



# Magruder Certificate of Analysis

## Magruder Sample #190511 Grade 16-1-0

Analyte	Value	± Standard Uncertainty	# Labs
Ammoniacal Nitrogen (%)	15.89	0.15	34
Total Nitrogen (16%)	17.36	0.05	87
Total Phosphorus as P <sub>2</sub> O <sub>5</sub> (%)	1.309	0.024	47
Direct Available Phosphorus as P <sub>2</sub> O <sub>5</sub> (1%)	1.216	0.025	44
Soluble Potassium as K <sub>2</sub> O (%)	0.4067	0.0134	22
Acid Soluble Calcium (%)	0.3664	0.0293	17
Acid Soluble Magnesium (%)	0.1422	0.0082	17
Total Sulfur (20%)	19.21	0.14	46
Acid Soluble Chromium (ppm)	9.933	0.542	21
Acid Soluble Cobalt (ppm)	4.107	0.429	19
Acid Soluble Copper (%)	0.00554	0.00018	35
Acid Soluble Iron (%)	1.138	0.020	22
Acid Soluble Nickel (ppm)	6.360	0.385	23
Acid Soluble Zinc (%)	0.01088	0.00023	37

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)