

Elemental Microanalysis Limited

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Certificate of Analysis

Part No. B2277

Barley Flour Standard

Certificate Number 021810
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 (Bracketed values for reference only)

Reported Dried Basis Values**Feed Analysis**

| | |
|---------------|--------------|
| % Crude Fat | 2.04 +/- 0.3 |
| % Crude Fibre | 4.3 +/- 0.8 |
| % Carbon | (43.51) |
| % Hydrogen | (6.00) |
| % Nitrogen | 1.9 +/- 0.04 |

As Bottled/Received Values**Ultimate Analysis**

| | |
|------------|---------------|
| % Carbon | (43.51) |
| % Hydrogen | (6.00) |
| % Sulphur | 0.12 +/- 0.02 |
| % Moisture | 6.3 +/- 0.9 |

AOAC 930.15/967.03

As Bottled Values**Mineral Analysis**

| | |
|---------------|---------------|
| % Calcium | 0.04 +/- 0.01 |
| % Magnesium | 0.13 +/- 0.01 |
| % Phosphorous | 0.38 +/- 0.02 |

| | |
|-----------|----------|
| PPM Boron | (1) |
| PPM Iron | 54 +/- 3 |
| PPM Zinc | 27 +/- 3 |

Mineral Analysis

| | |
|------------------|---------------|
| % Potassium | 0.44 +/- 0.04 |
| % Sodium | (0.01) |
| % Ash AOAC942.05 | (2.2) |

| | |
|---------------|----------|
| PPM Copper | 25 +/- 2 |
| PPM Manganese | 15 +/- 2 |
| PPM Aluminium | N/A |

CALORIE AND AMINO ACID PROFILE (REFERENCE ONLY) AS BOTTLED/RECEIVED

Nitrogen Detergent Fibre (NDF) ̄ 28.0%, Acid Detergent Fibre (ADF) ̄ 5.2%, Calories/gram ̄ 4085, Aspartic Acid ̄ 0.68%, Threonine ̄ 0.36%, Serine ̄ 0.38%, Glutamic Acid ̄ 2.65%, Glycine ̄ 0.51%, Alanine ̄ 0.45%, Cystine ̄ 0.28%, Valine ̄ 0.58%, Methionine ̄ 0.2%, Isoleucine ̄ 0.41%, Leucine ̄ 0.79%, Tyrosine ̄ 0.31%, Phenylalanine ̄ 0.61%, Lysine ̄ 0.41%, Histidine ̄ 0.28%, Tryptophan ̄ 0.12%, Arginine ̄ 0.52%

Methods: AOAC 982.30a, 985.28, 988.15, HPLC, ASTM D2015 (calorie)

The following additional procedures and standards were employed in the analysis of the above standard:

| | | | |
|------------------|-------------------------|------------------|-------------------------|
| Preparation | AOAC 935.13A, 985.01 | Nitrogen/Protein | AOAC 968.06, |
| | | | 990.03 |
| Crude Fibre | AOAC 962.09, AACC 32-10 | Crude Fat | AOAC 920.39, AACC 30-20 |
| Mineral Analysis | AOAC 975.03, 968.08-09 | NIST SRM | 1547 Peach Leaves |

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This is a certified reference material (Working Standard) and is traceable to the above-mentioned NIST standard. For good laboratory practice, we recommend that all secondary standards be verified and documented prior to use. This CRM is valid for two years from the date of purchase.

Certified July 25, 2012

Elemental Microanalysis Limited