



Magruder Certificate of Analysis

Magruder Sample #190611 Grade 1-17-1

Analyte	Value	± Standard Uncertainty	# Labs
Total Nitrogen (0.9%)	0.3102	0.0164	73
Total Phosphorus as P ₂ O ₅ (%)	20.12	0.16	49
Direct Available Phosphorus as P ₂ O ₅ (17%)	16.54	0.2	52
Soluble Potassium as K ₂ O (0.9%)	0.2242	0.0156	61
Acid Soluble Calcium (20%)	22.55	0.26	57
Acid Soluble Magnesium (%)	0.3947	0.0131	23
Total Sulfur (11%)	11.26	0.11	49
Acid Soluble Arsenic (ppm)	5.911	1.004	19
Acid Soluble Cadmium (ppm)	12.16	0.7	28
Acid Soluble Chromium (ppm)	123.8	5.2	27
Acid Soluble Cobalt (ppm)	7.224	0.640	25
Acid Soluble Copper (%)	0.00090	0.00013	21
Acid Soluble Iron (%)	0.2535	0.0068	23
Acid Soluble Lead (ppm)	2.992	0.324	21
Acid Soluble Molybdenum (ppm)	3.556	0.370	21
Acid Soluble Nickel (ppm)	10.48	0.6	28
Acid Soluble Selenium (ppm)	29.05	5.29	17
Acid Soluble Zinc (%)	0.01789	0.00073	40

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