



Value Beyond Measure

For Immediate Release

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Certified Reference Materials Releases for Q3 2022

Stevensville, Michigan, October 11, 2022 – 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 Q3 of 2022.

In August of 2022, Alpha Resources debuted a new line of OES supplies which are fully compatible with equipment from the two leading OEMs: Bruker® and Thermo Fisher Scientific®. More information on the OES consumable supplies may be found at: <https://www.alpharesources.com/oes-consumables.php> .

In September of 2022, Alpha Resources introduced new lines of ICP-MS sample cones and skimmer cones which are fully compatible with leading OEMs. More information on the ICP-MS consumable supplies may be found at: <https://www.alpharesources.com/icpms-consumables.php> .

New Q3 2022 available Organic Reference Materials include:

- AEB2030 | Lot181333 (Caffeine OAS)
- AR1709 | Lot 709722 (3.41% S in Coal CRM)
- AR2021 | Lot# 722X (SUCROSE)
- AR2778 | Lot 778622 (Ultimate Coal CRM)
- AR2871 | Lot 871622 (0.010% S in Diesel)
- AR2875 | Lot 875822 (0.052% S in Diesel)
- AR2881 | Lot 881822 (0.0012% S in Diesel)



New Q3 2022 available Inorganic Certified Reference Materials include:

AR 303 | CAST IRON CRM | LOT #422G

% CARBON	% SULFUR
MEAN = 3.88	MEAN = 0.021
Standard Deviation = ± 0.03	Standard Deviation = ± 0.001
Expanded Uncertainty = ± 0.07	Expanded Uncertainty = ± 0.003
(k=2, @ 95% confidence) (n=47)	(k=2, @ 95% confidence) (n=48)

AR 309 | CAST IRON CRM | LOT #422J

% CARBON	% SULFUR
MEAN = 3.67	MEAN = 0.021
Standard Deviation = ± 0.01	Standard Deviation = ± 0.001
Expanded Uncertainty = ± 0.03	Expanded Uncertainty = ± 0.002
(k=2, @ 95% confidence) (n=34)	(k=2, @ 95% confidence) (n=33)

AR 555 | HYDROGEN IN STEEL CRM | LOT #1021M

<i>TOTAL HYDROGEN (melted/fused)</i>
MEAN VALUE = 2.5 (ug/g) (0.00025 wt. %)
Standard Deviation = ± 0.5 (ug/g) (± 0.00005 wt. %)
Expanded Uncertainty = ± 1.0 (ug/g) (± 0.0001 wt. %)
(Expanded uncertainty k=2, @ 95% confidence, n=50)

AR 585 | TITANIUM CRM | LOT #1021P

% CARBON	% HYDROGEN
MEAN = 0.007	MEAN = 0.0081
Standard Deviation = ± 0.001	Standard Deviation = ± 0.0007
Expanded Uncertainty = ± 0.002	Expanded Uncertainty = ± 0.0015
(k=2, @ 95% confidence) (n=37)	(k=2, @ 95% confidence) (n=46)



AR 629 | TITANIUM OVEN CRM | Lot #22J

% OXYGEN	% NITROGEN	% HYDROGEN
MEAN = 0.156	MEAN = 0.0096	MEAN = 0.0003
Standard Deviation = ± 0.004	Standard Deviation = ± 0.0012	Standard Deviation = ± 0.0001
Expanded Uncertainty = ± 0.009	Expanded Uncertainty = ± 0.0026	Expanded Uncertainty = ± 0.0002
(k=2, @ 95% confidence) (n=35)	(k=2, @ 95% confidence) (n=34)	(k=2, @ 95% confidence) (n=39)

AR 645 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #1121R

% OXYGEN	% NITROGEN
MEAN = 0.0034	MEAN = 0.0069
Standard Deviation = ± 0.0002	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.0004	Expanded Uncertainty = ± 0.0006
(k=2, @ 95% confidence) (n=45)	(k=2, @ 95% confidence) (n=46)

AR 646 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #921K

% OXYGEN	% NITROGEN
MEAN = 0.0028	MEAN = 0.076
Standard Deviation = ± 0.0002	Standard Deviation = ± 0.001
Expanded Uncertainty = ± 0.0005	Expanded Uncertainty = ± 0.003
(k=2, @ 95% confidence) (n=37)	(k=2, @ 95% confidence) (n=37)

AR 655 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #920H

% OXYGEN	% NITROGEN
MEAN = 0.0019	MEAN = 0.391
Standard Deviation = ± 0.0002	Standard Deviation = ± 0.008
Expanded Uncertainty = ± 0.0004	Expanded Uncertainty = ± 0.018
(k=2, @ 95% confidence) (n=38)	(k=2, @ 95% confidence) (n=36)



AR 663 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #721Z

% OXYGEN	% NITROGEN
MEAN = 0.0026	MEAN = 0.141
Standard Deviation = ± 0.0003	Standard Deviation = ± 0.004
Expanded Uncertainty = ± 0.0008	Expanded Uncertainty = ± 0.008
(k=2, @ 95% confidence) (n=47)	(k=2, @ 95% confidence) (n=49)

AR 667 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #722Y

% OXYGEN	% NITROGEN
MEAN = 0.0033	MEAN = 0.0354
Standard Deviation = ± 0.0003	Standard Deviation = ± 0.0014
Expanded Uncertainty = ± 0.0007	Expanded Uncertainty = ± 0.0029
(k=2, @ 95% confidence) (n=47)	(k=2, @ 95% confidence) (n=50)

AR 881 | STAINLESS STEEL PIN CRM | LOT #222D

% CARBON	% SULFUR
MEAN = 0.0085	MEAN = 0.0016
Standard Deviation = ± 0.0009	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.0020	Expanded Uncertainty = ± 0.0003
(k=2, @ 95% confidence) (n=44)	(k=2, @ 95% confidence) (n=37)

AR 1650 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #522L

% OXYGEN	% NITROGEN
MEAN = 0.0090	MEAN = 0.0103
Standard Deviation = ± 0.0003	Standard Deviation = ± 0.0002
Expanded Uncertainty = ± 0.0006	Expanded Uncertainty = ± 0.0005
(k=2, @ 95% confidence) (n=36)	(k=2, @ 95% confidence) (n=35)



AR 1652 | OXYGEN & NITROGEN STEEL PIN CRM | LOT #1221S

% OXYGEN	% NITROGEN
MEAN = 0.0031	MEAN = 0.0537
Standard Deviation = ± 0.0003	Standard Deviation = ± 0.0008
Expanded Uncertainty = ± 0.0006	Expanded Uncertainty = ± 0.0017
(k=2, @ 95% confidence) (n=53)	(k=2, @ 95% confidence) (n=48)

AR 4007 | CARBON & SULFUR IN ORE CRM | LOT #721X

% CARBON	% SULFUR
MEAN = 7.58	MEAN = 3.27
Expanded Uncertainty = ± 0.31	Expanded Uncertainty = ± 0.13
(k=2, @ 95% confidence) (n=59)	(k=2, @ 95% confidence) (n=46)

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.