



Value Beyond Measure

For Immediate Release

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Certified Reference Materials Releases for Q3 2020

Stevensville, Michigan, October 13, 2020 – 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 Q3 of 2020.

New Organic Certified Reference Materials include:

- AR1732 | Lot 732520 (Proximate Coal CRM)
- AR2816 | Lot 816620 (2.89±0.11% S in Residual Oil)
- AR2836 | Lot 836520 (2.00±0.06% S in Lube Oil)

AR 2092 (50g) and AR2092-250 (250g) | EDTA CRM | LOT # 520A

| Theoretical Values: | % ANALYSIS |
|---------------------|-------------------------------|
| Carbon – 41.099% | Carbon MEAN = 41.10% ± 0.16% |
| Hydrogen – 5.519% | Hydrogen MEAN = 5.52% ± 0.06% |
| Nitrogen – 9.586% | Nitrogen MEAN = 9.59% ± 0.15% |
| Oxygen – 43.796% | Oxygen MEAN = 43.79% ± 0.17% |

New Inorganic Certified Reference Materials include:

AR 586 | TITANIUM CRM | Lot #120D

| % CARBON | % HYDROGEN |
|--------------------------------|---------------------------------|
| MEAN = 0.020 | MEAN = 0.0019 |
| Standard Deviation = ± 0.001 | Standard Deviation = ± 0.0002 |
| Expanded Uncertainty = ± 0.003 | Expanded Uncertainty = ± 0.0005 |
| (k=2, @ 95% confidence) (n=30) | (k=2, @ 95% confidence) (n=34) |



AR 657 | OXYGEN & NITROGEN STEEL PIN CRM | LOT# 420T

| % OXYGEN | % NITROGEN |
|-------------------------------------|-------------------------------------|
| MEAN = 0.0096 | MEAN = 0.0101 |
| Standard Deviation = ± 0.0005 | Standard Deviation = ± 0.0002 |
| Expanded Uncertainty = ± 0.0011 | Expanded Uncertainty = ± 0.0004 |
| (k=2, @ 95% confidence, n=40) | (k=2, @ 95% confidence, n=55) |

AR 673 | WROUGHT IRON CHIP CRM | Lot #120F

| % CARBON | % SULFUR |
|--------------------------------------|--------------------------------------|
| MEAN = 0.0006 | MEAN = 0.0016 |
| Standard Deviation = ± 0.0002 | Standard Deviation = ± 0.0002 |
| Expanded Uncertainty = ± 0.0003 | Expanded Uncertainty = ± 0.0004 |
| (k=2, @ 95% confidence limit) (n=50) | (k=2, @ 95% confidence limit) (n=61) |

AR 872 | CARBON STEEL RING CRM | Lot #420W

| % CARBON | % SULFUR |
|--------------------------------------|--------------------------------------|
| MEAN = 0.170 | MEAN = 0.0069 |
| Standard Deviation = ± 0.003 | Standard Deviation = ± 0.0006 |
| Expanded Uncertainty = ± 0.007 | Expanded Uncertainty = ± 0.0016 |
| (k=2, @ 95% confidence limit) (n=47) | (k=2, @ 95% confidence limit) (n=43) |

AR 884 | CARBON STEEL PIN CRM | Lot #420U

| % CARBON | % SULFUR |
|--------------------------------------|--------------------------------------|
| MEAN = 0.472 | MEAN = 0.0121 |
| Standard Deviation = ± 0.007 | Standard Deviation = ± 0.0005 |
| Expanded Uncertainty = ± 0.015 | Expanded Uncertainty = ± 0.0011 |
| (k=2, @ 95% confidence limit) (n=58) | (k=2, @ 95% confidence limit) (n=58) |



AR 885 | CARBON STEEL PIN CRM | Lot #520Z

| | |
|--------------------------------------|--------------------------------------|
| % CARBON | % SULFUR |
| MEAN = 0.820 | MEAN = 0.0055 |
| Standard Deviation = \pm 0.005 | Standard Deviation = \pm 0.0002 |
| Expanded Uncertainty = \pm 0.010 | Expanded Uncertainty = \pm 0.0004 |
| (k=2, @ 95% confidence limit) (n=38) | (k=2, @ 95% confidence limit) (n=40) |

AR 943 | 718 INCONEL POWDER CRM | Lot #719G*

| | | | |
|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| % CARBON | % SULFUR | % NITROGEN | % OXYGEN |
| MEAN = 0.032 | MEAN = 0.0016 | MEAN = 0.0125 | MEAN = 0.0189 |
| Standard Deviation = \pm 0.001 | Standard Deviation = \pm 0.0002 | Standard Deviation = \pm 0.0007 | Standard Deviation = \pm 0.0012 |
| Expanded Uncertainty = \pm 0.003 | Expanded Uncertainty = \pm 0.0004 | Expanded Uncertainty = \pm 0.0016 | Expanded Uncertainty = \pm 0.0026 |
| (k=2, @ 95% confidence) (n=54) | (k=2, @ 95% confidence) (n=54) | (k=2, @ 95% confidence) (n=35) | (k=2, @ 95% confidence) (n=41) |

**This is a product first for Alpha Resources*

AR 949 | STAINLESS STEEL CHIP CRM | Lot #320L

| | | |
|------------------------------------|------------------------------------|-------------------------------------|
| % CARBON | % SULFUR | % NITROGEN |
| MEAN = 0.022 | MEAN = 0.032 | MEAN = 0.0404 |
| Standard Deviation = \pm 0.001 | Standard Deviation = \pm 0.003 | Standard Deviation = \pm 0.0005 |
| Expanded Uncertainty = \pm 0.003 | Expanded Uncertainty = \pm 0.006 | Expanded Uncertainty = \pm 0.0013 |
| (k=2, @ 95% confidence) (n=33) | (k=2, @ 95% confidence) (n=32) | (k=2, @ 95% confidence) (n=27) |



AR4016 | CARBON AND SULFUR IN SOIL CRM | Lot #320q

| | |
|-----------------------------------|-----------------------------------|
| % CARBON | % SULFUR |
| MEAN = 2.05 | MEAN = 2.05 |
| Expanded Uncertainty = ± 0.14 | Expanded Uncertainty = ± 0.09 |
| (k=2, @ 95% confidence) (n=30) | (k=2, @ 95% confidence) (n=34) |

AR 9565 | HIGH SULFUR CARBON STEEL CHIP CRM | Lot #320P

| | | |
|------------------------------------|------------------------------------|-------------------------------------|
| % CARBON | % SULFUR | % NITROGEN |
| MEAN = 0.430 | MEAN = 0.261 | MEAN = 0.0069 |
| Standard Deviation = ± 0.004 | Standard Deviation = ± 0.007 | Standard Deviation = ± 0.0002 |
| Expanded Uncertainty = ± 0.008 | Expanded Uncertainty = ± 0.015 | Expanded Uncertainty = ± 0.0005 |
| (k=2, @ 95% confidence) (n=34) | (k=2, @ 95% confidence) (n=30) | (k=2, @ 95% confidence) (n=31) |

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.