



Value Beyond Measure

For Immediate Release

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Certified Reference Materials Releases for Q4 2020

Stevensville, Michigan, January 5, 2021 – 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 Q4 of 2020.

Of particular note in Q4, the laboratory team at Alpha Resources certified three new titanium reference materials.

New Organic Certified Reference Materials include:

- AR1685 | Lot 685720 (0.146%S Ultra Low Sulfur Coal CRM)
- AR1703 | Lot 031120 (0.87±0.04 %S Coal CRM)
- AR1705 | Lot 051020 (1.46%S Sulfur Coal CRM)
- AR2050 | Lot 501020 (4.31±0.18% S in Crude Oil)
- AR2826 | Lot 261020 (1.57±0.08% S in Diesel #2)
- AR2896 | Lot 896720 (0.69±0.04% S in Residual Oil)

New Inorganic Certified Reference Materials include:

AR 302 | CAST IRON CRM | Lot #620C

% CARBON	% SULFUR
MEAN = 3.31	MEAN = 0.0203
Standard Deviation = ± 0.02	Standard Deviation = ± 0.0004
Expanded Uncertainty = ± 0.05	Expanded Uncertainty = ± 0.0011
(k=2, @ 95% confidence) (n=38)	(k=2, @ 95% confidence) (n=37)



AR 641 | TITANIUM REFERENCE CRM | Lot #720D

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.196	MEAN = 0.032	MEAN = 0.0045
Standard Deviation = ± 0.006	Standard Deviation = ± 0.002	Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.012	Expanded Uncertainty = ± 0.005	Expanded Uncertainty = ± 0.0007
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=39)	(k=2, @ 95% confidence) (n=39)

AR 647 | TITANIUM REFERENCE CRM | Lot #220G

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.111	MEAN = 0.0039	MEAN = 0.0122
Standard Deviation = ± 0.006	Standard Deviation = ± 0.0007	Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.013	Expanded Uncertainty = ± 0.0014	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence) (n=36)	(k=2, @ 95% confidence) (n=36)	(k=2, @ 95% confidence) (n=42)

AR 650 | TITANIUM REFERENCE CRM | Lot #520X

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.100	MEAN = 0.0060	MEAN = 0.0090
Standard Deviation = ± 0.006	Standard Deviation = ± 0.0007	Standard Deviation = ± 0.0005
Expanded Uncertainty = ± 0.013	Expanded Uncertainty = ± 0.0015	Expanded Uncertainty = ± 0.0010
(k=2, @ 95% confidence) (n=51)	(k=2, @ 95% confidence) (n=65)	(k=2, @ 95% confidence) (n=58)



AR 659 | OXYGEN & NITROGEN STEEL PIN CRM | Lot #720E

% OXYGEN	% NITROGEN
MEAN = 0.0099	MEAN = 0.0055
Standard Deviation = ± 0.0005	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.0012	Expanded Uncertainty = ± 0.0005
(k=2, @ 95% confidence) (n=36)	(k=2, @ 95% confidence) (n=49)

AR 874 | CARBON STEEL RING CRM | Lot #1119A

% CARBON	% SULFUR
MEAN = 0.658	MEAN = 0.0108
Standard Deviation = ± 0.005	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.010	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence) (n=32)	(k=2, @ 95% confidence) (n=33)

AR4017 | CARBON & SULFUR IN SOIL CRM | Lot #420R

% CARBON	% SULFUR
MEAN = 0.49	MEAN = 0.48
Standard Deviation = ± 0.07	Standard Deviation = ± 0.04
(k=2, @ 95% confidence) (n=59)	(k=2, @ 95% confidence) (n=54)

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.