



Magruder Certificate of Analysis

Magruder Sample #181111 Grade 17-6-18

Analyte	Value	± Standard Uncertainty	# Labs
Ammoniacal Nitrogen (%)	9.460	0.065	33
Nitrate Nitrogen (%)	7.727	0.120	19
Total Nitrogen (17%)	17.46	0.05	77
Total Phosphorus as P ₂ O ₅ (%)	6.875	0.058	56
Direct Available Phosphorus as P ₂ O ₅ (6%)	6.641	0.062	45
Soluble Potassium as K ₂ O (18%)	17.96	0.06	88
Acid Soluble Calcium (%)	2.341	0.033	18
Acid Soluble Magnesium (1.2%)	1.597	0.015	56
Total Sulfur (1.6%)	1.568	0.025	41
Acid Soluble Boron (0.2%)	0.2182	0.0035	41
Acid Soluble Cadmium (ppm)	0.7827	0.1036	16
Acid Soluble Chromium (ppm)	34.85	1.91	16
Acid Soluble Cobalt (ppm)	4.602	0.661	19
Acid Soluble Iron (%)	0.2345	0.0054	21
Acid Soluble Lead (ppm)	5.181	0.398	18
Acid Soluble Manganese (%)	0.00810	0.00040	16
Acid Soluble Molybdenum (ppm)	3.123	0.285	17
Acid Soluble Nickel (ppm)	12.74	1.31	18
Acid Soluble Zinc (0.1%)	0.1392	0.0019	55

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