



Analyte PT For All Labs

## Magruder Fertilizer Proficiency Testing Program

# Analytes: 28

Sample # 250213

Regular PT Scheme Sample Doubles with N Scheme

# Labs Reporting: 56

Granular Urea 46-0-0

### Statistical Summary

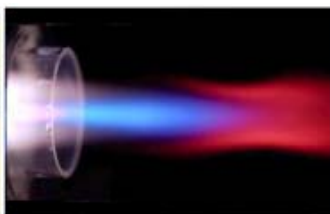
Issue Date : 03/31/2025

| Analyte Code | Analyte<br>Sample # 250213 | # Tests<br>Submitted | # Tests in Robust<br>Calculations | Raw Mean | Raw SD | Assigned Value<br>Robust Mean | IA at Analyte<br>Value | Robust sd | Robust<br>Uncertainty (U) | Robust % RSD | Analyte IA Ratio | Average Range<br>(R-bar) | Horwitz %RSD |
|--------------|----------------------------|----------------------|-----------------------------------|----------|--------|-------------------------------|------------------------|-----------|---------------------------|--------------|------------------|--------------------------|--------------|
| 001          | Ammoniacal N (%)           | 2                    | 2                                 | 0.5519   | 0.0275 |                               |                        |           |                           |              |                  |                          |              |
| 005          | Urea N (%)                 | 7                    | 7                                 | 44.99    | 1.839  | 45.26                         |                        | 1.398     | 0.6603                    | 3.09%        |                  | 0.1674                   | 1.49%        |
| 006          | Biuret N (%)               | 3                    | 3                                 | 0.9350   | 0.5852 | 0.9350                        |                        | 0.5852    | 0.4223                    | 62.59%       |                  | 0.1300                   | 4.04%        |
| 008          | Biuret (%)                 | 6                    | 6                                 | 1.133    | 0.1450 | 1.153                         |                        | 0.1148    | 0.0586                    | 9.95%        |                  | 0.0467                   | 3.91%        |
| 010          | Total N (46%)              | 55                   | 54                                | 46.29    | 0.4100 | 46.30                         | 0.8800                 | 0.3294    | 0.0560                    | 0.71%        | 0.87             | 0.1479                   | 1.47%        |
| 020          | Total P2O5 (%)             | 1                    |                                   | 0.0021   |        |                               |                        |           |                           |              |                  |                          |              |
| 041          | Direct Available P2O5 (%)  | 1                    |                                   | 0.0305   |        |                               |                        |           |                           |              |                  |                          |              |
| 050          | Soluble K2O (%)            | 2                    | 2                                 | 0.0060   | 0.0007 |                               |                        |           |                           |              |                  |                          |              |
| 060          | Water (Free) (%)           | 8                    | 7                                 | 0.1703   | 0.1217 | 0.1408                        |                        | 0.0986    | 0.0466                    | 70.05%       |                  | 0.0164                   | 5.37%        |
| 101          | Acid Soluble Ca (%)        | 2                    | 1                                 | 0.0300   | 0.0354 |                               |                        |           |                           |              |                  |                          |              |
| 121          | Acid Soluble Mg (%)        | 3                    | 2                                 | 0.0068   | 0.0075 | 0.0076                        | 0.2004                 | 0.0104    | 0.0092                    | 136.78%      | 0.12             | 0.0051                   | 8.33%        |
| 148          | Total S (%)                | 1                    |                                   | 0.0000   |        |                               |                        |           |                           |              |                  |                          |              |
| 149          | S - HNO3 soluble (%)       | 1                    |                                   | 0.0015   |        |                               |                        |           |                           |              |                  |                          |              |
| 151          | Acid Soluble As (ppm)      | 4                    | 1                                 | 1.838    | 2.948  | 0.0076                        |                        | 0.0104    | 0.0130                    | 136.78%      |                  | 0.0001                   | 22.00%       |
| 165          | Acid Soluble B (%)         | 3                    | 2                                 | 0.0892   | 0.1458 | 0.1288                        | 0.0223                 | 0.1820    | 0.1608                    | 141.26%      | 18.99            | 0.2575                   | 5.44%        |
| 181          | Acid Soluble Cd (ppm)      | 6                    | 4                                 | 0.1251   | 0.0878 | 0.0752                        |                        | 0.0496    | 0.0310                    | 65.91%       |                  | 0.0015                   | 22.00%       |
| 191          | Acid Soluble Cr (ppm)      | 5                    | 4                                 | 0.5037   | 0.4226 | 0.3171                        |                        | 0.0774    | 0.0484                    | 24.42%       |                  | 0.0527                   | 19.02%       |
| 202          | Acid Soluble Co (ppm)      | 5                    | 2                                 | 0.3482   | 0.5057 | 0.1456                        | 1.0437                 | 0.0644    | 0.0569                    | 44.26%       | 0.14             | 0.0284                   | 21.38%       |
| 221          | Acid Soluble Cu (%)        | 3                    | 1                                 | 0.0034   | 0.0057 | 0.1456                        | 0.0196                 | 0.0644    | 0.0805                    | 44.26%       | 7.68             | 0.0142                   | 5.35%        |
| 241          | Acid Soluble Fe (%)        | 2                    | 1                                 | 0.0051   | 0.0069 |                               |                        |           |                           |              |                  |                          |              |
| 251          | Acid Soluble Pb (ppm)      | 6                    | 2                                 | 1.486    | 2.359  | 0.1335                        |                        | 0.0474    | 0.0419                    | 35.51%       |                  | 0.0313                   | 21.66%       |
| 261          | Acid Soluble Mn (%)        | 3                    | 1                                 | 0.0034   | 0.0057 | 0.1335                        | 0.0184                 | 0.0474    | 0.0593                    | 35.51%       | 6.02             | 0.0157                   | 5.42%        |
| 281          | Acid Soluble Hg (ppm)      | 4                    | 1                                 | 0.3276   | 0.6153 | 0.1335                        |                        | 0.0474    | 0.0593                    | 35.51%       |                  | 0.0157                   | 21.66%       |
| 289          | Acid Soluble Mo (ppm)      | 4                    | 3                                 | 0.2195   | 0.1901 | 0.1927                        | 1.0578                 | 0.2233    | 0.1612                    | 115.91%      | 0.49             | 0.0584                   | 20.50%       |
| 291          | Acid Soluble Ni (ppm)      | 5                    | 4                                 | 0.3947   | 0.4848 | 0.1809                        |                        | 0.0926    | 0.0579                    | 51.19%       |                  | 0.0543                   | 20.69%       |
| 301          | Acid Soluble Se (ppm)      | 5                    | 2                                 | 1.391    | 2.719  | 0.0533                        |                        | 0.0661    | 0.0584                    | 124.03%      |                  | 0.0067                   | 22.00%       |
| 311          | Sodium (%)                 | 1                    |                                   | 0.0250   |        |                               |                        |           |                           |              |                  |                          |              |
| 321          | Acid Soluble Zn (%)        | 3                    | 1                                 | 0.0034   | 0.0057 | 0.0533                        | 0.0103                 | 0.0661    | 0.0826                    | 124.03%      | 14.91            | 0.0034                   | 6.22%        |

The Analyte IA Ratio = 2.33 \* Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates

|              |                            |                      |                                   |          |        |                               |                        |           |                           |              |                  |                          |              |
|--------------|----------------------------|----------------------|-----------------------------------|----------|--------|-------------------------------|------------------------|-----------|---------------------------|--------------|------------------|--------------------------|--------------|
| Analyte Code | Analyte<br>Sample # 250213 | # Tests<br>Submitted | # Tests in Robust<br>Calculations | Raw Mean | Raw SD | Assigned Value<br>Robust Mean | IA at Analyte<br>Value | Robust sd | Robust<br>Uncertainty (U) | Robust % RSD | Analyte IA Ratio | Average Range<br>(R-bar) | Horwitz %RSD |
|--------------|----------------------------|----------------------|-----------------------------------|----------|--------|-------------------------------|------------------------|-----------|---------------------------|--------------|------------------|--------------------------|--------------|

the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting.  
The Horwitz %RSD is calculated usin the Thompson Modification, Analyst,2000,125,385-386.



Analyte PT For All Labs

## Magruder Fertilizer Proficiency Testing Program

# Analytes: 28

Sample # 250213

Regular PT Scheme Sample Doubles with N Scheme

# Labs Reporting: 56

Granular Urea 46-0-0

Lab Values

Issue Date : 03/31/2025

| Analyte Group | Analyte (Units)  | Lab Code | Lab Data |        | *Robust Method Values |        |           | # Tests | Magruder PT Z Score | Your Method | Flag |
|---------------|------------------|----------|----------|--------|-----------------------|--------|-----------|---------|---------------------|-------------|------|
|               |                  |          | Value    | Range  | Rob Mean              | Rob SD | Rob R-bar |         |                     |             |      |
| 001           | Ammoniacal N (%) | 0593     | 0.5325   | 0.0050 |                       |        |           | 2       |                     | 001.99      | 0    |
| 001           | Ammoniacal N (%) | 0524     | 0.5714   | 0.0017 |                       |        |           | 2       |                     | 001.99      | 0    |
| 005           | Urea N (%)       | 0389     | 41.25    | 0.3000 | 45.26                 | 1.398  | 0.1674    | 7       | -2.59               | 005.00      | 0    |
| 005           | Urea N (%)       | 0524     | 44.10    | 0.0117 | 45.26                 | 1.398  | 0.1674    | 7       | -0.75               | 005.99      | 0    |
| 005           | Urea N (%)       | 0029     | 45.09    | 0.0500 | 45.26                 | 1.398  | 0.1674    | 7       | -0.11               | 005.99      | 0    |
| 005           | Urea N (%)       | 0394     | 45.61    | 0.4030 | 45.26                 | 1.398  | 0.1674    | 7       | 0.22                | 005.10      | 0    |
| 005           | Urea N (%)       | 0476     | 46.19    | 0.0572 | 45.26                 | 1.398  | 0.1674    | 7       | 0.60                | 005.99      | 0    |
| 005           | Urea N (%)       | 0593     | 46.28    | 0.2800 | 45.26                 | 1.398  | 0.1674    | 7       | 0.66                | 005.99      | 0    |
| 005           | Urea N (%)       | 0605     | 46.42    | 0.0700 | 45.26                 | 1.398  | 0.1674    | 7       | 0.75                | 005.99      | 0    |
| 006           | Biuret N (%)     | 0292     | 0.2600   | 0.0000 | 0.9350                | 0.5852 | 0.1300    | 3       | -1.15               | 006.99      | 0    |
| 006           | Biuret N (%)     | 0481     | 1.245    | 0.1300 | 0.9350                | 0.5852 | 0.1300    | 3       | 0.53                | 006.99      | 0    |
| 006           | Biuret N (%)     | 0534     | 1.300    | 0.0000 | 0.9350                | 0.5852 | 0.1300    | 3       | 0.62                | 006.99      | 0    |
| 008           | Biuret (%)       | 0405     | 0.8600   | 0.0000 | 1.153                 | 0.1148 | 0.0467    | 6       | -2.28               | 008.10      | 0    |
| 008           | Biuret (%)       | 0394     | 1.093    | 0.0030 | 1.153                 | 0.1148 | 0.0467    | 6       | -0.47               | 008.99      | 0    |
| 008           | Biuret (%)       | 0371     | 1.160    | 0.0000 | 1.153                 | 0.1148 | 0.0467    | 6       | 0.05                | 008.10      | 0    |
| 008           | Biuret (%)       | 0572     | 1.210    | 0.0400 | 1.153                 | 0.1148 | 0.0467    | 6       | 0.44                | 008.10      | 0    |
| 008           | Biuret (%)       | 0476     | 1.226    | 0.0436 | 1.153                 | 0.1148 | 0.0467    | 6       | 0.56                | 008.10      | 0    |
| 008           | Biuret (%)       | 0498     | 1.250    | 0.1000 | 1.153                 | 0.1148 | 0.0467    | 6       | 0.75                | 008.00      | 0    |
| 010           | Total N (46%)    | 0422     | 45.18†   | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -3.41               | 010.60      | 0    |
| 010           | Total N (46%)    | 0035     | 45.40†   | 0.2000 | 46.30                 | 0.3294 | 0.1479    | 54      | -2.73               | 010.60      | 0    |
| 010           | Total N (46%)    | 0572     | 45.55    | 0.5000 | 46.30                 | 0.3294 | 0.1479    | 54      | -2.27               | 010.12      | 0    |
| 010           | Total N (46%)    | 0043     | 45.59    | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | -2.15               | 010.60      | 0    |
| 010           | Total N (46%)    | 0136     | 45.70    | 0.4200 | 46.30                 | 0.3294 | 0.1479    | 54      | -1.82               | 010.60      | 0    |
| 010           | Total N (46%)    | 0055     | 45.74    | 0.2600 | 46.30                 | 0.3294 | 0.1479    | 54      | -1.70               | 010.60      | 0    |
| 010           | Total N (46%)    | 0389     | 45.87    | 0.0800 | 46.30                 | 0.3294 | 0.1479    | 54      | -1.30               | 010.60      | 0    |
| 010           | Total N (46%)    | 0234     | 45.96    | 0.1700 | 46.30                 | 0.3294 | 0.1479    | 54      | -1.04               | 010.60      | 0    |
| 010           | Total N (46%)    | 0309     | 46.03    | 0.0600 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.82               | 010.11      | 0    |
| 010           | Total N (46%)    | 0577     | 46.03    | 0.1400 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.82               | 010.99      | 0    |
| 010           | Total N (46%)    | 0498     | 46.05    | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.76               | 010.12      | 0    |
| 010           | Total N (46%)    | 0600     | 46.05    | 0.2000 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.76               | 010.99      | 0    |
| 010           | Total N (46%)    | 0652     | 46.10    | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.62               | 010.99      | 0    |

| Analyte Group | Analyte (Units) | Lab Code | Lab Data |        | *Robust Method Values |        |           | # Tests | Magruder PT Z Score | Your Method | Flag |
|---------------|-----------------|----------|----------|--------|-----------------------|--------|-----------|---------|---------------------|-------------|------|
|               |                 |          | Value    | Range  | Rob Mean              | Rob SD | Rob R-bar |         |                     |             |      |
| 010           | Total N (46%)   | 0354     | 46.10    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.60               | 010.60      | 0    |
| 010           | Total N (46%)   | 0559     | 46.12    | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.56               | 010.99      | 0    |
| 010           | Total N (46%)   | 0653     | 46.12    | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.56               | 010.99      | 0    |
| 010           | Total N (46%)   | 0023     | 46.12    | 0.0310 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.53               | 010.60      | 0    |
| 010           | Total N (46%)   | 0452     | 46.13    | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.53               | 010.60      | 0    |
| 010           | Total N (46%)   | 0647     | 46.17    | 0.4017 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.40               | 010.99      | 0    |
| 010           | Total N (46%)   | 0421     | 46.18    | 0.3400 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.36               | 010.60      | 0    |
| 010           | Total N (46%)   | 0521     | 46.25    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.16               | 010.60      | 0    |
| 010           | Total N (46%)   | 0451     | 46.25    | 0.3000 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.15               | 010.60      | 0    |
| 010           | Total N (46%)   | 0360     | 46.27    | 0.1400 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.09               | 010.60      | 0    |
| 010           | Total N (46%)   | 0307     | 46.28    | 0.2500 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.07               | 010.60      | 0    |
| 010           | Total N (46%)   | 0177     | 46.28    | 0.1470 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.04               | 010.60      | 0    |
| 010           | Total N (46%)   | 0291     | 46.29    | 0.0100 | 46.30                 | 0.3294 | 0.1479    | 54      | -0.04               | 010.60      | 0    |
| 010           | Total N (46%)   | 0481     | 46.30    | 0.0200 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.00                | 010.60      | 0    |
| 010           | Total N (46%)   | 0534     | 46.30    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.00                | 010.60      | 0    |
| 010           | Total N (46%)   | 0102     | 46.32    | 0.1100 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.05                | 010.60      | 0    |
| 010           | Total N (46%)   | 0405     | 46.33    | 0.0200 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.09                | 010.60      | 0    |
| 010           | Total N (46%)   | 0481     | 46.33    | 0.0600 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.09                | 010.99      | 0    |
| 010           | Total N (46%)   | 0095     | 46.36    | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.18                | 010.60      | 0    |
| 010           | Total N (46%)   | 0584     | 46.39    | 0.2900 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.26                | 010.99      | 0    |
| 010           | Total N (46%)   | 0040     | 46.40    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.31                | 010.60      | 0    |
| 010           | Total N (46%)   | 0169     | 46.41    | 0.0200 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.34                | 010.60      | 0    |
| 010           | Total N (46%)   | 0220     | 46.41    | 0.0400 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.34                | 010.60      | 0    |
| 010           | Total N (46%)   | 0231     | 46.41    | 0.1800 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.34                | 010.60      | 0    |
| 010           | Total N (46%)   | 0586     | 46.43    | 0.2600 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.40                | 010.60      | 0    |
| 010           | Total N (46%)   | 0371     | 46.46    | 0.1500 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.47                | 010.60      | 0    |
| 010           | Total N (46%)   | 0324     | 46.50    | 0.2000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.61                | 010.60      | 0    |
| 010           | Total N (46%)   | 0233     | 46.54    | 0.1300 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.72                | 010.60      | 0    |
| 010           | Total N (46%)   | 0615     | 46.55    | 0.7000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.76                | 010.99      | 0    |
| 010           | Total N (46%)   | 0029     | 46.56    | 0.2000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.79                | 010.60      | 0    |
| 010           | Total N (46%)   | 0542     | 46.60    | 0.0300 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.90                | 010.60      | 0    |
| 010           | Total N (46%)   | 0572     | 46.60    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.91                | 010.16      | 0    |
| 010           | Total N (46%)   | 0423     | 46.60    | 0.1400 | 46.30                 | 0.3294 | 0.1479    | 54      | 0.91                | 010.60      | 0    |
| 010           | Total N (46%)   | 0034     | 46.66    | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | 1.10                | 010.60      | 0    |
| 010           | Total N (46%)   | 0527     | 46.68    | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | 1.16                | 010.60      | 0    |
| 010           | Total N (46%)   | 0042     | 46.70    | 0.0000 | 46.30                 | 0.3294 | 0.1479    | 54      | 1.22                | 010.60      | 0    |
| 010           | Total N (46%)   | 0494     | 46.72    | 0.2400 | 46.30                 | 0.3294 | 0.1479    | 54      | 1.28                | 010.60      | 0    |
| 010           | Total N (46%)   | 0593     | 46.81    | 0.2800 | 46.30                 | 0.3294 | 0.1479    | 54      | 1.54                | 010.60      | 0    |
| 010           | Total N (46%)   | 0049     | 46.96    | 0.2800 | 46.30                 | 0.3294 | 0.1479    | 54      | 2.01                | 010.60      | 0    |
| 010           | Total N (46%)   | 0292     | 47.39±   | 0.1000 | 46.30                 | 0.3294 | 0.1479    | 54      | 3.31                | 010.60      | 0    |
| 010           | Total N (46%)   | 0255     | 47.42±   | 0.1610 | 46.30                 | 0.3294 | 0.1479    | 54      | 3.39                | 010.60      | 0    |
| 010           | Total N (46%)   | 0524     | 45.96    | 1.758  | 46.30                 | 0.3294 | 0.1479    | 54      | -1.02               | 010.99      | 1    |
| 020           | Total P2O5 (%)  | 0524     | 0.0021   | 0.0003 |                       |        |           | 1       |                     | 020.50      | 0    |

| Analyte Group | Analyte (Units)           | Lab Code | Lab Data |        | *Robust Method Values |        |           | # Tests | Magruder PT Z Score | Your Method | Flag |
|---------------|---------------------------|----------|----------|--------|-----------------------|--------|-----------|---------|---------------------|-------------|------|
|               |                           |          | Value    | Range  | Rob Mean              | Rob SD | Rob R-bar |         |                     |             |      |
| 041           | Direct Available P2O5 (%) | 0354     | 0.0305   | 0.0030 |                       |        |           | 1       |                     | 041.21      | 0    |
| 050           | Soluble K2O (%)           | 0524     | 0.0055   | 0.0017 |                       |        |           | 2       |                     | 050.99      | 0    |
| 050           | Soluble K2O (%)           | 0354     | 0.0065   | 0.0010 |                       |        |           | 2       |                     | 050.52      | 0    |
| 060           | Water (Free) (%)          | 0586     | 0.0525   | 0.0050 | 0.1408                | 0.0986 | 0.0164    | 7       | -0.81               | 060.99      | 0    |
| 060           | Water (Free) (%)          | 0394     | 0.0540   | 0.0040 | 0.1408                | 0.0986 | 0.0164    | 7       | -0.80               | 060.30      | 0    |
| 060           | Water (Free) (%)          | 0136     | 0.0930   | 0.0060 | 0.1408                | 0.0986 | 0.0164    | 7       | -0.44               | 060.99      | 0    |
| 060           | Water (Free) (%)          | 0405     | 0.1400   | 0.0000 | 0.1408                | 0.0986 | 0.0164    | 7       | -0.01               | 060.00      | 0    |
| 060           | Water (Free) (%)          | 0593     | 0.1400   | 0.0000 | 0.1408                | 0.0986 | 0.0164    | 7       | -0.01               | 060.30      | 0    |
| 060           | Water (Free) (%)          | 0498     | 0.2175   | 0.0370 | 0.1408                | 0.0986 | 0.0164    | 7       | 0.70                | 060.20      | 0    |
| 060           | Water (Free) (%)          | 0371     | 0.4150   | 0.0300 | 0.1408                | 0.0986 | 0.0164    | 7       | 2.51                | 060.20      | 0    |
| 060           | Water (Free) (%)          | 0234     | 0.2500   | 0.1000 | 0.1408                | 0.0986 | 0.0164    | 7       | 1.00                | 060.20      | 1    |
| 101           | Acid Soluble Ca (%)       | 0354     | 0.0550   | 0.0100 |                       |        |           | 1       |                     | 101.30      | 0    |
| 101           | Acid Soluble Ca (%)       | 0423     | < 0.005  |        |                       |        |           | 1       |                     | 101.32      | 5    |
| 121           | Acid Soluble Mg (%)       | 0524     | 0.0003   | 0.0001 |                       |        |           | 2       |                     | 121.99      | 0    |
| 121           | Acid Soluble Mg (%)       | 0354     | 0.0150   | 0.0100 |                       |        |           | 2       |                     | 121.30      | 0    |
| 121           | Acid Soluble Mg (%)       | 0423     | < 0.005  |        |                       |        |           | 2       |                     | 121.32      | 5    |
| 148           | Total S (%)               | 0354     | 0.0000   | 0.0000 |                       |        |           | 0       |                     | 148.99      | 4    |
| 149           | S - HNO3 soluble (%)      | 0524     | 0.0015   | 0.0009 |                       |        |           | 1       |                     | 149.04      | 0    |
| 151           | Acid Soluble As (ppm)     | 0593     | 0.1000   | 0.0000 |                       |        |           | 1       |                     | 151.30      | 0    |
| 151           | Acid Soluble As (ppm)     | 0220     | < 0.5    |        |                       |        |           | 1       |                     | 151.32      | 5    |
| 151           | Acid Soluble As (ppm)     | 0220     | < 0.5    |        |                       |        |           | 1       |                     | 151.99      | 5    |
| 151           | Acid Soluble As (ppm)     | 0605     | < 6.25   |        |                       |        |           | 1       |                     | 151.30      | 5    |
| 165           | Acid Soluble B (%)        | 0593     | 0.0002   | 0.0001 |                       |        |           | 2       |                     | 165.99      | 0    |
| 165           | Acid Soluble B (%)        | 0524     | 0.2575   | 0.5148 |                       |        |           | 2       |                     | 165.99      | 0    |
| 165           | Acid Soluble B (%)        | 0354     | < 0.01   |        |                       |        |           | 2       |                     | 165.30      | 5    |
| 181           | Acid Soluble Cd (ppm)     | 0524     | 0.0009   | 0.0015 | 0.0752                | 0.0496 | 0.0015    | 4       | -1.27               | 181.30      | 0    |
| 181           | Acid Soluble Cd (ppm)     | 0593     | 0.1000   | 0.0000 | 0.0752                | 0.0496 | 0.0015    | 4       | 0.42                | 181.30      | 0    |
| 181           | Acid Soluble Cd (ppm)     | 0220     | 0.1000   | 0.0000 | 0.0752                | 0.0496 | 0.0015    | 4       | 0.42                | 181.32      | 0    |
| 181           | Acid Soluble Cd (ppm)     | 0220     | 0.1000   | 0.0000 | 0.0752                | 0.0496 | 0.0015    | 4       | 0.42                | 181.99      | 0    |
| 181           | Acid Soluble Cd (ppm)     | 0371     | < 0.2    |        | 0.0752                | 0.0496 | 0.0015    | 4       |                     | 181.30      | 5    |
| 181           | Acid Soluble Cd (ppm)     | 0605     | < 0.25   |        | 0.0752                | 0.0496 | 0.0015    | 4       |                     | 181.30      | 5    |
| 191           | Acid Soluble Cr (ppm)     | 0524     | 0.2184   | 0.0054 | 0.3171                | 0.0774 | 0.0527    | 4       | -1.27               | 191.30      | 0    |
| 191           | Acid Soluble Cr (ppm)     | 0593     | 0.3000   | 0.0000 | 0.3171                | 0.0774 | 0.0527    | 4       | -0.22               | 191.30      | 0    |
| 191           | Acid Soluble Cr (ppm)     | 0220     | 0.3500   | 0.1000 | 0.3171                | 0.0774 | 0.0527    | 4       | 0.42                | 191.32      | 0    |
| 191           | Acid Soluble Cr (ppm)     | 0220     | 0.4000   | 0.0000 | 0.3171                | 0.0774 | 0.0527    | 4       | 1.07                | 191.99      | 0    |
| 191           | Acid Soluble Cr (ppm)     | 0605     | < 1.25   |        | 0.3171                | 0.0774 | 0.0527    | 4       |                     | 191.30      | 5    |
| 202           | Acid Soluble Co (ppm)     | 0593     | 0.1000   | 0.0000 |                       |        |           | 2       |                     | 202.30      | 0    |
| 202           | Acid Soluble Co (ppm)     | 0524     | 0.1911   | 0.0284 |                       |        |           | 2       |                     | 202.30      | 0    |
| 202           | Acid Soluble Co (ppm)     | 0220     | < 0.1    |        |                       |        |           | 2       |                     | 202.32      | 5    |
| 202           | Acid Soluble Co (ppm)     | 0220     | < 0.1    |        |                       |        |           | 2       |                     | 202.99      | 5    |
| 202           | Acid Soluble Co (ppm)     | 0605     | < 1.25   |        |                       |        |           | 2       |                     | 202.30      | 5    |
| 221           | Acid Soluble Cu (%)       | 0524     | 0.0001   | 0.0000 |                       |        |           | 1       |                     | 221.99      | 0    |
| 221           | Acid Soluble Cu (%)       | 0593     | 0.0000   | 0.0000 |                       |        |           | 1       |                     | 221.99      | 4    |

| Analyte Group | Analyte (Units)       | Lab Code | Lab Data |        | *Robust Method Values |        |           | # Tests | Magruder PT Z Score | Your Method | Flag |
|---------------|-----------------------|----------|----------|--------|-----------------------|--------|-----------|---------|---------------------|-------------|------|
|               |                       |          | Value    | Range  | Rob Mean              | Rob SD | Rob R-bar |         |                     |             |      |
| 221           | Acid Soluble Cu (%)   | 0354     | < 0.01   |        |                       |        |           | 1       |                     | 221.30      | 5    |
| 241           | Acid Soluble Fe (%)   | 0524     | 0.0003   | 0.0001 |                       |        |           | 1       |                     | 241.99      | 0    |
| 241           | Acid Soluble Fe (%)   | 0354     | < 0.01   |        |                       |        |           | 1       |                     | 241.30      | 5    |
| 251           | Acid Soluble Pb (ppm) | 0593     | 0.1000   | 0.0000 |                       |        |           | 2       |                     | 251.30      | 0    |
| 251           | Acid Soluble Pb (ppm) | 0524     | 0.1671   | 0.0313 |                       |        |           | 2       |                     | 251.30      | 0    |
| 251           | Acid Soluble Pb (ppm) | 0220     | < 0.7    |        |                       |        |           | 2       |                     | 251.32      | 5    |
| 251           | Acid Soluble Pb (ppm) | 0220     | < 0.7    |        |                       |        |           | 2       |                     | 251.99      | 5    |
| 251           | Acid Soluble Pb (ppm) | 0371     | < 1      |        |                       |        |           | 2       |                     | 251.30      | 5    |
| 251           | Acid Soluble Pb (ppm) | 0605     | < 6.25   |        |                       |        |           | 2       |                     | 251.30      | 5    |
| 261           | Acid Soluble Mn (%)   | 0524     | 0.0001   | 0.0000 |                       |        |           | 1       |                     | 261.99      | 0    |
| 261           | Acid Soluble Mn (%)   | 0593     | 0.0000   | 0.0000 |                       |        |           | 1       |                     | 261.99      | 4    |
| 261           | Acid Soluble Mn (%)   | 0354     | < 0.01   |        |                       |        |           | 1       |                     | 261.30      | 5    |
| 281           | Acid Soluble Hg (ppm) | 0524     | 0.0006   | 0.0003 |                       |        |           | 1       |                     | 281.99      | 0    |
| 281           | Acid Soluble Hg (ppm) | 0220     | < 0.01   |        |                       |        |           | 1       |                     | 281.99      | 5    |
| 281           | Acid Soluble Hg (ppm) | 0371     | < 0.05   |        |                       |        |           | 1       |                     | 281.30      | 5    |
| 281           | Acid Soluble Hg (ppm) | 0605     | < 1.25   |        |                       |        |           | 1       |                     | 281.30      | 5    |
| 289           | Acid Soluble Mo (ppm) | 0593     | 0.0500   | 0.0000 | 0.1927                | 0.2233 | 0.0584    | 3       | -0.64               | 289.30      | 0    |
| 289           | Acid Soluble Mo (ppm) | 0524     | 0.0780   | 0.0167 | 0.1927                | 0.2233 | 0.0584    | 3       | -0.51               | 289.30      | 0    |
| 289           | Acid Soluble Mo (ppm) | 0220     | 0.4500   | 0.1000 | 0.1927                | 0.2233 | 0.0584    | 3       | 1.15                | 289.99      | 0    |
| 289           | Acid Soluble Mo (ppm) | 0220     | < 0.3    |        | 0.1927                | 0.2233 | 0.0584    | 3       |                     | 289.32      | 5    |
| 291           | Acid Soluble Ni (ppm) | 0524     | 0.0835   | 0.0543 | 0.1809                | 0.0926 | 0.0543    | 4       | -1.05               | 291.30      | 0    |
| 291           | Acid Soluble Ni (ppm) | 0593     | 0.1400   | 0.0000 | 0.1809                | 0.0926 | 0.0543    | 4       | -0.44               | 291.30      | 0    |
| 291           | Acid Soluble Ni (ppm) | 0220     | 0.2000   | 0.0000 | 0.1809                | 0.0926 | 0.0543    | 4       | 0.21                | 291.32      | 0    |
| 291           | Acid Soluble Ni (ppm) | 0220     | 0.3000   | 0.0000 | 0.1809                | 0.0926 | 0.0543    | 4       | 1.29                | 291.99      | 0    |
| 291           | Acid Soluble Ni (ppm) | 0605     | < 1.25   |        | 0.1809                | 0.0926 | 0.0543    | 4       |                     | 291.30      | 5    |
| 301           | Acid Soluble Se (ppm) | 0524     | 0.0066   | 0.0067 |                       |        |           | 2       |                     | 301.30      | 0    |
| 301           | Acid Soluble Se (ppm) | 0593     | 0.1000   | 0.0000 |                       |        |           | 2       |                     | 301.30      | 0    |
| 301           | Acid Soluble Se (ppm) | 0220     | < 0.3    |        |                       |        |           | 2       |                     | 301.32      | 5    |
| 301           | Acid Soluble Se (ppm) | 0220     | < 0.3    |        |                       |        |           | 2       |                     | 301.99      | 5    |
| 301           | Acid Soluble Se (ppm) | 0605     | < 6.25   |        |                       |        |           | 2       |                     | 301.30      | 5    |
| 311           | Sodium (%)            | 0354     | 0.0250   | 0.0100 |                       |        |           | 1       |                     | 311.99      | 0    |
| 321           | Acid Soluble Zn (%)   | 0524     | 0.0001   | 0.0000 |                       |        |           | 1       |                     | 321.99      | 0    |
| 321           | Acid Soluble Zn (%)   | 0593     | 0.0000   | 0.0000 |                       |        |           | 1       |                     | 321.99      | 4    |
| 321           | Acid Soluble Zn (%)   | 0354     | < 0.01   |        |                       |        |           | 1       |                     | 321.30      | 5    |

#### Interpreting Z Scores and Flags:

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated.

#### Notes:

\*Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. Identical duplicates not included in calculation of Rob R-bar. Your offset values are higher (±) or lower (†) than the Robust Analyte value ± Investigational Allowance. Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.