



Value Beyond Measure

For Immediate Release

Contact: Alexandria Trusov

Atrusov@alpharesources.com

Certified Reference Materials Releases for Q2 2024

Stevensville, Michigan, July 23, 2024 – Alpha Resources LLC, the largest manufacturer of aftermarket consumables and reference materials, is pleased to announce the following new product offerings and updates in certified reference materials which have been released in Q2 of 2024 from their lab.

New Lots available in Q2 2024 for Organic Reference Materials include:

- AR100 | Lot 240306 (Residual Oil CRM)
- AR734 | Lot 341223 (Proximate Coke CRM)
- AR1700 | Lot 240611 (0.28±0.03% Coal CRM)
- AR1703 | Lot 240530 (0.83±0.04% Coal CRM)
- AR1705 | Lot 240509 (1.44±0.06% Coal CRM)
- AR1726 | Lot 240322 (Proximate Coal CRM)
- AR1729 | Lot 240304 (Proximate Coal CRM)
- AR2772 | Lot 721223 (Ultimate Coke CRM)
- AR2780 | Lot 240304 (Ultimate Coal CRM)
- AR2781 | Lot 240322 (Ultimate Coal CRM)

New lots released of available Inorganic Certified Reference Materials in Q2 2024 include:

AR306 | CAST IRON POWDER CRM | LOT # 240206

% CARBON	% SULFUR
MEAN = 3.48	MEAN = 0.0211
Standard Deviation = ± 0.04	Standard Deviation = ± 0.0014
Expanded Uncertainty = ± 0.09	Expanded Uncertainty = ± 0.0031
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)



AR558 | HYDROGEN IN STEEL CRM | LOT #923T

*TOTAL HYDROGEN (melted/fused)
*MEAN VALUE = 12 (ug/g) (0.0012 mass %)
STANDARD DEVIATION = ± 1 (ug/g) (± 0.0001 mass %)
EXPANDED UNCERTAINTY = ± 2 (ug/g) (± 0.0002 mass %)
(Expanded uncertainty k=2, @ 95% confidence, n=29)

*- Note: No SRM or CRM was available at this high level for verification

AR630 | ZIRCONIUM PIN CRM | LOT#231214

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.142	MEAN = 0.0079	MEAN = 0.0026
Standard Deviation = ± 0.013	Standard Deviation = ± 0.0017	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.030	Expanded Uncertainty = ± 0.0036	Expanded Uncertainty = ± 0.0004
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)

AR647 | TITANIUM PIN CRM | LOT#623X

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.1048	MEAN = 0.0040	MEAN = 0.0117
Standard Deviation = ± 0.0081	Standard Deviation = ± 0.0005	Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.0171	Expanded Uncertainty = ± 0.0012	Expanded Uncertainty = ± 0.0008
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)



AR649 | TITANIUM PIN CRM | LOT#1023C

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.114	MEAN = 0.0057	MEAN = 0.0182
Standard Deviation = ± 0.009	Standard Deviation = ± 0.0013	Standard Deviation = ± 0.0007
Expanded Uncertainty = ± 0.021	Expanded Uncertainty = ± 0.0028	Expanded Uncertainty = ± 0.0015
(k=2, @ 95% confidence) (n=50)	(k=2, @ 95% confidence) (n=50)	(k=2, @ 95% confidence) (n=40)

AR650 | TITANIUM PIN CRM | LOT#240320

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.090	MEAN = 0.0076	MEAN = 0.0080
Standard Deviation = ± 0.008	Standard Deviation = ± 0.0013	Standard Deviation = ± 0.0006
Expanded Uncertainty = ± 0.018	Expanded Uncertainty = ± 0.0028	Expanded Uncertainty = ± 0.0013
(k=2, @ 95% confidence) (n=60)	(k=2, @ 95% confidence) (n=60)	(k=2, @ 95% confidence) (n=60)

AR884 | STEEL PIN CRM | LOT # 1123G

% CARBON	% SULFUR
MEAN = 0.483	MEAN = 0.0120
Standard Deviation = ± 0.007	Standard Deviation = ± 0.0005
Expanded Uncertainty = ± 0.016	Expanded Uncertainty = ± 0.0015
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)



AR953 | TOOL STEEL CHIP CRM | LOT#823H

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.897	MEAN = (0.0006)*	MEAN = 0.0048
Standard Deviation = ± 0.013		Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.029		Expanded Uncertainty = ± 0.0007
(k=2, @ 95% confidence) (n=40)		(k=2, @ 95% confidence) (n=40)

*Non-certified value

AR957 | RESULFURIZED CARBON STEEL CHIP CRM | LOT#623A

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.175	MEAN = 0.108	MEAN = 0.0113
Standard Deviation = ± 0.004	Standard Deviation = ± 0.002	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.008	Expanded Uncertainty = ± 0.005	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)

AR961 | STAINLESS STEEL POWDER CRM | LOT#240124

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.0198	MEAN = 0.0174	MEAN = 0.0462
Standard Deviation = ± 0.0021	Standard Deviation = ± 0.0019	Standard Deviation = ± 0.0017
Expanded Uncertainty = ± 0.0047	Expanded Uncertainty = ± 0.0042	Expanded Uncertainty = ± 0.0038
(k=2, @ 95% confidence) (n=60)	(k=2, @ 95% confidence) (n=60)	(k=2, @ 95% confidence) (n=40)



AR1036 | CALCIUM CARBONATE CRM | LOT #231212

% CARBON
MEAN = 1.00
Standard Deviation = ± 0.01
Expanded Uncertainty = ± 0.03
(k=2, @ 95% confidence) (n=30)

AR1650 | OXYGEN & NITROGEN STAINLESS STEEL PIN CRM | LOT # 1023D

% OXYGEN	% NITROGEN
MEAN = 0.0110	MEAN = 0.0102
Standard Deviation = ± 0.0011	Standard Deviation = ± 0.0004
Expanded Uncertainty = ± 0.0024	Expanded Uncertainty = ± 0.0008
(k=2, @ 95% confidence) (n=60)	(k=2, @ 95% confidence) (n=60)

AR1651 | OXYGEN & NITROGEN STEEL PIN CRM | LOT # 1023Y

% OXYGEN	% NITROGEN
MEAN = 0.0033	MEAN = 0.0222
Standard Deviation = ± 0.0004	Standard Deviation = ± 0.0011
Expanded Uncertainty = ± 0.0008	Expanded Uncertainty = ± 0.0025
(k=2, @ 95% confidence) (n=61)	(k=2, @ 95% confidence) (n=61)

AR4016 | CARBON & SULFUR IN SOIL CRM | LOT #823L

% CARBON	% SULFUR
MEAN = 2.14	MEAN = 1.94
Expanded Uncertainty = ± 0.11	Expanded Uncertainty = ± 0.06
(k=2, @ 95% confidence) (n=32)	(k=2, @ 95% confidence) (n=32)



ALPHA
RESOURCES LLC

Value Beyond Measure

AR4021 | COMPOSITE SOIL CRM | LOT #240116

% CARBON	% SULFUR
MEAN = 3.26	MEAN = 0.050
Standard Deviation = ± 0.05	Standard Deviation = ± 0.003
Expanded Uncertainty = ± 0.12	Expanded Uncertainty = ± 0.007
(k=2.14, @ 95% confidence) (n=15)	(k=2.14, @ 95% confidence) (n=15)

A complete list of Alpha Resources certified reference materials maybe found online at: <https://www.alpharesources.com/current-list-of-standards.php>

About Alpha Resources

Founded in 1978, Alpha Resources, LLC is a global leader in the manufacture and distribution of consumables and creation of certified reference materials for use in elemental combustion analysis, and is ISO17034, ISO17025, ISO9001:2015 certified.