



# Magruder Certificate of Analysis

## Magruder Sample #180211 Grade 14-14-14

Analyte	Value	± Standard Uncertainty	# Labs
Ammoniacal Nitrogen (%)	13.73	0.08	34
Total Nitrogen (14%)	13.85	0.03	76
Total Phosphorus as P2O5 (%)	14.75	0.09	52
Direct Available Phosphorus as P2O5 (14%)	14.40	0.06	54
Soluble Potassium as K2O (14%)	14.55	0.07	92
Acid Soluble Magnesium (1%)	0.580	0.0095	48
Total Sulfur (7.75%)	10.48	0.07	45
Acid Soluble Arsenic (ppm)	157.4	4.9	20
Acid Soluble Boron (0.2%)	0.2058	0.0030	47
Acid Soluble Cadmium (ppm)	188.6	4.4	23
Acid Soluble Chromium (ppm)	589.4	21.2	20
Acid Soluble Cobalt (ppm)	375.8	7.1	21
Acid Soluble Copper (0.06%)	0.1266	0.0030	52
Acid Soluble Iron (1%)	0.6342	0.0176	56
Acid Soluble Lead (ppm)	923.1	30.9	24
Acid Soluble Manganese (0.16%)	0.1623	0.0022	49
Acid Soluble Molybdenum (50ppm)	826.5	27.8	27
Acid Soluble Nickel (ppm)	13.41	0.72	24
Acid Soluble Selenium (ppm)	310.5	11.9	16
Acid Soluble Zinc (0.13%)	0.1844	0.0033	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](http://www.magruderchecksample.org/prod/Articles.html)