



Value Beyond Measure

For Immediate Release

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Certified Reference Materials Releases for Q3 2021

Stevensville, Michigan, October 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 Q3 of 2021.

Of particular note in Q3, the laboratory team at Alpha Resources certified a new lot of resulfurized carbon steel chip CRM, AR 957.

New Q3 2021 available Organic Reference Materials include:

- AR2021 | Lot 721W | Sucrose RM
- AR1710 | Lot 710621 (4.25%±0.14%) Coal CRM

New Q3 2021 available Inorganic Certified Reference Materials include:

AR 147 | OXYGEN & SULFUR IN COPPER PIN CRM | Lot #521L

| % OXYGEN | % SULFUR |
|---------------------------------|---------------------------------|
| MEAN = 0.0003 | MEAN = 0.0005 |
| Standard Deviation = ± 0.00007 | Standard Deviation = ± 0.0001 |
| Expanded Uncertainty = ± 0.0002 | Expanded Uncertainty = ± 0.0003 |
| (k=2, @ 95% confidence) (n=50) | (k=2, @ 95% confidence) (n=54) |



AR 149 | OXYGEN & SULFUR IN COPPER PIN CRM | Lot #621S

| | |
|-------------------------------------|-------------------------------------|
| % OXYGEN | % SULFUR |
| MEAN = 0.0314 | MEAN = 0.0006 |
| Standard Deviation = ± 0.0004 | Standard Deviation = ± 0.0001 |
| Expanded Uncertainty = ± 0.0009 | Expanded Uncertainty = ± 0.0003 |
| (k=2, @ 95% confidence) (n=50) | (k=2, @ 95% confidence) (n=45) |

*ASTM METHODS: E2575-08, E1019-18**

**Below scope limit of test method*

AR 641 | TITANIUM O/N/H CRM | Lot #321D

| | | |
|------------------------------------|-------------------------------------|-------------------------------------|
| % OXYGEN | % NITROGEN | % HYDROGEN |
| MEAN = 0.191 | MEAN = 0.0319 | MEAN = 0.0040 |
| Standard Deviation = ± 0.008 | Standard Deviation = ± 0.0011 | Standard Deviation = ± 0.0004 |
| Expanded Uncertainty = ± 0.017 | Expanded Uncertainty = ± 0.0022 | Expanded Uncertainty = ± 0.0009 |
| (k=2, @ 95% confidence) (n=55) | (k=2, @ 95% confidence) (n=48) | (k=2, @ 95% confidence) (n=29) |

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

| | |
|-------------------------------------|-------------------------------------|
| % 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 ASTM METHODS: E2575-08, E1019-18*



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AR 957 | RESULFURIZED CARBON STEEL CHIP CRM | Lot #819B

| % CARBON | % SULFUR | % NITROGEN |
|-----------------------------------|-----------------------------------|-----------------------------------|
| MEAN = 0.157 | MEAN = 0.096 | MEAN = 0.0077 |
| Standard Deviation = ± 0.001 | Standard Deviation = ± 0.003 | Standard Deviation = ± 0.0003 |
| Expanded Uncertainty = ± 0.003 | Expanded Uncertainty = ± 0.006 | Expanded Uncertainty = ± 0.0007 |
| (k=2, @ 95% confidence) (n=53) | (k=2, @ 95% confidence) (n=51) | (k=2, @ 95% confidence) (n=30) |

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.