R 08:47:54.953 04/15/2025 ID: Res (N069 1579/10)	As 193.696-Res	Rep 1	Res: 0,00709 nm
R 08:48:02.218 04/15/2025 ID: Res (N069 1579/10)	As 193.696-Res	Rep 2	Res: 0,00706 nm
R 08:48:11.406 04/15/2025 ID: Res (N069 1579/10)	As 193.696-Res	Rep 3	Res: 0,00708 nm
R 08:48:20.062 04/15/2025 ID: Res (N069 1579/10)	Ni 231.604-Res	Rep 1	Res: 0,00897 nm
R 08:48:27.750 04/15/2025 ID: Res (N069 1579/10)	Ni 231.604-Res	Rep 2	Res: 0,00896 nm
R 08:48:34.281 04/15/2025 ID: Res (N069 1579/10)	Ni 231.604-Res	Rep 3	Res: 0,00897 nm
R 08:48:44.250 04/15/2025 ID: Res (N069 1579/10)	Ni 341.476-Res	Rep 1	Res: 0,01330 nm
R 08:48:51.906 04/15/2025 ID: Res (N069 1579/10)	Ni 341.476-Res	Rep 2	Res: 0,01333 nm
R 08:48:58.390 04/15/2025 ID: Res (N069 1579/10)	Ni 341.476-Res	Rep 3	Res: 0,01336 nm
R 08:49:11.421 04/15/2025 ID: Res (N069 1579/10)	Ba 455.403-Res	Rep 1	Res: 0,01677 nm
R 08:49:21.281 04/15/2025 ID: Res (N069 1579/10)	Ba 455.403-Res	Rep 2	Res: 0,01616 nm
R 08:49:29.953 04/15/2025 ID: Res (N069 1579/10)	Ba 455.403-Res	Rep 3	Res: 0,01614 nm

==========

Method Loaded
Method Name: Resolução Espectral.1 (Approved) **Method Last Saved: 14/04/2025 17:00:21**
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID: Resolução Espectral
Sequence No.: 1 **Autosampler Location:**
Sample ID: Res (N069 1579/10) **Date Collected: 15/04/2025 08:44:36**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Res (N069 1579/10)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696-Res	13391,4						64,83	0,48%
Ni 231.604-Res	73571,4						689,29	0,94%
Ni 341.476-Res	75896,1						310,69	0,41%
Ba 455.403-Res	2193872,4						37551,98	1,71%

==========

Analysis Begun

Start Time: 15/04/2025 09:27:18 **Plasma On Time: 15/04/2025 08:02:12**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Resolução Espectral
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: LD Axial_Cal.1 (Approved) **Method Last Saved: 14/04/2025 17:11:55**
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID:
Sequence No.: 2 **Autosampler Location:**
Sample ID: DL-Standard **Date Collected: 15/04/2025 09:27:19**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: DL-Standard

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Calib Units
As 193.696	8147,0	45,23	0,56%	[1000]	µg/L
The required calibration blank has not been analyzed.					
Se 196.026	3550,0	26,89	0,76%	[500]	µg/L
The required calibration blank has not been analyzed.					
Tl 190.801	13019,5	83,54	0,64%	[1000]	µg/L
The required calibration blank has not been analyzed.					
Pb 220.353	14938,7	95,76	0,64%	[500]	µg/L
The required calibration blank has not been analyzed.					

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
As 193.696	1	Lin, Calc Int	0,0	8,147	0,00000	1,000000	
Se 196.026	1	Lin, Calc Int	0,0	7,100	0,00000	1,000000	
Tl 190.801	1	Lin, Calc Int	0,0	13,02	0,00000	1,000000	
Pb 220.353	1	Lin, Calc Int	0,0	29,88	0,00000	1,000000	

==========

Analysis Begun

Start Time: 15/04/2025 09:42:41 **Plasma On Time: 15/04/2025 08:02:12**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Limite de Detecção Axial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb
Initialize Optics completed successfully

==========

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: Calib Blank 1 **Date Collected: 15/04/2025 09:48:14**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
As 193.696	407,9	11,97	2,93%	[0,00]	µg/L
Se 196.026	340,9	14,03	4,11%	[0,00]	µg/L
Tl 190.801	-296,2	27,18	9,18%	[0,00]	µg/L
Pb 220.353	1188,7	18,74	1,58%	[0,00]	µg/L

==========

Batch ID: Resolução Espectral
Sequence No.: 2 **Autosampler Location:**
Sample ID: Blank solution **Date Collected: 15/04/2025 09:55:48**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: 200,X **Sample Prep Vol: 50, mL**
Rinse Time (before sample):

Mean Data: Blank solution

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696	-18,9	-2	µg/L	3,01				129,74%
Se 196.026	-31,1	-4	µg/L	2,21				50,43%
Tl 190.801	-14,2	-1	µg/L	1,20				109,97%
Pb 220.353	-5,7	-0	µg/L	0,93				487,77%

Sample conc. not calculated. Sample Prep. Vol. AND Initial Vol. required OR sample units incorrect.

==========

Method Loaded
Method Name: DLXL_Check.1 (Approved) **Method Last Saved: 14/04/2025 17:14:09**
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID: Resolução Espectral
Sequence No.: 3 **Autosampler Location:**
Sample ID: IDL-XL (2% HNO3) **Date Collected: 15/04/2025 10:05:56**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: IDL-XL (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696	-51,0	-6	µg/L	1,15	-6	µg/L	1,15	18,32%
Se 196.026	-54,7	-8	µg/L	1,33	-8	µg/L	1,33	17,26%
Tl 190.801	210,1	20	µg/L	0,36	20	µg/L	0,36	2,24%

Pb 220.353	-6,4	-0,2 µg/L		0,37	-0,2 µg/L	0,37	173,16%

==========

Method Loaded
Method Name: DLRL_Cal.3 (Approved) **Method Last Saved: 16/04/2025 14:22:16**
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: Calib Std 1 **Date Collected: 16/04/2025 14:32:27**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Calib Std 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
As 193.696	12502,4	10,92	0,09%	[5,0]	mg/L
The required calibration blank has not been analyzed.					
Zn 213.857	122853,4	946,03	0,77%	[1,0]	mg/L
The required calibration blank has not been analyzed.					
Mn 257.610	1692752,9	1316,33	0,08%	[1,0]	mg/L
The required calibration blank has not been analyzed.					
La 379.478	440357,2	1833,67	0,42%	[1,0]	mg/L
The required calibration blank has not been analyzed.					
Ba 455.403	1049714,4	1408,06	0,13%	[0,1]	mg/L
The required calibration blank has not been analyzed.					
Ba 493.408	728517,7	5540,57	0,76%	[0,1]	mg/L
The required calibration blank has not been analyzed.					

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
As 193.696	1	Lin, Calc Int	-0,0	2500	0,00000	1,000000	
Zn 213.857	1	Lin, Calc Int	0,0	122900	0,00000	1,000000	
Mn 257.610	1	Lin, Calc Int	0,0	1693000	0,00000	1,000000	
La 379.478	1	Lin, Calc Int	0,0	440400	0,00000	1,000000	
Ba 455.403	1	Lin, Calc Int	0,0	10500000	0,00000	1,000000	
Ba 493.408	1	Lin, Calc Int	0,0	7285000	0,00000	1,000000	

==========

Analysis Begun

Start Time: 16/04/2025 14:53:33 **Plasma On Time: 16/04/2025 08:59:32**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.3.sifx
Results Data Set: Lim. de Dt. Vista Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: Calib Blank 1 **Date Collected: 16/04/2025 14:53:33**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
As 193.696	440,3	4,19	0,95%	[0,00]	mg/L
Zn 213.857	491,3	17,10	3,48%	[0,00]	mg/L
Mn 257.610	2436,8	9,10	0,37%	[0,00]	mg/L
La 379.478	1357,4	23,74	1,75%	[0,00]	mg/L
Ba 455.403	-637,8	70,30	11,02%	[0,00]	mg/L

Ba 493.408	3136,5	61,63	1,96%	[0,00] mg/L

Batch ID:
Sequence No.: 2 **Autosampler Location:**
Sample ID: Blank Solution **Date Collected: 16/04/2025 15:04:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Blank Solution

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696	-127,3	-0,1	mg/L	0,00	-50,9	µg/L	3,30	6,48%
Zn 213.857	-19,8	-0,0	mg/L	0,00	-0,2	µg/L	0,01	8,70%
Mn 257.610	-134,2	-0,0	mg/L	0,00	-0,1	µg/L	0,01	12,64%
La 379.478	10,6	0,0	mg/L	0,00	0,0	µg/L	0,02	88,60%
Ba 455.403	18,7	0,0	mg/L	0,00	0,0	µg/L	0,02	893,28%
Ba 493.408	-134,2	-0,0	mg/L	0,00	-0,0	µg/L	0,02	126,73%

Analysis Begun

Start Time: 16/04/2025 14:53:33 **Plasma On Time: 16/04/2025 08:59:32**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By:
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.3.sifx
Results Data Set: Lim. de Dt. Vista Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

Method Loaded
Method Name: DLRL_Cal.3 (Approved) **Method Last Saved: 16/04/2025 14:22:16**
IEC File: **MSF File:**
Method Description: Qualificação QPack

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: Calib Blank 1 **Date Collected: 16/04/2025 14:53:33**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Calib Units
As 193.696	440,3	4,19	0,95%	[0,00]	mg/L
Zn 213.857	491,3	17,10	3,48%	[0,00]	mg/L
Mn 257.610	2436,8	9,10	0,37%	[0,00]	mg/L
La 379.478	1357,4	23,74	1,75%	[0,00]	mg/L
Ba 455.403	-637,8	70,30	11,02%	[0,00]	mg/L
Ba 493.408	3136,5	61,63	1,96%	[0,00]	mg/L

Batch ID:
Sequence No.: 2 **Autosampler Location:**
Sample ID: Blank Solution **Date Collected: 16/04/2025 15:04:39**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Blank Solution

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD

As 193.696	-127,3	-0,1 mg/L	0,00	-50,9 µg/L	3,30	6,48%
Zn 213.857	-19,8	-0,0 mg/L	0,00	-0,2 µg/L	0,01	8,70%
Mn 257.610	-134,2	-0,0 mg/L	0,00	-0,1 µg/L	0,01	12,64%
La 379.478	10,6	0,0 mg/L	0,00	0,0 µg/L	0,02	88,60%
Ba 455.403	18,7	0,0 mg/L	0,00	0,0 µg/L	0,02	893,28%
Ba 493.408	-134,2	-0,0 mg/L	0,00	-0,0 µg/L	0,02	126,73%

==========

Analysis Begun

Start Time: 16/04/2025 15:23:39 **Plasma On Time: 16/04/2025 08:59:32**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.3.sifx
Results Data Set: Lim. de Dt. Vista Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: DLRL_Check.1 (Approved) **Method Last Saved: 14/04/2025 17:18:14**
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: IDL-Rad (2% HNO3) **Date Collected: 16/04/2025 15:23:40**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: IDL-Rad (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696	261,1						8,03	3,08%
Zn 213.857	537,9						14,02	2,61%
Mn 257.610	2073,3						28,91	1,39%
La 379.478	2677,2						53,01	1,98%
Ba 455.403	1722,3						128,74	7,47%
Ba 493.408	3355,0						162,09	4,83%

==========

Batch ID:
Sequence No.: 2 **Autosampler Location:**
Sample ID: IDL-Rad (2% HNO3) **Date Collected: 16/04/2025 16:07:42**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: IDL-Rad (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
As 193.696	121,3						6,49	5,35%
Zn 213.857	551,6						20,25	3,67%
Mn 257.610	408,9						21,41	5,24%
La 379.478	2664,5						81,78	3,07%
Ba 455.403	1812,7						130,52	7,20%
Ba 493.408	3231,5						145,58	4,50%

==========

Reprocessing Begun
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli

Results Data Set (original): Lim. de Dt. Vista Radial
Results Library (original): C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb
Results Data Set (reprocessed): Lim. de Dt. Vista Radial

Results Library (reprocessed): C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: DLRL_Cal.3 (Approved) Method Last Saved: 16/04/2025 14:22:16
IEC File: MSF File:
Method Description: Qualificação QPack

==========

Batch ID:
Sequence No.: 1 Autosampler Location:
Sample ID: Calib Blank 1 Date Collected: 16/04/2025 14:53:33
Analyst: Data Type: Reprocessed on 16/04/2025 16:47:02
Originator (Original): Vandilso Minelli Signed By (Original): Vandilso Minelli
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
As 193.696	440,3	4,19	0,95%	[0,00]	mg/L
Zn 213.857	491,3	17,10	3,48%	[0,00]	mg/L
Mn 257.610	2436,8	9,10	0,37%	[0,00]	mg/L
La 379.478	1357,4	23,74	1,75%	[0,00]	mg/L
Ba 455.403	-637,8	70,30	11,02%	[0,00]	mg/L
Ba 493.408	3136,5	61,63	1,96%	[0,00]	mg/L

==========

Batch ID:
Sequence No.: 2 Autosampler Location:
Sample ID: Calib Std 1 Date Collected: 16/04/2025 14:32:27
Analyst: Data Type: Reprocessed on 16/04/2025 16:47:02
Originator (Original): Vandilso Minelli Signed By (Original): Vandilso Minelli
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: Calib Std 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
As 193.696	12062,1	10,92	0,09%	[5,0]	mg/L
Zn 213.857	122362,2	946,03	0,77%	[1,0]	mg/L
Mn 257.610	1690316,1	1316,33	0,08%	[1,0]	mg/L
La 379.478	438999,8	1833,67	0,42%	[1,0]	mg/L
Ba 455.403	1050352,2	1408,06	0,13%	[0,1]	mg/L
Ba 493.408	725381,2	5540,57	0,76%	[0,1]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
As 193.696	1	Lin, Calc Int	-0,0	2412	0,00000	1,000000	
Zn 213.857	1	Lin, Calc Int	0,0	122400	0,00000	1,000000	
Mn 257.610	1	Lin, Calc Int	0,0	1690000	0,00000	1,000000	
La 379.478	1	Lin, Calc Int	0,0	439000	0,00000	1,000000	
Ba 455.403	1	Lin, Calc Int	0,0	10500000	0,00000	1,000000	
Ba 493.408	1	Lin, Calc Int	0,0	7254000	0,00000	1,000000	

==========

Batch ID:
Sequence No.: 3 Autosampler Location:
Sample ID: Blank Solution Date Collected: 16/04/2025 15:04:39
Analyst: Data Type: Reprocessed on 16/04/2025 16:47:02
Originator (Original): Vandilso Minelli Signed By (Original): Vandilso Minelli
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: Blank Solution

Mean Corrected	Calib.	Sample

Analyte	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	Std.Dev.	RSD
As 193.696	-127,3	-0,1	mg/L	0,00	-52,8	µg/L	3,42	6,48%
Zn 213.857	-19,8	-0,0	mg/L	0,00	-0,2	µg/L	0,01	8,70%
Mn 257.610	-134,2	-0,0	mg/L	0,00	-0,1	µg/L	0,01	12,64%
La 379.478	10,6	0,0	mg/L	0,00	0,0	µg/L	0,02	88,60%
Ba 455.403	18,7	0,0	mg/L	0,00	0,0	µg/L	0,02	893,28%
Ba 493.408	-134,2	-0,0	mg/L	0,00	-0,0	µg/L	0,02	126,73%

==========

Batch ID:
Sequence No.: 4
Sample ID: IDL-Rad (2% HNO3)
Analyst:
Originator (Original): Vandilso Minelli
Initial Sample Wt:
Dilution:
Rinse Time (before sample):

Autosampler Location:
Date Collected: 16/04/2025 15:23:40
Data Type: Reprocessed on 16/04/2025 16:47:02
Signed By (Original): Vandilso Minelli
Initial Sample Vol:
Sample Prep Vol:

Mean Data: IDL-Rad (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
As 193.696	-256,9	-0,1	mg/L	0,00	-106,5	µg/L	3,50	3,29%
Zn 213.857	7,3	0,0	mg/L	0,00	0,1	µg/L	0,08	125,94%
Mn 257.610	-674,0	-0,0	mg/L	0,00	-0,4	µg/L	0,01	3,43%
La 379.478	50,4	0,0	mg/L	0,00	0,1	µg/L	0,10	91,00%
Ba 455.403	0,8	0,0	mg/L	0,00	0,0	µg/L	0,01	>999.9%
Ba 493.408	218,5	0,0	mg/L	0,00	0,0	µg/L	0,02	74,17%

==========

Batch ID:
Sequence No.: 5
Sample ID: IDL-Rad (2% HNO3)
Analyst:
Originator (Original): Vandilso Minelli
Initial Sample Wt:
Dilution:
Rinse Time (before sample):

Autosampler Location:
Date Collected: 16/04/2025 16:07:42
Data Type: Reprocessed on 16/04/2025 16:47:02
Signed By (Original): Vandilso Minelli
Initial Sample Vol:
Sample Prep Vol:

Mean Data: IDL-Rad (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
As 193.696	-399,3	-0,2	mg/L	0,00	-165,5	µg/L	2,73	1,65%
Zn 213.857	19,8	0,0	mg/L	0,00	0,2	µg/L	0,14	86,07%
Mn 257.610	-2348,6	-0,0	mg/L	0,00	-1,4	µg/L	0,02	1,26%
La 379.478	44,4	0,0	mg/L	0,00	0,1	µg/L	0,14	137,07%
Ba 455.403	288,2	0,0	mg/L	0,00	0,0	µg/L	0,01	54,60%
Ba 493.408	95,1	0,0	mg/L	0,00	0,0	µg/L	0,02	153,14%

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\
Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Precisao
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

Batch ID: Precisao
Sequence No.: 1 Autosampler Location:
Sample ID: RSD STD (N069 1579/10) Date Collected: 15/04/2025 16:31:42
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: RSD STD (N069 1579/10)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Zn 206.200	163739,9						852,03	0,52%
Mg 280.271	1883302,0						5110,51	0,27%
Mg 285.213	128209,8						568,69	0,44%
Ba 455.403	6259279,3						13130,29	0,21%

Signed By: Vandilso Minelli
Spectrometer: Optima 8000 Autosampler: S10

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\
Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Rep.Vistas Axial e Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

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Method Loaded
Method Name: DView_Check.2 (Approved) Method Last Saved: 15/04/2025 17:30:16
IEC File: MSF File:
Method Description: Qualificação QPack

==========

Batch ID: Rep. Vistas Axial/Radial
Sequence No.: 1 Autosampler Location:
Sample ID: DView (N069 1579/10) Date Collected: 15/04/2025 17:39:42
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: DView (N069 1579/10)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Mn_axial	5624109,0						39234,27	0,70%
Mn_axial_att	18638,4						86,27	0,46%
Mn_radial	1517760,7						11487,74	0,76%
Mn_radial_att	66450,4						666,02	1,00%

==========

Analysis Begun

Start Time: 15/04/2025 17:57:31 Plasma On Time: 15/04/2025 08:02:12
Originator: Vandilso Minelli Technique: ICP Continuous
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 Autosampler: S10

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\
Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: BEC
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: BEC_Test.2 (Approved) Method Last Saved: 15/04/2025 17:52:22
IEC File: MSF File:
Method Description: Qualificação QPack

==========

Batch ID: BEC
Sequence No.: 1 Autosampler Location:
Sample ID: IB (2% HNO3) Date Collected: 15/04/2025 17:57:35
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Replicate Data: IB (2% HNO3)

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Mn Radial	46579,0	46579,0					17:58:53
1	Mn Radial A	27,7	27,7					17:59:36
1	Mn Axial At	200,8	200,8					18:00:28
1	Mn Axial	75826,2	75826,2					18:01:16
2	Mn Radial	47008,7	47008,7					17:59:01
2	Mn Radial A	30,8	30,8					17:59:45
2	Mn Axial At	194,0	194,0					18:00:37
2	Mn Axial	75781,8	75781,8					18:01:25
3	Mn Radial	46693,9	46693,9					17:59:09
3	Mn Radial A	20,4	20,4					17:59:54

3	Mn Axial At	202,8	202,8		18:00:46
3	Mn Axial	75986,8	75986,8		18:01:33
4	Mn Radial	46732,1	46732,1		17:59:17
4	Mn Radial A	25,6	25,6		18:00:03
4	Mn Axial At	192,3	192,3		18:00:55
4	Mn Axial	75607,8	75607,8		18:01:41
5	Mn Radial	46485,2	46485,2		17:59:25
5	Mn Radial A	3,7	3,7		18:00:12
5	Mn Axial At	198,5	198,5		18:01:05
5	Mn Axial	75844,7	75844,7		18:01:49

Mean Data: IB (2% HNO3)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Mn Axial	75809,4						136,38	0,18%
Mn Radial	46699,8						198,21	0,42%
Mn Axial Att	197,7						4,45	2,25%
Mn Radial Att	21,6						10,70	49,43%

==========

Batch ID: BEC
Sequence No.: 2
Sample ID: IS (N069 1579/10)
Analyst:
Initial Sample Wt:
Dilution:
Rinse Time (before sample):

Autosampler Location:
Date Collected: 15/04/2025 18:03:43
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: IS (N069 1579/10)

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Mn Radial	1753974,2	1753974,2					18:05:01
1	Mn Radial A	67726,7	67726,7					18:05:39
1	Mn Axial At	136720,4	136720,4					18:06:24
1	Mn Axial	5774017,2	5774017,2					18:07:02
2	Mn Radial	1768963,7	1768963,7					18:05:08
2	Mn Radial A	68063,2	68063,2					18:05:47
2	Mn Axial At	137286,7	137286,7					18:06:32
2	Mn Axial	5812510,2	5812510,2					18:07:11
3	Mn Radial	1764420,0	1764420,0					18:05:15
3	Mn Radial A	68172,9	68172,9					18:05:55
3	Mn Axial At	137347,3	137347,3					18:06:39
3	Mn Axial	5822968,7	5822968,7					18:07:20
4	Mn Radial	1767441,3	1767441,3					18:05:22
4	Mn Radial A	68273,2	68273,2					18:06:02
4	Mn Axial At	135982,9	135982,9					18:06:46
4	Mn Axial	5861897,4	5861897,4					18:07:28
5	Mn Radial	1771844,5	1771844,5					18:05:30
5	Mn Radial A	67841,2	67841,2					18:06:10
5	Mn Axial At	136488,8	136488,8					18:06:53
5	Mn Axial	5834516,6	5834516,6					18:07:36

Mean Data: IS (N069 1579/10)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Mn Axial	5821182,0						32165,44	0,55%
Mn Radial	1765328,7						6889,86	0,39%
Mn Axial Att	136765,2						570,33	0,42%
Mn Radial Att	68015,4						227,59	0,33%

==========

Analysis Begun

Start Time: 15/04/2025 17:05:32 **Plasma On Time:** 15/04/2025 08:02:12
Originator: Vandilso Minelli **Technique:** ICP Continuous
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler:** S10

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Rep.Vistas Axial e Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: DView_Cal.1 (Approved) **Method Last Saved:** 14/04/2025 17:28:26
IEC File: **MSF File:**
Method Description: Qualificação QPack

==========

Batch ID:
Sequence No.: 1 **Autosampler Location:**
Sample ID: DView Cal (N069-1579/10) **Date Collected:** 15/04/2025 17:05:37
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: DView Cal (N069-1579/10)

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Units
Mn_axial	5629720,9	29349,42	0,52%	[100]	wt%
The required calibration blank has not been analyzed.					
Mn_axial_att	18499,7	125,87	0,68%	[100]	wt%
The required calibration blank has not been analyzed.					
Mn_radial	1522807,0	11526,06	0,76%	[100]	wt%
The required calibration blank has not been analyzed.					
Mn_radial_att	66651,5	547,02	0,82%	[100]	wt%
The required calibration blank has not been analyzed.					

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Mn_axial	1	Lin Thru 0	0,0	56300	0,00000	1,000000	
Mn_axial_att	1	Lin Thru 0	0,0	185,0	0,00000	1,000000	
Mn_radial	1	Lin Thru 0	0,0	15230	0,00000	1,000000	
Mn_radial_att	1	Lin Thru 0	0,0	666,5	0,00000	1,000000	

==========

Batch ID: Rep. Vistas Axial/Radial
Sequence No.: 2 **Autosampler Location:**
Sample ID: N069 1579 / 10X **Date Collected:** 15/04/2025 17:15:44
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: N069 1579 / 10X

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Mn_axial	5598044,0	99,4	wt%	0,65	99,4	wt%	0,65	0,65%
Mn_axial_att	18515,4	100,1	wt%	0,66	100,1	wt%	0,66	0,66%
Mn_radial	1538439,4	101,0	wt%	0,30	101,0	wt%	0,30	0,29%
Mn_radial_att	66843,5	100,3	wt%	0,77	100,3	wt%	0,77	0,77%

==========

Analysis Begun

Start Time: 15/04/2025 17:39:37 **Plasma On Time:** 15/04/2025 08:02:12
Originator: Vandilso Minelli **Technique:** ICP Continuous

Signed By: Vandilso Minelli
Spectrometer: Optima 8000 Autosampler: S10

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\
Carboximaltose Férrica_Transferência.2.sifx
Results Data Set: Rep.Vistas Axial e Radial
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: DView_Check.2 (Approved) Method Last Saved: 15/04/2025 17:30:16
IEC File: MSF File:
Method Description: Qualificação QPack

==========

Batch ID: Rep. Vistas Axial/Radial
Sequence No.: 1 Autosampler Location:
Sample ID: DView (N069 1579/10) Date Collected: 15/04/2025 17:39:42
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
Rinse Time (before sample):

Mean Data: DView (N069 1579/10)

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Mn_axial	5624109,0						39234,27	0,70%
Mn_axial_att	18638,4						86,27	0,46%
Mn_radial	1517760,7						11487,74	0,76%
Mn_radial_att	66450,4						666,02	1,00%

Analysis Begun

Start Time: 16/04/2025 12:18:16 **Plasma On Time: 16/04/2025 08:59:32**
Originator: Vandilso Minelli **Technique: ICP Continuous**
Signed By: Vandilso Minelli
Spectrometer: Optima 8000 **Autosampler: S10**

Sample Information File: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Sample Information\ Carboximaltose Férrica_Transferência.3.sifx
Results Data Set: Estabilidade
Results Library: C:\Users\Public\PerkinElmer Syngistix\ICP\Data\Results\Results.mdb

Batch ID:
Sequence No.: 1 **Autosampler Location: 19**
Sample ID: Calib Std 1 **Date Collected: 16/04/2025 12:18:25**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample):

Mean Data: Calib Std 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Zn 206.200	188506,4	1009,67	0,54%	[100,0]	wt%
The required calibration blank has not been analyzed.					
Mg 280.271	2088504,2	14676,83	0,70%	[100,0]	wt%
The required calibration blank has not been analyzed.					
Mg 285.213	195147,7	694,40	0,36%	[100,0]	wt%
The required calibration blank has not been analyzed.					
Ba 455.403	7496383,2	26883,88	0,36%	[100,0]	wt%
The required calibration blank has not been analyzed.					
Ar 420.069	1099235,8	1567,24	0,14%	[100,0]	wt%
The required calibration blank has not been analyzed.					
K 766.490	7683724,8	54845,88	0,71%	[100,0]	wt%
The required calibration blank has not been analyzed.					

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Zn 206.200	1	Lin, Calc Int	0,0	1885	0,00000	1,000000	
Mg 280.271	1	Lin, Calc Int	-0,0	20890	0,00000	1,000000	
Mg 285.213	1	Lin, Calc Int	0,0	1951	0,00000	1,000000	
Ba 455.403	1	Lin, Calc Int	0,0	74960	0,00000	1,000000	
Ar 420.069	1	Lin, Calc Int	0,0	10990	0,00000	1,000000	
K 766.490	1	Lin, Calc Int	0,0	76840	0,00000	1,000000	

Batch ID:
Sequence No.: 2 **Autosampler Location: 7**
Sample ID: STAB-01 **Date Collected: 16/04/2025 12:34:58**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample): 60

Mean Data: STAB-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Zn 206.200	188700,6	100	wt%	1,02	100	wt%	1,02	1,02%
Mg 280.271	2083789,8	99,8	wt%	0,52	99,8	wt%	0,52	0,52%
Mg 285.213	196635,3	101	wt%	0,39	101	wt%	0,39	0,39%
Ba 455.403	7512992,3	100	wt%	0,15	100	wt%	0,15	0,15%
Ar 420.069	1101012,2	100	wt%	0,11	100	wt%	0,11	0,11%
K 766.490	7611452,7	99,1	wt%	0,30	99,1	wt%	0,30	0,30%

Batch ID:
Sequence No.: 3 **Autosampler Location: 8**
Sample ID: STAB-02 **Date Collected: 16/04/2025 12:51:30**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample): 60

Mean Data: STAB-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Zn 206.200	185295,5	98,3	wt%	0,51	98,3	wt%	0,51	0,52%
Mg 280.271	2063337,6	98,8	wt%	0,46	98,8	wt%	0,46	0,47%
Mg 285.213	194449,0	99,6	wt%	0,20	99,6	wt%	0,20	0,20%
Ba 455.403	7460560,6	99,5	wt%	0,28	99,5	wt%	0,28	0,28%
Ar 420.069	1081885,4	98,4	wt%	0,13	98,4	wt%	0,13	0,14%
K 766.490	7594428,7	98,8	wt%	0,61	98,8	wt%	0,61	0,62%

Batch ID:
Sequence No.: 4 **Autosampler Location: 9**
Sample ID: STAB-03 **Date Collected: 16/04/2025 13:08:03**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample): 60

Mean Data: STAB-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Zn 206.200	189087,7	100	wt%	0,57	100	wt%	0,57	0,57%
Mg 280.271	2087380,7	99,9	wt%	0,39	99,9	wt%	0,39	0,39%
Mg 285.213	197230,9	101	wt%	0,19	101	wt%	0,19	0,19%
Ba 455.403	7557460,4	101	wt%	0,13	101	wt%	0,13	0,13%
Ar 420.069	1085580,7	98,8	wt%	0,06	98,8	wt%	0,06	0,06%
K 766.490	7475199,9	97,3	wt%	0,27	97,3	wt%	0,27	0,28%

Batch ID:
Sequence No.: 5 **Autosampler Location: 10**
Sample ID: STAB-04 **Date Collected: 16/04/2025 13:24:35**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**
Rinse Time (before sample): 60

Mean Data: STAB-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Zn 206.200	190057,9	101	wt%	0,57	101	wt%	0,57	0,57%
Mg 280.271	2085475,1	99,9	wt%	0,77	99,9	wt%	0,77	0,77%
Mg 285.213	194975,7	99,9	wt%	0,28	99,9	wt%	0,28	0,28%
Ba 455.403	7507647,8	100	wt%	0,25	100	wt%	0,25	0,25%
Ar 420.069	1085339,2	98,7	wt%	0,17	98,7	wt%	0,17	0,17%
K 766.490	7646417,8	99,5	wt%	0,16	99,5	wt%	0,16	0,16%

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Certificado de Análise

Sistema de Gestão da Qualidade Certificado ISO 9001

NÚMERO: 157845

Padrão: Multielementar G2008V
Código Produto: MICPG2008V
Data de Expedição: 04/2025
Densidade (20 °C): 1,0239 g/mL
Fabricante: Quimlab Produtos de Química Fina Ltda.

Número de Lote: F25D0084D
Validade: 24 meses
Matriz: HNO_3 5%

Valores Certificados:

Elemento	Concentração (mg/L)	Incerteza (mg/L)	SRM (NIST)
Cd	50,00	0,20	928
Pb	50,00	0,20	928
Se	50,00	0,25	3149
As	100,00	0,50	3103a
Tl	100,00	0,50	136f

1 – Informações

Este padrão consiste de uma solução multielementar preparada a partir de soluções de 1000 mg/L certificadas, dissolvidas em ácido de alta pureza e diluído com água tipo I (>18 MΩ.cm). Todas as fontes elementares utilizadas apresentaram pureza >99,9%. É destinado principalmente para uso em análises de metais por técnicas atômicas como a espectrofotometria de emissão atômica por plasma (ICP-AES) ou absorção atômica por forno de grafite (GFAAS).

2 – Incertezas

A incerteza calculada é dada pela seguinte expressão: $U = (2\ u_c)$
Onde u_c é a incerteza combinada calculada de acordo com o Guia para a Expressão da Incerteza de Medição, ISBN 85-07-00251-X, 3ª Ed. INMETRO (2003). O valor de U reportado corresponde a duas vezes o desvio padrão das incertezas combinadas, associadas a fatores gravimétricos, volumétricos, pureza da fonte metálica e incerteza do padrão NIST utilizado.

3 – Rastreabilidade

Este padrão é rastreado gravimetricamente e volumetricamente a Rede Brasileira de Calibração (RBC), sendo sua concentração verificada pela utilização de padrão secundário ou primário diretamente rastreado ao NIST através da utilização de métodos titulométricos, gravimétricos ou qualquer outro que permita a sua comparação. As concentrações dos metais deste padrão são rastreadas aos respectivos padrões NIST mostrados na tabela acima.

4 – Utilização

Recomenda-se que todas as diluições deste padrão sejam feitas com ácido nítrico 5%, utilizando-se balanças, pipetas ou vidrarias calibradas. A conversão de unidade mg/L para mg/g é obtida pela fórmula C/(d x 1000), onde C = Concentração em mg/L e d = densidade em g/mL.
A perda de água por transpiração pela parede do frasco é de aproximadamente 0,2% por ano, se mantido fechado e armazenado em condições de temperatura ambiente entre 15°C a 30°C.

Este certificado restringe-se apenas ao número de lote fornecido

5 – Aprovação

Data de aprovação: 04/2025

Elaborado por: Samara Minussi Rodrigues – Técnica Assistente – CRQ 044102063 – 4ª Região

Samara Minussi Rodrigues

Aprovado por: Msc. Nilton Pereira Alves Granado – Responsável Técnico – CRQ 04428809 – 4ª Região

N. P. A. Granado

QUIMLAB PRODUTOS DE QUÍMICA FINA LTDA.
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Sistema de Gestão da Qualidade Certificado ISO 9001

NÚMERO: 157846

Padrão: Multielementar G1822V
Código Produto: MICPG1822V
Data de Expedição: 04/2025
Densidade (20 °C): 1,0111 g/mL
Fabricante: Quimlab Produtos de Química Fina Ltda.

Número de Lote: F25D0085D
Validade: 12 meses
Matriz: HNO_3 2%

Valores Certificados:

Elemento	Concentração (mg/L)	Incerteza (mg/L)	SRM (NIST)	Elemento	Concentração (mg/L)	Incerteza (mg/L)	SRM (NIST)
Ba	1,000	0,005	999c	Ni	10,00	0,05	928
Mg	1,000	0,005	928	Sr	10,00	0,05	928
La	10,00	0,05	928	Zn	10,00	0,04	928
Li	10,00	0,05	3129a	As	50,00	0,25	136f
Mn	10,00	0,05	928	K	50,00	0,25	999c

1 – Informações

Este padrão consiste de uma solução multielementar preparada a partir de soluções de 1000 mg/L certificadas, dissolvidas em ácido de alta pureza e diluído com água Tipo I (>18 MΩ.cm). Todas as fontes metálicas utilizadas apresentaram teores > 99,9%. É destinado principalmente para uso em análises de metais por técnicas atômicas como a espectrofotometria de emissão atômica por plasma (ICP-AES) ou absorção atômica por forno de grafite (GFAAS).

2 – Incertezas

As incertezas calculadas são dadas pela seguinte expressão: $U = (2\ u_c)$
Onde u_c é a incerteza combinada calculada de acordo com o Guia para a Expressão da Incerteza de Medição, ISBN 85-07-00251-X, 3ª Ed. INMETRO (2003). O valor de U reportado corresponde a duas vezes o desvio padrão das incertezas combinadas, associadas a fatores gravimétricos, volumétricos, pureza da fonte metálica e incerteza do padrão NIST utilizado.

3 – Rastreabilidade

Este padrão é rastreado gravimetricamente a Rede Brasileira de Calibração (RBC). Todas as vidrarias empregadas são rastreadas a RBC. As concentrações dos padrões monoelementares empregados na preparação deste padrão são rastreadas aos correspondentes padrões NIST apresentados na tabela acima, através da utilização de métodos titulométricos, gravimétricos ou qualquer outro que permita a sua comparação.

4 – Utilização

Recomenda-se que todas as diluições deste padrão sejam feitas com ácido nítrico 2%, utilizando-se balanças, pipetas ou balões volumétricos plásticos. A conversão de unidade mg/L para mg/g é obtida pela fórmula C/(d x 1000), onde C = Concentração em mg/L e d = densidade em g/mL. A perda de água por transpiração pela parede do frasco é de aproximadamente 0,2% por ano, se mantido fechado e armazenado em condições de temperatura ambiente entre 15°C a 30°C.

Este certificado restringe-se apenas ao número de lote fornecido.

5 – Aprovação

Data de aprovação: 04/2025

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