



UNIVERSITY OF LIVERPOOL

Chemistry Analytical Services

ICP-OES Analysis Report

Summary

Worksheet Name	ICP-1267-70.esws	Created Date/Time (local)	14/06/2023 13:48:18
Instrument Name	MY16270003	Created Date/Time (GMT)	14/06/2023 12:48:18
Software Version	7.6.0.12121	Workstation Name	DESKTOP-PKCFD1M
Firmware Version	5590	Report Generated By	DESKTOP-PKCFD1MAS-CHEM-ICPOES

Elements

Element	Wavelength (nm)	Label	Type	Internal Standard	Background Correction	Pixels	Calibration Fit	Condition Set
Hf	196.361	Hf (196.361 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Hf	251.689	Hf (251.689 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Hf	263.872	Hf (263.872 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Hf	264.141	Hf (264.141 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Hf	277.336	Hf (277.336 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Hf	282.023	Hf (282.023 nm)	Internal Standard		Fitted	2	Linear Weighted	1
K	766.491	K (766.491 nm)	Analyte		Fitted	2	Linear Weighted	1
Y	324.228	Y (324.228 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Y	360.074	Y (360.074 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Y	361.104	Y (361.104 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Y	371.029	Y (371.029 nm)	Internal Standard		Fitted	2	Linear Weighted	1
Y	377.433	Y (377.433 nm)	Internal Standard		Fitted	2	Linear Weighted	1



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Calibrations

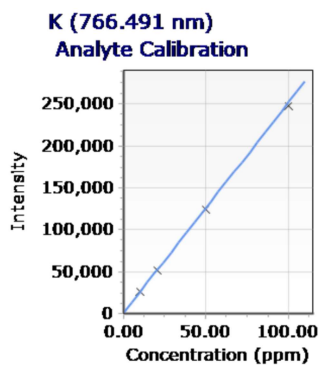
Standard Concentrations By Element

Calibration Parameters

Label (Wavelength nm)	Calibration Fit	Minimum Concentration	Maximum Concentration	Calibration Error	Excess Curvature	Upward Curvature	%RSE Limit
K (766.491 nm)	Linear Weighted	0.00 ppm	110.00 ppm	5 %			

Summary Calibration Results

Element and wavelength	Type	Units	Equation	Correlation Coefficient	%RSE
K (766.491 nm)	Analyte	ppm	$2500.43736399 \times \text{Concentration} + 1243.75012924$	0.99998	2.005083 04





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Sequence

Rack:Tube	Sample Label	Weight (g)	Volume (mL)	Dilution
S1:1	Blank	1	1	1
S1:2	Standard 1	1	1	1
S1:3	Standard 2	1	1	1
S1:4	Standard 3	1	1	1
S1:5	Standard 4	1	1	1
2:1	Blank	1	1	1
2:2	ICP-1267	1	1	1
2:3	ICP-1268	1	1	1
2:4	ICP-1269	1	1	1
2:5	ICP-1270	1	1	1

Results

Solution Label	Hf (196.361 nm)	Hf (251.689 nm)	Hf (263.872 nm)	Hf (264.141 nm)	Hf (277.336 nm)	Hf (282.023 nm)	K (766.491 nm)
Blank	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	0.00 (ppm)
Standard 1	1.00 (Ratio)	1.00 (Ratio)	1.01 (Ratio)	1.00 (Ratio)	0.99 (Ratio)	1.00 (Ratio)	10.00 (ppm)
Standard 2	1.00 (Ratio)	1.00 (Ratio)	1.01 (Ratio)	1.01 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	20.00 (ppm)
Standard 3	0.98 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	1.00 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	50.00 (ppm)
Standard 4	0.96 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	1.00 (Ratio)	0.98 (Ratio)	1.01 (Ratio)	100.00 (ppm)
Blank	0.97 (Ratio)	0.96 (Ratio)	1.00 (Ratio)	0.99 (Ratio)	0.98 (Ratio)	1.00 (Ratio)	-0.10 u (ppm)
ICP-1267	0.96 (Ratio)	0.98 (Ratio)	1.00 (Ratio)	1.01 (Ratio)	0.99 (Ratio)	0.99 (Ratio)	68.96 (ppm)
ICP-1268	0.97 (Ratio)	0.97 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	0.98 (Ratio)	0.99 (Ratio)	68.54 (ppm)
ICP-1269	0.97 (Ratio)	0.98 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	0.97 (Ratio)	1.00 (Ratio)	87.21 (ppm)
ICP-1270	0.97 (Ratio)	0.97 (Ratio)	0.99 (Ratio)	1.01 (Ratio)	0.98 (Ratio)	0.99 (Ratio)	87.20 (ppm)



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Solution Label	Y (324.228 nm)	Y (360.074 nm)	Y (361.104 nm)	Y (371.029 nm)	Y (377.433 nm)
Blank	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)
Standard 1	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)	1.00 (Ratio)
Standard 2	1.00 (Ratio)	1.00 (Ratio)	1.01 (Ratio)	1.01 (Ratio)	1.01 (Ratio)
Standard 3	1.00 (Ratio)	0.99 (Ratio)	0.99 (Ratio)	1.00 (Ratio)	1.00 (Ratio)
Standard 4	0.99 (Ratio)	0.99 (Ratio)	0.99 (Ratio)	1.00 (Ratio)	0.99 (Ratio)
Blank	0.98 (Ratio)	0.97 (Ratio)	0.98 (Ratio)	0.98 (Ratio)	0.98 (Ratio)
ICP-1267	0.98 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.98 (Ratio)	0.98 (Ratio)
ICP-1268	0.98 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.98 (Ratio)	0.97 (Ratio)
ICP-1269	0.98 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.97 (Ratio)
ICP-1270	0.97 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.97 (Ratio)	0.97 (Ratio)