



## Certificate of Analysis

### PRODUCT INFORMATION

|  |  |
|--|--|
| <b>Product Name</b>                    | <b>Humic Powder</b>                    |
| <b>Product Code</b>                    | E05NP                                  |
| <b>Product Lot Number</b>              | 19B28-T004-E05NP                       |
| <b>Manufacturer Date</b>               | February 28, 2019                      |
| <b>Manufacturer</b>                    | FulvicXcell Products Ltd.              |
| <b>Location of Production Facility</b> | West Kelowna, British Columbia, Canada |
| <b>Origin of Humic Substances</b>      | Alberta, Canada                        |
| <b>Product Matrix</b>                  | Powder                                 |

|   |  |
|---|--|
| <b>Composition (Ingredients; % w/w)</b> | ≥90% OXIDIZED LIGNITE (CAS: 129521-66-0; aqueous extracts incl. humic acid mineral complexes)<br>≤10% RO WATER (CAS: 7732-18-5)                              |
| <b>Storage Conditions</b>               | Ambient—room temperature (10 – 25 C), do not freeze; open in dry location; avoid prolonged exposure to direct sunlight; refrigerate and reseal after opening |

### QUALITY & PURITY

#### Physical Attributes

| Parameter               | Test Method                 | Tolerance  | Result           |
|-------------------------|-----------------------------|--|------------------|
| Appearance              | Organoleptic                | Very dark brown to black, shiny to dull, fine powder | Within Tolerance |
| pH                      | Electrometry                | 5.25 – 6.75  | 6.28             |
| Moisture                | Lamar Method (AOAC Vol. 97) | ≤10%   | 3.27%            |
| Humic Acid              | Lamar Method (AOAC Vol. 97) | None   | 82.17%           |
| Hydrophobic Fulvic Acid | Lamar Method (AOAC Vol. 97) | None   | 11.33%           |

#### Microbiological Contaminants

| Parameter               | Test Method | Tolerance*   | Unit     | Result   | Unit     |
|-------------------------|-------------|--------------|----------|----------|----------|
| Aerobic Plate Count     | MFHPB-18    | 10,000       | CFU/g    | 700      | CFU/g    |
| Total Coliforms         | MFHPB-19    | 100          | CFU/g    | <2       | MPN/g    |
| E. coli                 | MFHPB-19    | Not Detected | Per 10 g | <2       | MPN/g    |
| Salmonella              | MFHPB-20    | Not Detected | Per 10 g | Negative | Per 25 g |
| Staphylococcus aureus   | MFHPB-21    | Not Detected | Per 10 g | <25      | CFU/g    |
| Mold & Yeast (combined) | MFHPB-22    | 1,000        | CFU/g    | <5       | CFU/g    |



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### Heavy Metal Impurities

| Parameter | Test Method    | Tolerance* | Unit  | Result | Unit  |
|-----------|----------------|------------|-------|--------|-------|
| Arsenic   | ICP-OES/ICP-MS | 5.0        | mg/kg | 1.07   | mg/kg |
| Cadmium   | ICP-OES/ICP-MS | 0.3        | mg/kg | 0.176  | mg/kg |
| Lead      | ICP-OES/ICP-MS | 10.0       | mg/kg | 6.16   | mg/kg |
| Mercury   | ICP-OES/ICP-MS | 0.2        | mg/kg | 0.015  | mg/kg |

### Mineral Content

| Parameter  | Test Method        | Result | Unit  |
|------------|--------------------|--------|-------|
| Aluminum   | EPA 6020B (ICP-MS) | 6950   | mg/kg |
| Antimony   | EPA 6020B (ICP-MS) | 0.27   | mg/kg |
| Barium     | EPA 6020B (ICP-MS) | 128    | mg/kg |
| Beryllium  | EPA 6020B (ICP-MS) | 0.82   | mg/kg |
| Bismuth    | EPA 6020B (ICP-MS) | <0.10  | mg/kg |
| Boron      | EPA 6020B (ICP-MS) | 90.4   | mg/kg |
| Calcium    | EPA 6020B (ICP-MS) | 15000  | mg/kg |
| Chromium   | EPA 6020B (ICP-MS) | 7.8    | mg/kg |
| Cobalt     | EPA 6020B (ICP-MS) | 3.95   | mg/kg |
| Copper     | EPA 6020B (ICP-MS) | 8.47   | mg/kg |
| Iron       | EPA 6020B (ICP-MS) | 4350   | mg/kg |
| Lithium    | EPA 6020B (ICP-MS) | 4.27   | mg/kg |
| Magnesium  | EPA 6020B (ICP-MS) | 2210   | mg/kg |
| Manganese  | EPA 6020B (ICP-MS) | 226    | mg/kg |
| Molybdenum | EPA 6020B (ICP-MS) | 0.3    | mg/kg |
| Nickel     | EPA 6020B (ICP-MS) | 12.5   | mg/kg |
| Phosphorus | EPA 6020B (ICP-MS) | 34     | mg/kg |
| Potassium  | EPA 6020B (ICP-MS) | 77000  | mg/kg |
| Selenium   | EPA 6020B (ICP-MS) | 1.27   | mg/kg |
| Silver     | EPA 6020B (ICP-MS) | <0.10  | mg/kg |
| Sodium     | EPA 6020B (ICP-MS) | 4630   | mg/kg |
| Strontium  | EPA 6020B (ICP-MS) | 139    | mg/kg |



**FulvicXcell Products Ltd.**

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## Certificate of Analysis

### Mineral Content (Cont.)

| Parameter | Test Method        | Result | Unit  |
|-----------|--------------------|--------|-------|
| Sulfur    | EPA 6020B (ICP-MS) | 4590   | mg/kg |
| Tellurium | EPA 6020B (ICP-MS) | <0.10  | mg/kg |
| Thallium  | EPA 6020B (ICP-MS) | <0.10  | mg/kg |
| Thorium   | EPA 6020B (ICP-MS) | 3.76   | mg/kg |
| Tin       | EPA 6020B (ICP-MS) | 0.32   | mg/kg |
| Titanium  | EPA 6020B (ICP-MS) | 357    | mg/kg |
| Tungsten  | EPA 6020B (ICP-MS) | 0.25   | mg/kg |
| Uranium   | EPA 6020B (ICP-MS) | 1.64   | mg/kg |
| Vanadium  | EPA 6020B (ICP-MS) | 5.8    | mg/kg |
| Zinc      | EPA 6020B (ICP-MS) | 21.9   | mg/kg |
| Zirconium | EPA 6020B (ICP-MS) | 33     | mg/kg |

### ADDITIONAL INFORMATION

#### Footnotes

\*Tolerances for *Microbiological Contaminants* and *Heavy Metal Impurities* based on the NSF International Standards for Dietary Supplements acceptable limits for microbiological and heavy metal contaminants in raw materials.

#### Glossary

CFU = Colony Forming Unit  
EPA = (United States) Environmental Protection Agency  
MFHPB = Microbiological Food Health Protection Branch (considered Health Canada’s “HPB” methods)  
MPN = Most Probable Number

#### General Comments

Directions for Use: For non-chlorinated aqueous solutions, slowly incorporate (scatter) powder while mixing to prevent clumping; material is mildly hygroscopic—avoid handling in high humidity environments.



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### PRODUCT RELEASE

#### Conformance to Tolerances

Parameters (Specifications) **PASS**

#### Approval

Approved By

Signature

Approved By

Signature

Chancellor Smith  
Production Manager

  
Chancellor Smith (Apr 3, 2019)

Jeffrey Karr  
Technical Manager

  
Jeffrey Karr (Apr 2, 2019)