



*Value Beyond Measure*

**For Immediate Release**

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**Certified Reference Materials Releases for Q2 2021**

*Stevensville, Michigan, July 13, 2021* – Alpha Resources LLC, the largest manufacturer of aftermarket consumables and reference materials, is pleased to announce the following certified reference materials (CRM) have been released in Q2 of 2021.

Of particular note in Q2, the laboratory team at Alpha Resources certified a low-sulfur copper pin CRM, AR 145.

New Q2 2021 available Organic Certified Reference Materials include:

- AR1700 | Lot 700421 (0.35%±0.03% Coal CRM)
- AR1712 | Lot 712321 (5.83%±0.19% Coal CRM)
- AR1722 | Lot 722421 (Proximate Coal CRM)
- AR2051 | Lot 051421 (5.20%±0.29% Crude oil CRM)
- AR2776 | Lot 776121 (Ultimate Coal CRM)

New Q2 2021 available Inorganic Certified Reference Materials include:

*AR 145 | OXYGEN & SULFUR IN COPPER PIN CRM | Lot #1020L*

% OXYGEN	% SULFUR*
MEAN = 0.0188	MEAN = 0.0010
Standard Deviation = ± 0.0005	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.0010	Expanded Uncertainty = ± 0.0004
(k=2, @ 95% confidence) (n=43)	(k=2, @ 95% confidence) (n=34)

*\*below test method scope limit | ATM Methods: E2575-08, E1019-18\**



*AR 644 | OXYGEN & NITROGEN STEEL PIN CRM | Lot #420S*

% OXYGEN	% NITROGEN
MEAN = 0.0008	MEAN = 0.0077
Standard Deviation = $\pm 0.0002$	Standard Deviation = $\pm 0.0005$
Expanded Uncertainty = $\pm 0.0005$	Expanded Uncertainty = $\pm 0.0011$
(k=2, @ 95% confidence) (n=39)	(k=2, @ 95% confidence) (n=50)

*AR 869 | STAINLESS STEEL RING CRM | Lot #920K*

% CARBON	% SULFUR
MEAN = 0.017	MEAN = 0.0026
Standard Deviation = $\pm 0.002$	Standard Deviation = $\pm 0.0003$
Expanded Uncertainty = $\pm 0.005$	Expanded Uncertainty = $\pm 0.0006$
(k=2, @ 95% confidence) (n=37)	(k=2, @ 95% confidence) (n=45)

*AR 870 | STAINLESS STEEL RING CRM | Lot #819A*

% OXYGEN	% SULFUR
MEAN = 0.028	MEAN = 0.025
Standard Deviation = $\pm 0.002$	Standard Deviation = $\pm 0.002$
Expanded Uncertainty = $\pm 0.004$	Expanded Uncertainty = $\pm 0.004$
(k=2, @ 95% confidence) (n=46)	(k=2, @ 95% confidence) (n=46)

*AR 873 | CARBON STEEL RING CRM | Lot #820F*

% CARBON	% SULFUR
MEAN = 0.423	MEAN = 0.0091
Standard Deviation = $\pm 0.003$	Standard Deviation = $\pm 0.0003$
Expanded Uncertainty = $\pm 0.007$	Expanded Uncertainty = $\pm 0.0007$
(k=2, @ 95% confidence) (n=41)	(k=2, @ 95% confidence) (n=40)



*AR 875 | CARBON STEEL RING CRM | Lot #421J*

% CARBON	% SULFUR
MEAN = 0.786	MEAN = 0.015
Standard Deviation = $\pm$ 0.005	Standard Deviation = $\pm$ 0.001
Expanded Uncertainty = $\pm$ 0.011	Expanded Uncertainty = $\pm$ 0.002
(k=2, @ 95% confidence) (n=37)	(k=2, @ 95% confidence) (n=38)

*AR 876 | CARBON STEEL RING CRM | Lot #221C*

% CARBON	% SULFUR
MEAN = 0.535	MEAN = 0.0057
Standard Deviation = $\pm$ 0.008	Standard Deviation = $\pm$ 0.0007
Expanded Uncertainty = $\pm$ 0.018	Expanded Uncertainty = $\pm$ 0.0014
(k=2, @ 95% confidence) (n=32)	(k=2, @ 95% confidence) (n=33)

*AR 951 | CARBON STEEL CHIP CRM | Lot #1220P*

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.168	MEAN = 0.019	MEAN = 0.0102
Standard Deviation = $\pm$ 0.004	Standard Deviation = $\pm$ 0.001	Standard Deviation = $\pm$ 0.0002
Expanded Uncertainty = $\pm$ 0.008	Expanded Uncertainty = $\pm$ 0.002	Expanded Uncertainty = $\pm$ 0.0005
(k=2, @ 95% confidence) (n=39)	(k=2, @ 95% confidence) (n=36)	(k=2, @ 95% confidence) (n=31)



*AR 952 | CARBON STEEL CHIP CRM | Lot #1120N*

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.455	MEAN = 0.029	MEAN = 0.0095
Standard Deviation = ± 0.006	Standard Deviation = ± 0.001	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.012	Expanded Uncertainty = ± 0.002	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=40)	(k=2, @ 95% confidence) (n=33)

*AR 958 | STAINLESS STEEL CHIP CRM | Lot #819B*

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.0172	MEAN = 0.02227	MEAN = 0.0759
Standard Deviation = ± 0.0016	Standard Deviation = ± 0.0008	Standard Deviation = ± 0.0018
Expanded Uncertainty = ± 0.0036	Expanded Uncertainty = ± 0.0017	Expanded Uncertainty = ± 0.0039
(k=2, @ 95% confidence) (n=44)	(k=2, @ 95% confidence) (n=30)	(k=2, @ 95% confidence) (n=52)

*AR 1650 | OXYGEN & NITROGEN STEEL PIN CRM | Lot #920J*

% OXYGEN	% NITROGEN
MEAN = 0.0092	MEAN = 0.0104
Standard Deviation = ± 0.0003	Standard Deviation = ± 0.0003
Expanded Uncertainty = ± 0.0008	Expanded Uncertainty = ± 0.0007
(k=2, @ 95% confidence) (n=51)	(k=2, @ 95% confidence) (n=54)



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AR 4024 | CARBON AND SULFUR IN LIMESTONE CRM | Lot #920G

% CARBON	% SULFUR
MEAN = 11.59	MEAN = 0.40
Standard Deviation = $\pm 0.16$	Standard Deviation = $\pm 0.02$
Expanded Uncertainty = $\pm 0.34$	Expanded Uncertainty = $\pm 0.04$
(k=2, @ 95% confidence) (n=39)	(k=2, @ 95% confidence) (n=39)

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.