

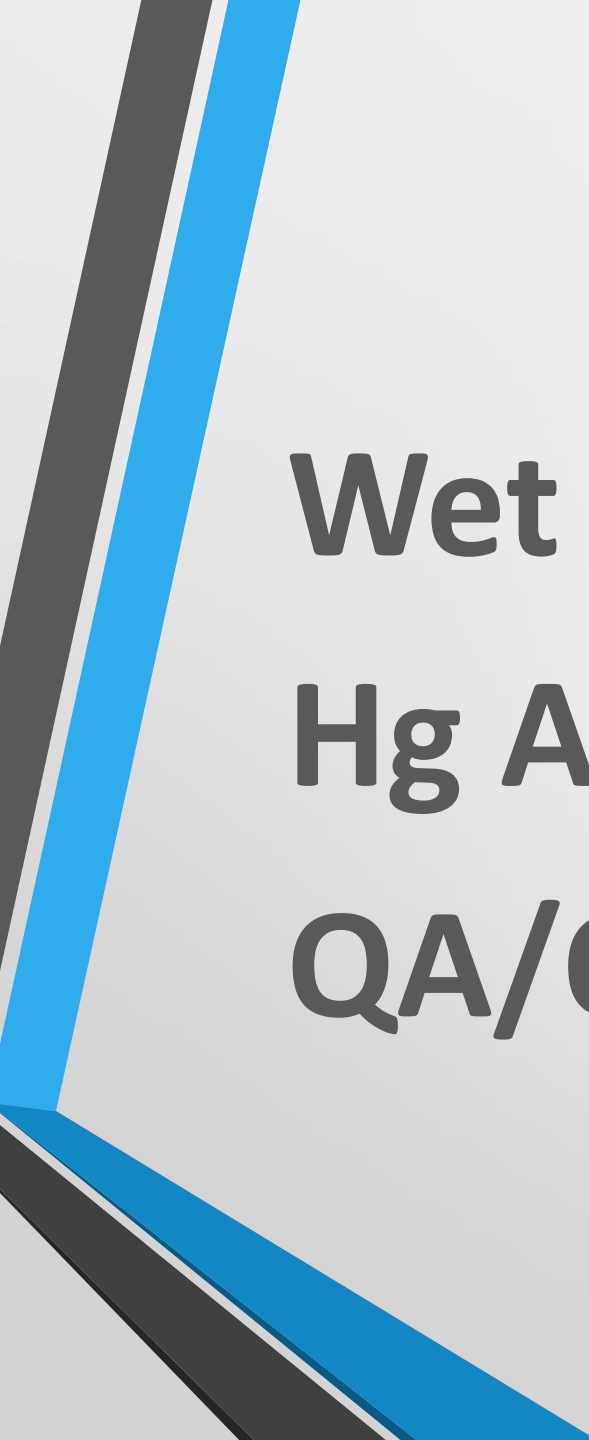


Asia Pacific Mercury
Monitoring Network

Mercury Central Analytical Lab and Site Liaison Reports

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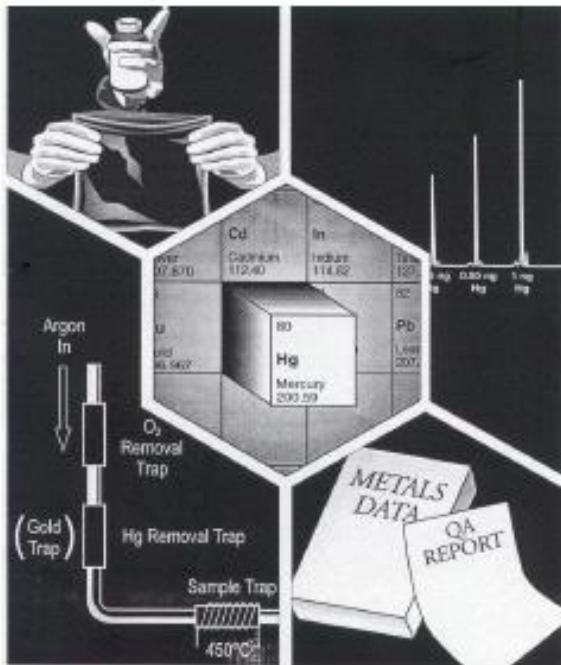
Wet Deposition Sampling and Hg Analysis: QA/QC and Data Summary

Rainwater Hg Analysis



Method 1631, Revision E:
Mercury in Water by Oxidation, Purge and
Trap, and Cold Vapor Atomic Fluorescence
Spectrometry

August 2002



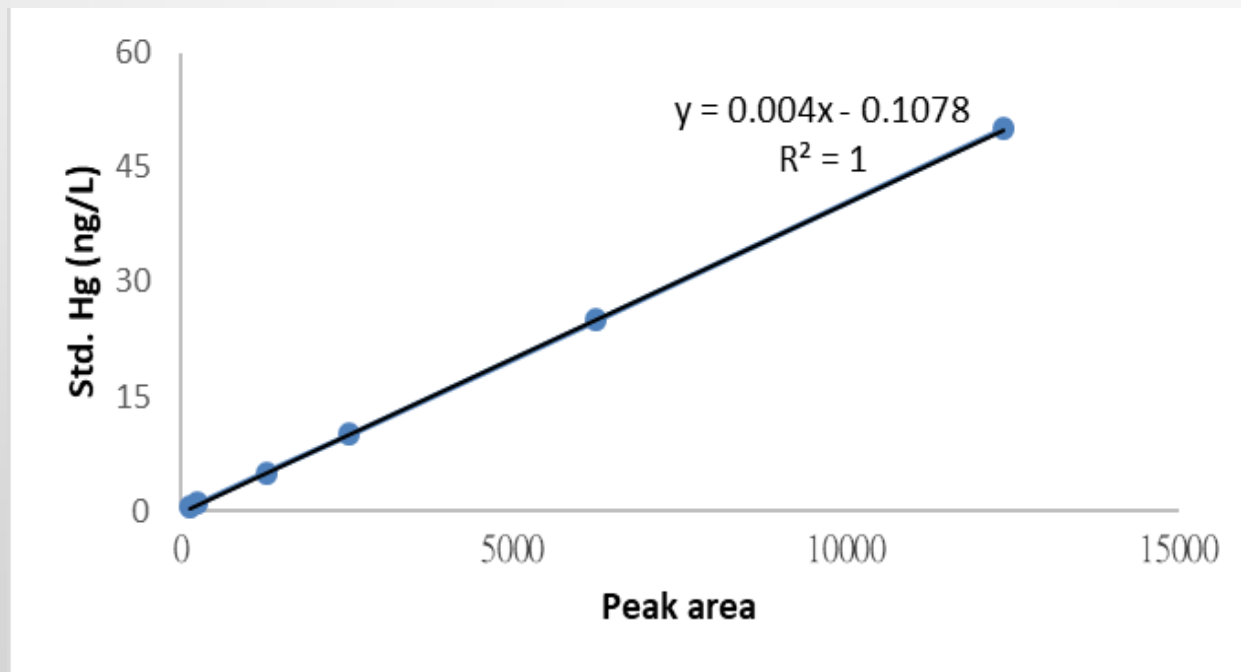
Total Hg is quantified by dual amalgamation Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) after BrCl oxidation, $\text{NH}_2\text{OH}\cdot\text{HCl}$ neutralization, and SnCl_2 reduction.



Method Detection Limit

0.09 ng/L (in 2025)

Calibration Curve



Blanks

	Number	Mean (ng L ⁻¹)	Min. (ng L ⁻¹)	Max. (ng L ⁻¹)	1631 rev. E
System blank	33	0.06	0.02	0.19	< 0.5
Bottle blank	66	0.14	0.00	0.34	< 0.5

Quality Control

	Number	Mean (%)	Min. (%)	Max. (%)	1631 rev. E
Duplicate analysis	33	0.7	0.0	2.1	$< \pm 20$
Matrix spike/duplicate	31	100.7	97.0	104.0	75 – 125
Quality control sample	53	100.1	96.4	106.0	80 – 120

Mercury Laboratory Proficiency Testing

Programme outlines

PT name: 3rd Round of Mercury Laboratory Proficiency Testing

PT test period: November 2024 – January 2025

Test item: One (1) dried sediment sample

Target parameter: Total mercury and / or methylmercury

Results of total mercury

Participant ID: 2

ID	Results submitted (mg/kg)			Average
	1	2	3	
2	4.148	4.098	4.169	4.138
Participants' statistics (mg/kg)			z score obtained	
Median		NIQR		
4.105		0.362	0.093	

Programme outlines

PT name: 4th Round of Mercury Laboratory Proficiency Testing

PT test period: February – May 2025

Test item: One (1) human urine sample

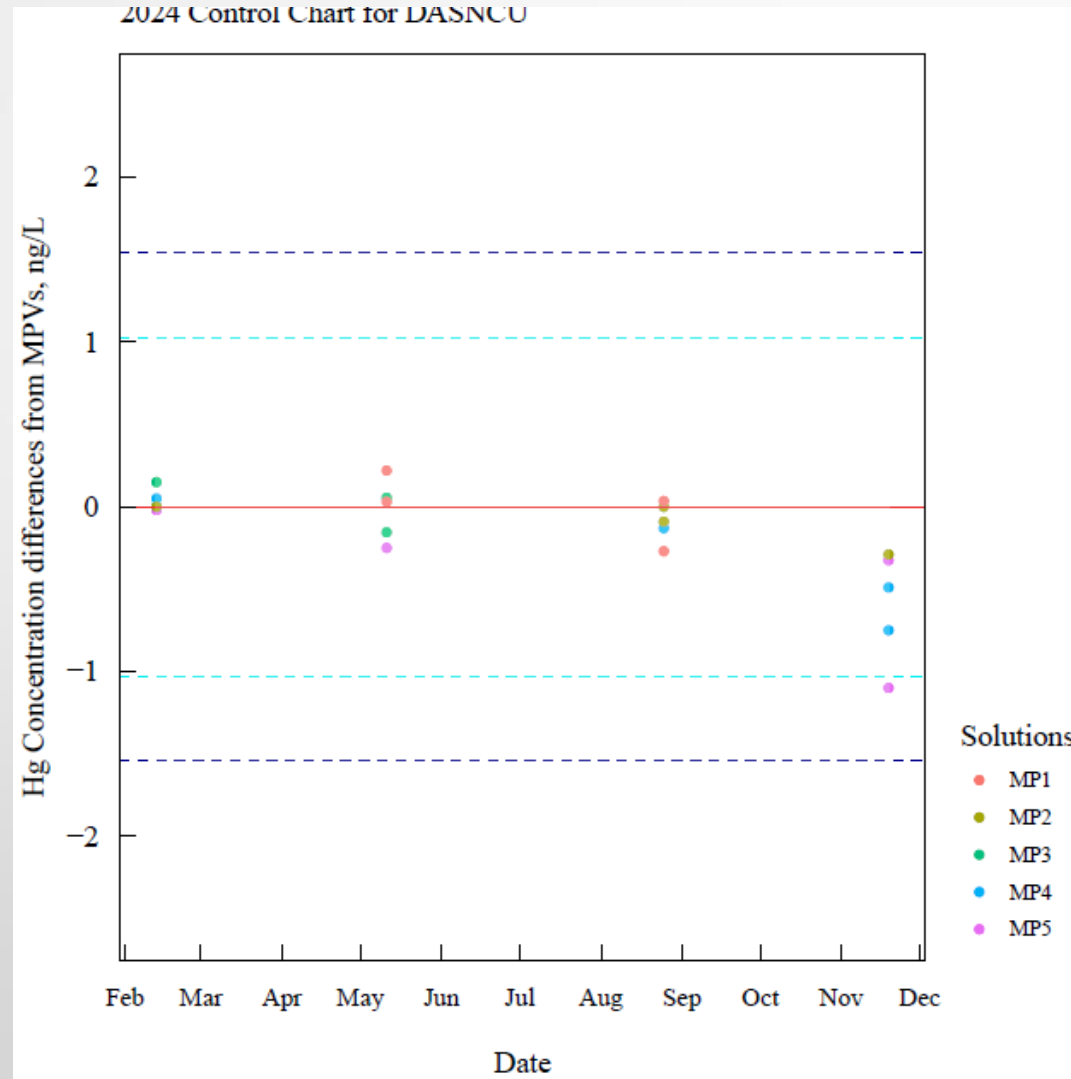
Target parameter: Total mercury

Results

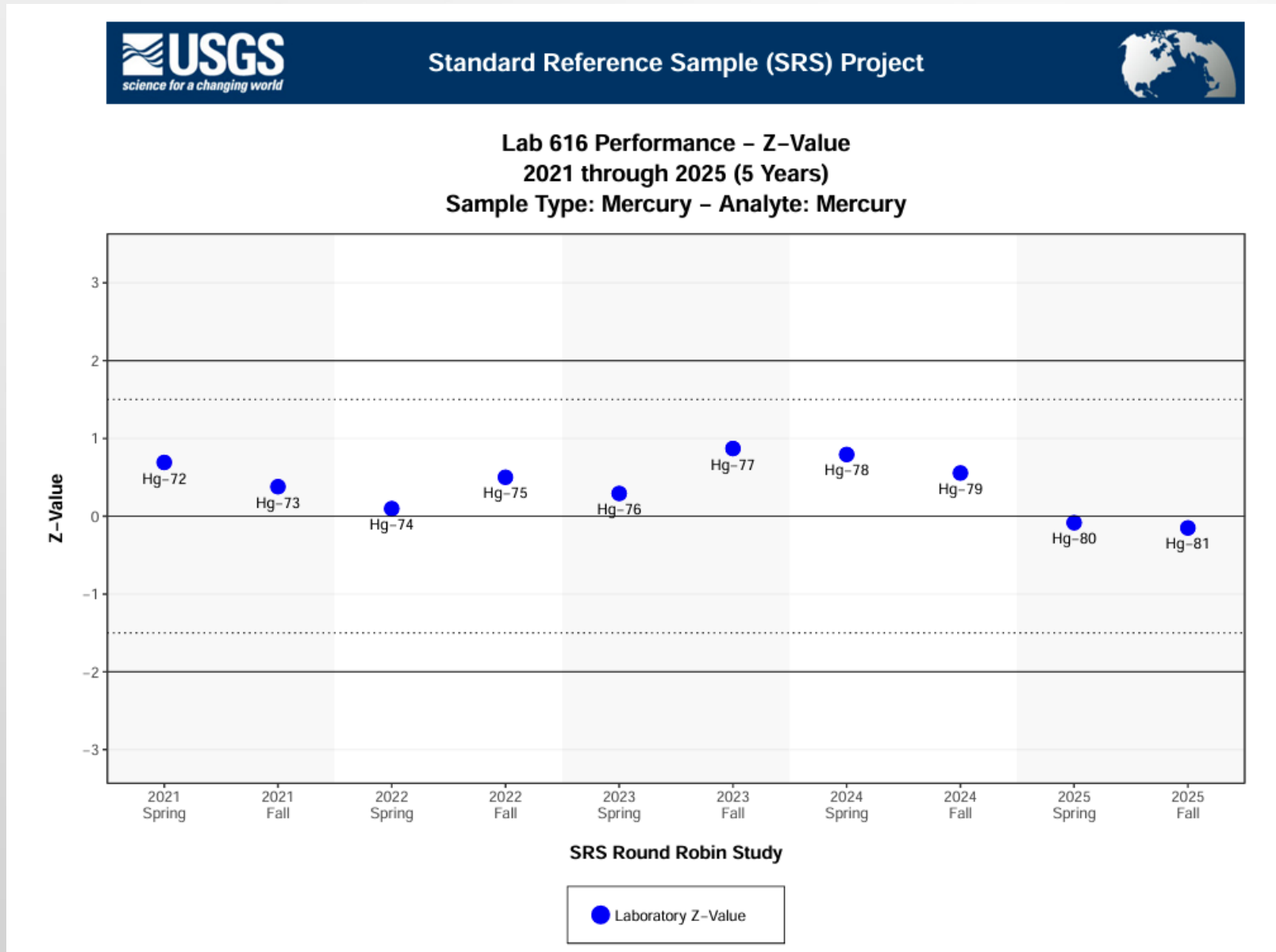
Participant ID: 1

ID	Results submitted (μ g/L)				Average
	Item 1		Item 2		
	1	2	1	2	
1	0.455	0.485	0.430	0.450	0.455
Participants' statistics after exclusion of invalid data (μ g/L)				z score obtained	
Median		NIQR			
0.565		0.128			
				-0.858	

USGS Interlaboratory Comparison Program - Mercury Deposition Network



USGS Standard Reference Sample Program



Samples Received and Analyzed

QA sample (Reagent blank, bottle blank, etc)

Site ID	Number			
	2021	2022	2023	2024
APAU01	-	2	24	21
APFJ01	-	-	-	-
APIN01	12	-	-	27
APID01	4	-	-	-
APID02	11	20	30	13
APMN01	-	-	-	-
APNP01	2	13	4	6
APPW01	-	-	1	-
APPH01	-	-	-	-
APLK01	-	-	-	-
APTW01	7	10	18	4
APTH01	21	24	12	-
APVN01	-	3	2	1
APVN02	-	-	-	1
APVN03	-	-	-	3
APKRA2	-	-	2	0
Sum	57	72	93	76

Data Summary

QA sample (2024)

Type	Total Hg Concentration (ng L ⁻¹)
Reagent blank (DI water)	0.1 – 84.8
Reagent blank (0.5% HCl)	1.9 – OL
PETG bottle blank	<0.1
Field blank	0.1 – 78.4
Travel blank	<MDL – 0.5
Duplicated	RPD >20%

MDL :Method detection limit, 0.09 ng L⁻¹

OL : Overload (Typically THg > 130 ng L⁻¹)

Trace Metal Analysis Reagent

- Hydrochloric acid

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantors



Material No.: 9530-33
Batch No.: 0000271303
Manufactured Date: 2020/09/16
Retest Date: 2025/09/15
Revision No: 1

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	1.0
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	< 0.1

Trace Impurities – Arsenic (As)	<= 0.010 ppm	< 0.002
Trace Impurities – Aluminum (Al)	<= 10.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities – Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities – Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	<= 10.0 ppb	1.2
Trace Impurities – Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities – Cadmium (Cd)	<= 1.0 ppb	< 0.3

ThermoFisher
SCIENTIFIC

Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number QMS42039

Fisher Scientific UK Ltd.
part of Thermo Fisher Scientific
Sharnbrook Road,
Loughborough,
Leicestershire,
LE11 5RH

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing, not for direct administration to humans or animals. It is the responsibility of the purchaser, formulator or those performing further manufacturing to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalogue Number:	H/1198/PB17	Quality Test / Release Date:	04-MAY-23
Lot Number:	2365542	Expiry Phrase:	Use within 3 years of packing date
Product of:	France		

Description:	Hydrochloric acid 1.18 ~37%		
Grade:	PrimarPlus	Application:	Trace metal analysis

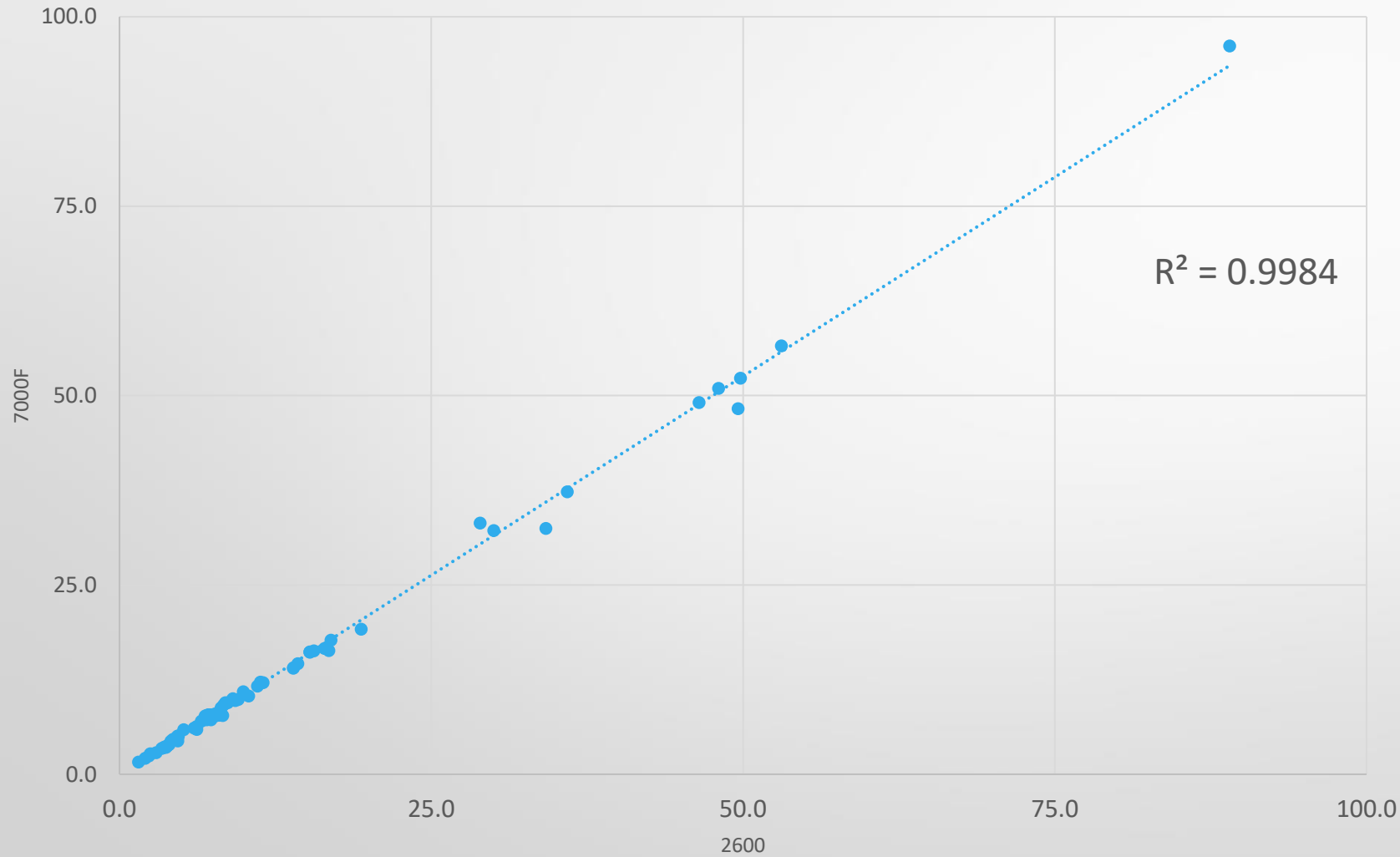
Appearance:	Clear colourless Mobile liquid
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Result Name	Test Value	Units	Specification
Aluminium (Al)	<0.02	ppm	<= 0.02
Antimony (Sb)	<0.005	ppm	<= 0.005
Arsenic (As)	<0.005	ppm	<= 0.01
Assay	37.50	%	>= 35 and <= 38
Barium (Ba)	<0.005	ppm	<= 0.02
Beryllium (Be)	<0.005	ppm	<= 0.005
Bismuth (Bi)	<0.005	ppm	<= 0.005
Boron (B)	<0.005	ppm	<= 0.005

Result Name	Test Value	Units	Specification
Indium (In)	<0.005	ppm	<= 0.005
Iron (Fe)	<0.05	ppm	<= 0.1
Lead (Pb)	<0.002	ppm	<= 0.002
Lithium (Li)	<0.002	ppm	<= 0.002
Magnesium (Mg)	<0.01	ppm	<= 0.02
Manganese (Mn)	<0.002	ppm	<= 0.002
Mercury (Hg)	<0.005	ppm	<= 0.005
Molybdenum (Mo)	<0.002	ppm	<= 0.002

Mercury (Hg)	<0.005	ppm	<= 0.005
Molybdenum (Mo)	<0.002	ppm	<= 0.002
Nickel (Ni)	<0.002	ppm	<= 0.005
Potassium (K)	<0.02	ppm	<= 0.05

CVAFS comparison



3.9% diff.

**THANK
you!**

