



*Value Beyond Measure*

**For Immediate Release**

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**Certified Reference Materials Releases for Q1 2021**

*Stevensville, Michigan, April 12, 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 Q1 of 2021.

Of particular note in Q1, the laboratory team at Alpha Resources certified a high-sulfur carbon steel chip CRM, AR 947.

New Q1 2021 available Organic Certified Reference Materials include:

- AR734 | Lot 734920 (Proximate Coke CRM)
- AR1704 | Lot 041220 (1.07±0.05 %S Coal CRM)
- AR1708 | Lot 708221 (2.99±0.11 %S Coal CRM)
- AR2772 | Lot 772920 (Ultimate Coke CRM)
- AR2832 | Lot 832121 (0.27±0.01%S in Lube Oil)
- AR2874 | Lot 741220 (0.040±0.002% S in Diesel Oil)
- AR3505 | Lot 051220 (1.00±0.03%S/0.50±0.02%Cl in Lube Oil)

New Q1 2021 available Inorganic Certified Reference Materials include:

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

% OXYGEN	% NITROGEN
MEAN = 0.0008	MEAN = 0.0077
Standard Deviation = ± 0.0002	Standard Deviation = ± 0.0005
Expanded Uncertainty = ± 0.0005	Expanded Uncertainty = ± 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 947 | HIGH SULFUR/CARBON STEEL CHIP CRM | Lot #62B*

% CARBON	% SULFUR	% NITROGEN
MEAN = 0.385	MEAN = 0.104	MEAN = 0.0103
Standard Deviation = $\pm$ 0.003	Standard Deviation = $\pm$ 0.001	Standard Deviation = $\pm$ 0.0003
Expanded Uncertainty = $\pm$ 0.007	Expanded Uncertainty = $\pm$ 0.003	Expanded Uncertainty = $\pm$ 0.0007
(k=2, @ 95% confidence) (n=30)	(k=2, @ 95% confidence) (n=32)	(k=2, @ 95% confidence) (n=32)

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

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



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

% OXYGEN	% NITROGEN
MEAN = 0.0092	MEAN = 0.0104
Standard Deviation = $\pm 0.003$	Standard Deviation = $\pm 0.0003$
Expanded Uncertainty = $\pm 0.008$	Expanded Uncertainty = $\pm 0.0007$
(k=2, @ 95% confidence) (n=51)	(k=2, @ 95% confidence) (n=54)

*AR 4024 | CARBON & 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.