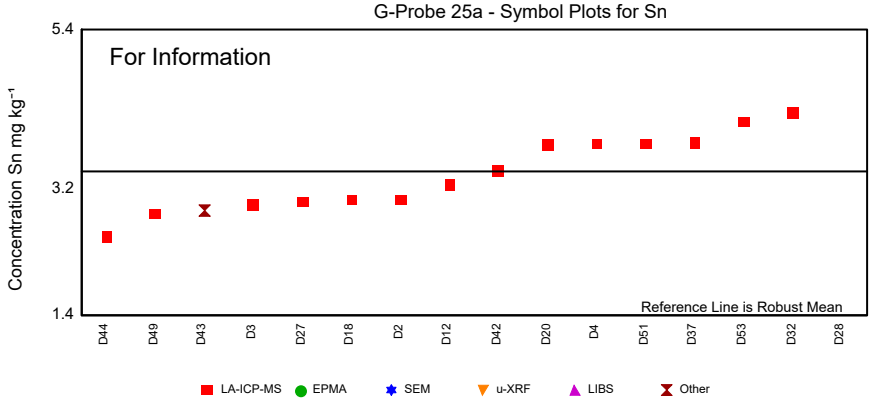

G-Probe 25a - Symbol Plots for B
For Information
Concentration B mg kg⁻¹
11.0
8.7
6.9
5.1
3.3
Reference Line is Mode
D44
D18
D51
D4
D27
D60
D3
D47
D28
D10
D20
D12
D49
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other

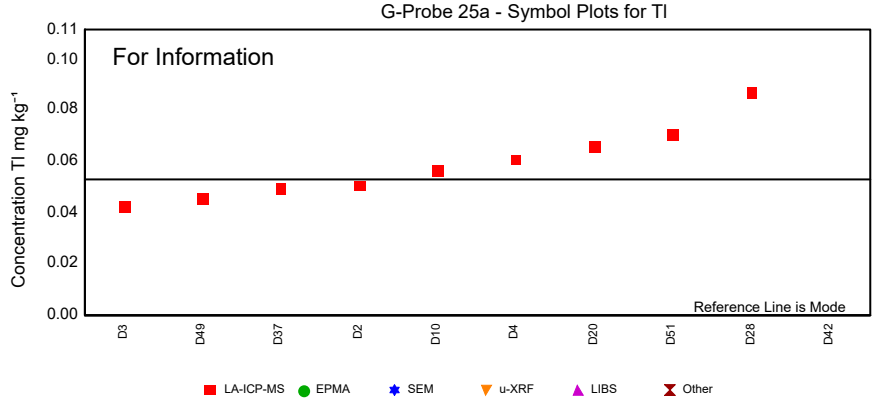

G-Probe 25a - Symbol Plots for Cd
For Information
Concentration Cd mg kg⁻¹
0.40
0.36
0.31
0.26
0.21
0.16
0.11
0.06
0.02
Reference Line is Robust Mean
D51
D2
D32
D20
D27
D49
D28
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other


G-Probe 25a - Symbol Plots for Cr
For Information
Concentration Cr mg kg⁻¹
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Reference Line is Mode
D3
D27
D37
D34
D12
D53
D44
D10
D51
D17
D20
D50
D32
D19
D18
D21
D28
D13
D42
D4
D7
LA-ICP-MS
EPMA
SEM
u-XRF
LIBS
Other









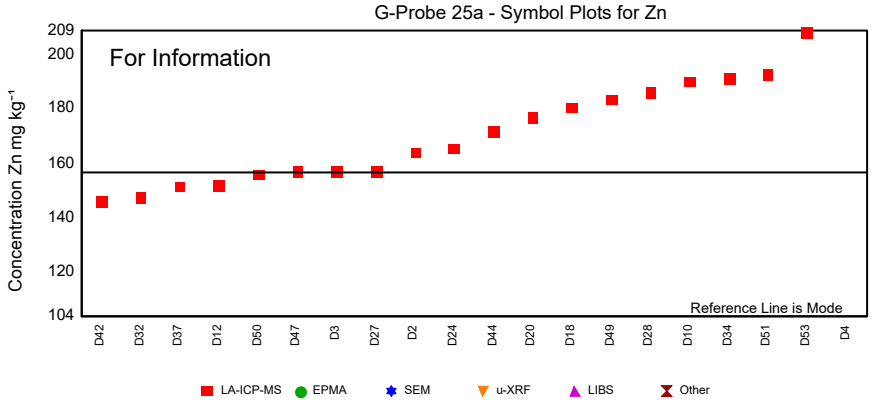
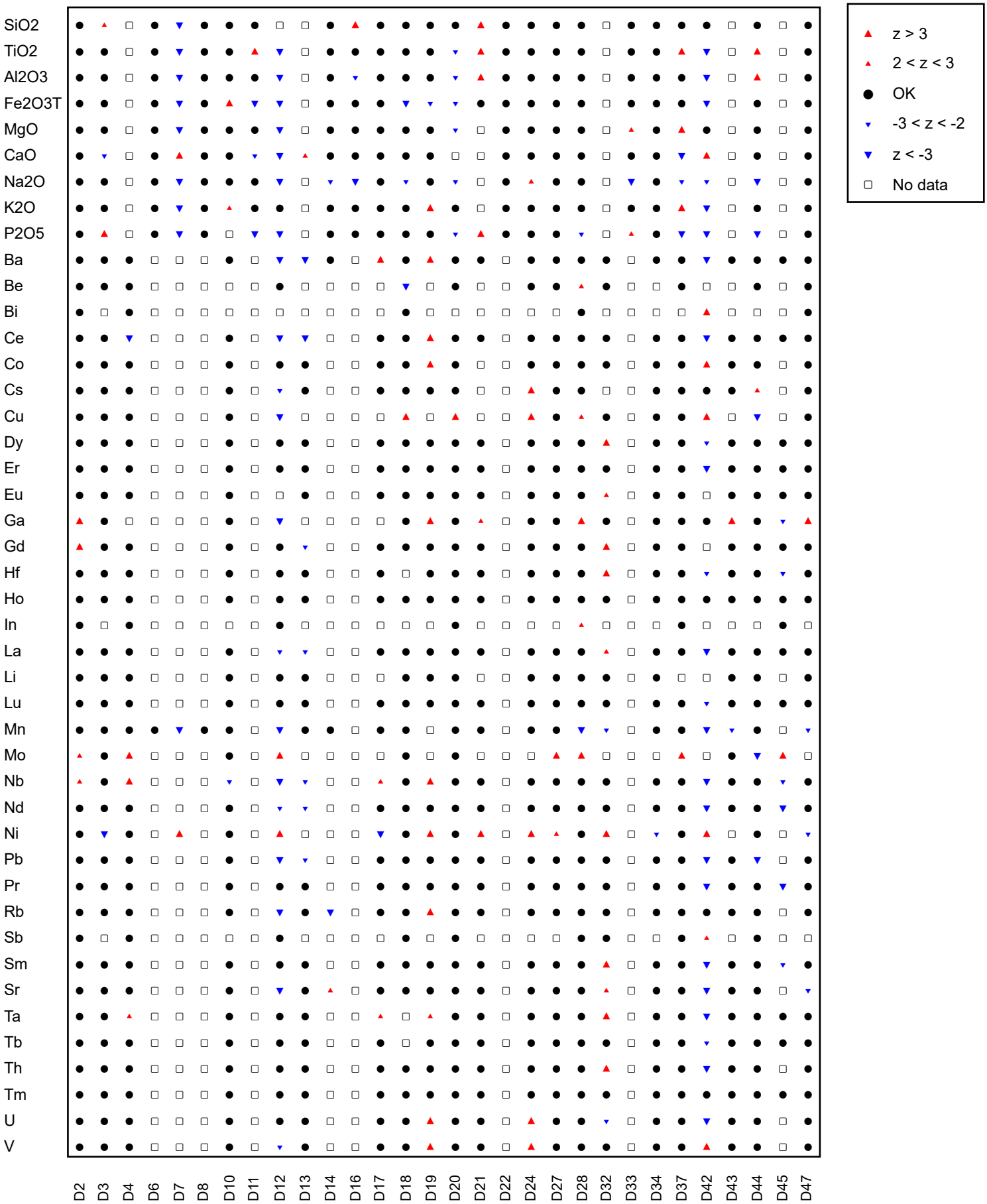


Figure 2: G-Probe 25a - Phonolite, KPho-2G Glass. Data distribution charts provided for information only for elements for which values could not be credited with assigned or provisional status.

Multiple Z-Score Chart for G-Probe 25a



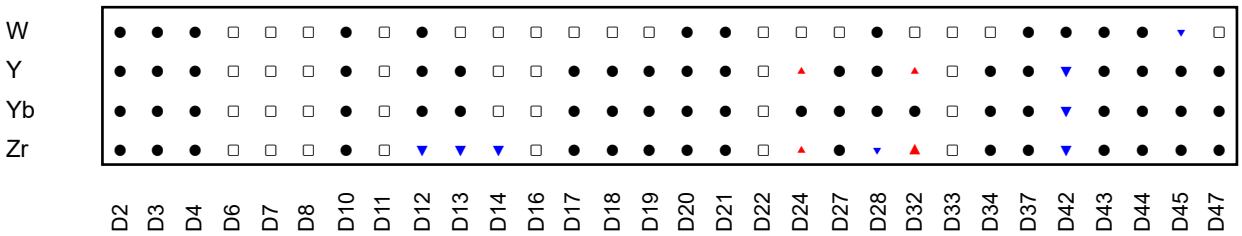
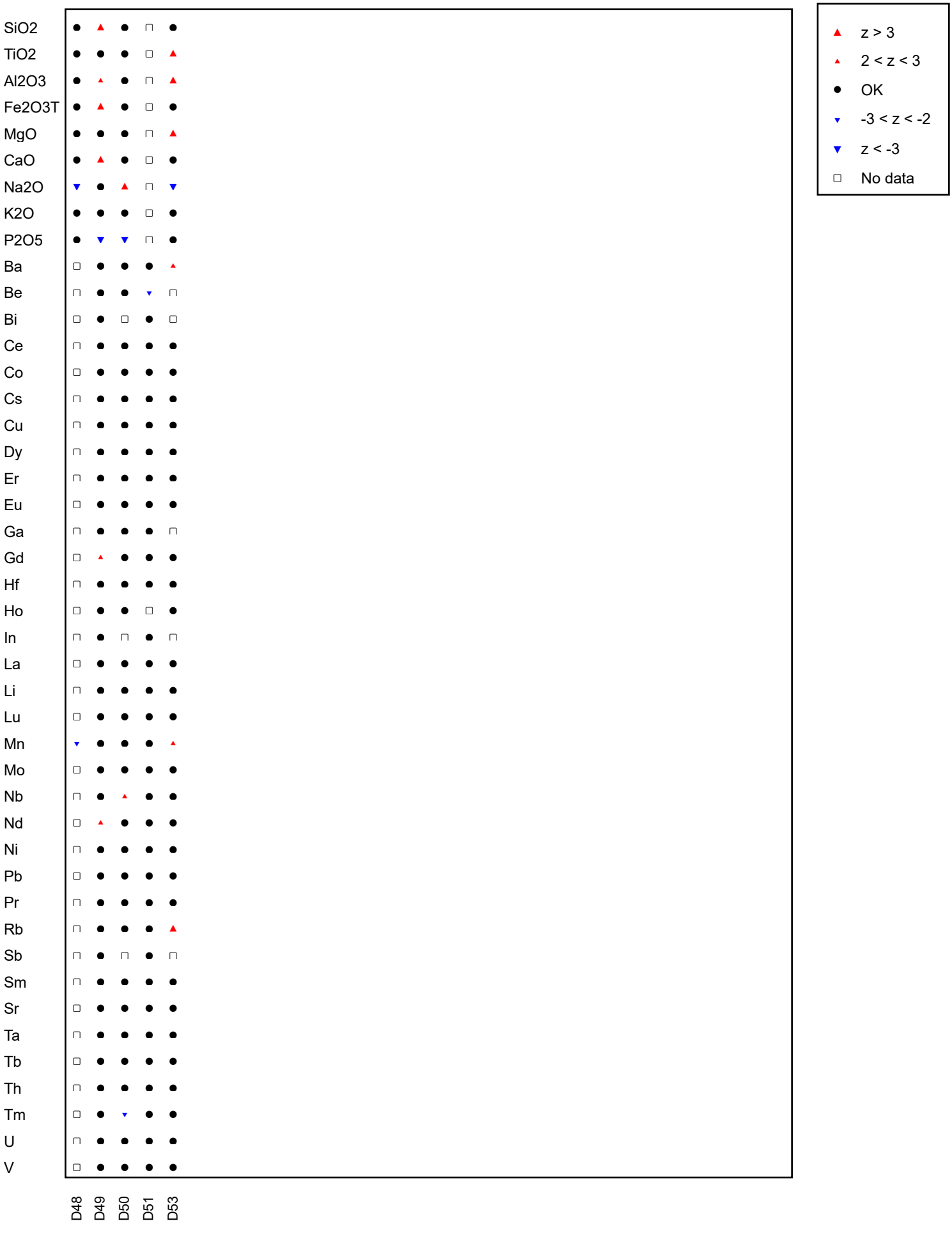


Figure 3: G-Probe 25a - Phonolite, KPho-2G Glass. Multiple z-score charts for laboratories participating in the G-Probe 25a round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

Multiple Z-Score Chart for G-Probe 25a



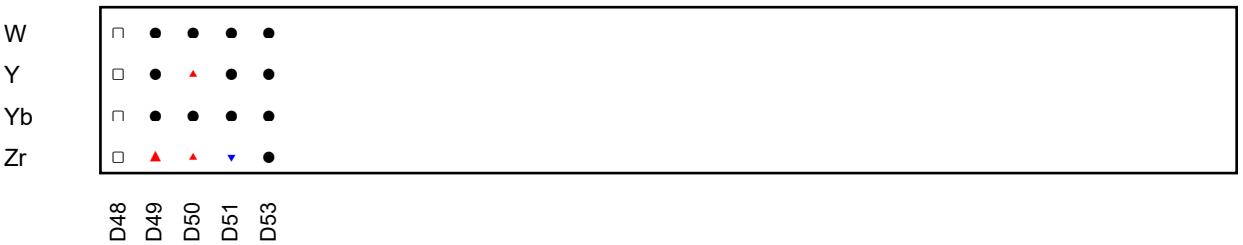


Figure 3: G-Probe 25a - Phonolite, KPho-2G Glass. Multiple z-score charts for laboratories participating in the G-Probe 25a round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).