



# Magruder Certificate of Analysis

## Magruder Sample #190311 Grade 12-12-2.5

Analyte	Value	± Standard Uncertainty	# Labs
Ammoniacal Nitrogen (%)	4.813	0.428	24
Total Nitrogen (12%)	15.56	0.06	76
Total Phosphorus as P2O5 (%)	12.56	0.07	46
Direct Available Phosphorus as P2O5 (12%)	12.34	0.06	44
Soluble Potassium as K2O (2.5%)	2.575	0.026	81
Acid Soluble Calcium (6%)	7.715	0.087	53
Acid Soluble Magnesium (%)	0.4788	0.0089	24
Total Sulfur (1.5%)	1.749	0.042	45
Acid Soluble Arsenic (ppm)	6.120	0.703	17
Acid Soluble Cadmium (ppm)	2.693	0.150	20
Acid Soluble Chromium (ppm)	7.683	1.104	20
Acid Soluble Cobalt (ppm)	5.577	0.776	19
Acid Soluble Copper (%)	0.00177	0.00029	25
Acid Soluble Iron (%)	0.1158	0.0034	20
Sodium (%)	1.513	0.044	27
Acid Soluble Zinc (%)	0.01881	0.00043	36

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](http://www.magruderchecksample.org/prod/Articles.html)