



Magruder Certificate of Analysis

Magruder Sample #180512 TSP + Zn

| Analyte | Value | ± Standard Uncertainty | # Labs |
|---|---------|------------------------|--------|
| Total Phosphorus as P2O5 (%) | 45.62 | 0.16 | 53 |
| Direct Available Phosphorus as P2O5 (45%) | 45.40 | 0.1 | 57 |
| Acid Soluble Calcium (13.5%) | 14.29 | 0.15 | 56 |
| Acid Soluble Magnesium (%) | 0.7436 | 0.0248 | 19 |
| Acid Soluble Arsenic (ppm) | 16.67 | 1.43 | 16 |
| Acid Soluble Cadmium (ppm) | 106.7 | 3.8 | 23 |
| Acid Soluble Chromium (ppm) | 438.3 | 21.7 | 17 |
| Acid Soluble Copper (%) | 0.0050 | 0.00030 | 34 |
| Acid Soluble Iron (%) | 0.7472 | 0.0144 | 22 |
| Acid Soluble Lead (ppm) | 5.172 | 0.713 | 17 |
| Acid Soluble Manganese (%) | 0.01390 | 0.00110 | 18 |
| Acid Soluble Molybdenum (ppm) | 16.57 | 0.96 | 23 |
| Acid Soluble Nickel (ppm) | 138.8 | 5.6 | 22 |
| Acid Soluble Zinc (0.62%) | 0.4751 | 0.0054 | 62 |

1. Data obtained from participant results in the Magruder Check Sample Program.
2. Guaranteed concentrations noted by the value preceding the unit in Analyte name.
3. Values are robust means. Standard uncertainty determined as $1.25 \times \text{robust standard deviation} / \sqrt{\text{\#Labs}}$. Results only shown for analytes tested by 16 or more labs. Values and uncertainties for analytes tested by less than 16 labs are available in Analyte Reports.
4. Technical information on Certificate of Analysis available at www.magruderchecksample.org/prod/Articles.html