



Value Beyond Measure

For Immediate Release

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Certified Reference Materials Releases for Q2 2020

Stevensville, Michigan, July 1, 2020 – Alpha Resources LLC, the largest manufacturer of aftermarket consumables and reference materials, is pleased to announce the following certified reference materials have been released in Q2 of 2020.

New Organic Certified Reference Materials include:

- AR1723 | Lot 723320 (Proximate Coal CRM)
- AR1729 | Lot 729320 (Proximate Coal CRM)
- AR1733 | Lot 733420 (Proximate Anthracite Coal CRM)
- AR2047 | Lot 047420 (0.98±0.03% S in Crude Oil)
- AR2780 | Lot 780320 (Ultimate Coal CRM)
- AR2783 | Lot 783320 (Ultimate Anthracite Coal CRM)
- AR2836 | Lot 836520 (2.00±0.10% S in Lube Oil)
- AR2839 | Lot 839320 (2.97±0.06% S in Lube Oil)
- AR3085 | Lot N25G036 (Zinc Sulfide CRM)
- AR5029 | Lot 520Y (Calcium Oxalate CRM)

New Inorganic Certified Reference Materials include:

AR 5029 | CALCIUM OXALATE CRM | Lot 520Y*

THEORETICAL VALUES:	% WEIGHT LOSS (ANALYSIS)
H ₂ O @ 200°C – 12.3%	H ₂ O MEAN = 12.1% ± 0.1%
CO @ 450°C – 19.2%	CO MEAN = 19.1% ± 0.1%
CO ₂ @ 850°C – 30.1%	CO ₂ MEAN = 29.8% ± 0.1%
Total LOI – 61.6%	LOI MEAN = 61.1% ± 0.2%

**This is the Certified Reference Materials version of AR091 Calcium Oxalate*



AR 4016 | CARBON AND SULFUR IN SOIL CRM | Lot 320Q

% CARBON	% SULFUR
MEAN = 2.05	MEAN = 2.05
Expanded Uncertainty = ± 0.14	Expanded Uncertainty = ± 0.09
(k=2, @ 95% confidence) (n=30)	(k=2, @ 95% confidence) (n=34)

AR 3085 | ZINC SULFIDE CRM | Lot N25G036

% SULFUR (by purity)	% SULFUR (by analysis)
MEAN = 3.29%	MEAN = 32.9%
Expanded Uncertainty = ± 0.003	Expanded Uncertainty = ± 1.1
Purity = 99.99%	(k=2.07, 95% confidence) (n=23)

KED 1025 | OXYGEN & NITROGEN IRON POWDER CRM | Lot 419E

% OXYGEN	% NITROGEN
MEAN = 0.91	MEAN = 0.0133
Standard Deviation = ± 0.04	Standard Deviation = ± 0.0013
Expanded Uncertainty = ± 0.08	Expanded Uncertainty = ± 0.0037
(k=2, @ 95% confidence limit) (n=47)	(k=2, @ 95% confidence limit) (n=46)

AR 890 | STAINLESS STEEL PIN CRM | Lot 320M

% CARBON	% SULFUR
MEAN = 0.110	MEAN = 0.0046
Standard Deviation = ± 0.001	Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.003	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence limit) (n=31)	(k=2, @ 95% confidence limit) (n=32)

AR 662 | OXYGEN & NITROGEN STAINLESS STEEL PIN CRM | Lot 919B

% OXYGEN	% NITROGEN
MEAN = 0.0026	MEAN = 0.073
Standard Deviation = ± 0.0002	Standard Deviation = ± 0.001
Expanded Uncertainty = ± 0.0005	Expanded Uncertainty = ± 0.002
(k=2, @ 95% confidence) (n=34)	(k=2, @ 95% confidence) (n=34)



AR 648 | HYDROGEN, OXYGEN & NITROGEN TITANIUM REFERENCE CRM | Lot 1219A

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.115	MEAN = 0.0060	MEAN = 0.0153
Standard Deviation = ± 0.005	Standard Deviation = ± 0.0008	Standard Deviation = ± 0.0004
Expanded Uncertainty = ± 0.012	Expanded Uncertainty = ± 0.0017	Expanded Uncertainty = ± 0.0008
(k=2, @ 95% confidence) (n=34)	(k=2, @ 95% confidence) (n=30)	(k=2, @ 95% confidence) (n=32)

AR 645 | OXYGEN & NITROGEN STAINLESS STEEL PIN CRM | Lot 1119B

% OXYGEN	% NITROGEN
MEAN = 0.0035	MEAN = 0.0089
Standard Deviation = ± 0.0004	Standard Deviation = ± 0.0004
Expanded Uncertainty = ± 0.0009	Expanded Uncertainty = ± 0.0009
(k=2, @ 95% confidence) (n=34)	(k=2, @ 95% confidence) (n=45)

AR 586 | TITANIUM CRM | Lot 120D

% CARBON	% HYDROGEN
MEAN = 0.020	MEAN = 0.0019
Standard Deviation = ± 0.001	Standard Deviation = ± 0.0005
Expanded Uncertainty = ± 0.003	Expanded Uncertainty = ± 0.0005
(k=2, @ 95% confidence) (n=30)	(k=2, @ 95% confidence) (n=34)

AR 315 | CAST IRON CRM | Lot 220H

% CARBON	% SULFUR
MEAN = 3.08	MEAN = 0.108
Standard Deviation = ± 0.03	Standard Deviation = ± 0.004
Expanded Uncertainty = ± 0.07	Expanded Uncertainty = ± 0.010
(k=2, @ 95% confidence) (n=31)	(k=2, @ 95% confidence) (n=34)



AR 310 | CAST IRON CRM | Lot 120C

% CARBON	% SULFUR
MEAN = 3.14	MEAN = 0.083
Standard Deviation = ± 0.04	Standard Deviation = ± 0.003
Expanded Uncertainty = ± 0.08	Expanded Uncertainty = ± 0.006
(k=2, @ 95% confidence) (n=41)	(k=2, @ 95% confidence) (n=43)

AR 308 | FERROCHROME CRM | Lot 619B (Alpha Resources first ferrochrome)

% CARBON	% SULFUR
MEAN = 9.17*	MEAN = 0.108
Standard Deviation = ± 0.14	Standard Deviation = ± 0.002
Expanded Uncertainty = ± 0.33	Expanded Uncertainty = ± 0.005
(k=2, @ 95% confidence) (n=47)	(k=2, @ 95% confidence) (n=45)

**Value exceeds scope limit for the ASTM test method used*

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 atomic spectroscopy analysis, and is ISO17034, ISO17025, ISO9001:2015 certified.