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## CERTIFICATE OF ANALYSIS

**PRODUCT NAME:**

CUMPSC18CT

**CHEMICAL:**Mixture of MgSO<sub>4</sub>, CUPSA, CEC18**SILICA TYPE:**

Irregular particles 40-63 micron, 60 Angstroms

**LOT NUMBER:**

044266-TP

|  |               | <u>Specification Values</u> |            | <u>Lot Analysis</u>     |
|--|---------------|-----------------------------|------------|-------------------------|
| <u>Test</u>  | <u>Method</u> | <u>Min</u>                  | <u>Max</u> |                         |
| Average Pore Size  | SOP82-4.042   | 55Å                         | 65Å        | 60Å                     |
| Surface Area (m <sup>2</sup> /g)   | SOP82-4.042   | 470                         | 530        | 493 m <sup>2</sup> /g   |
| Pore Volume (cm <sup>3</sup> /g)   | SOP82-4.042   | 0.70                        | 0.85       | 0.76 cm <sup>3</sup> /g |
| Appearance   | Visual        | White Fine Powder           |            | White Fine Powder       |
| <b>MgSO4 (lot#919010-BE)</b>   |               |                             |            |                         |
| Assay  | Ignition      | 99.50%                      | 100.5%     | 100.0%                  |
| ● Total sorbent weight per tube (150mg)  |               | 143                         | 158        | Conforms                |
| <b>CUPSA (lot#916060-GH)</b>   |               |                             |            |                         |
| Carbon Analysis by Weight<br>(Organic Loading)   | SOP82-4.024   | 10.50%                      | 12.50%     | 11.14%                  |
| Anion Exchange   | SOP82-4.028   | 1.00                        | 1.50       | 1.024meq/g              |
| ● Total sorbent weight per tube (50mg)   |               | 48                          | 53         | Conforms                |
| <b>CEC18 (lot#812121-BJ)</b>   |               |                             |            |                         |
| Carbon Analysis by Weight<br>(Organic Loading)   | SOP82-4.024   | 20.50%                      | 22.70%     | 20.66%                  |
| Endcapping   | SOP82-4.027   | 0.00abs                     | 0.90abs    | 0.698abs                |
| ● Total sorbent weight per tube (50mg)   |               | 48                          | 53         | Conforms                |
| ● All components of this product are individually weighed. The mass of each raw material meets method required tolerances. |               |                             |            |                         |

*The shelf life is only valid if the material is stored in the original unopened container.*

*The specifications and lot analysis are only valid using the listed methods.*

*The test methods and specifications were current when the product was lotted.*

**CERTIFIED BY:**

NAME: D. Kearns

TITLE: QC ANALYST

Certificate issue DATE: 07/30/2019

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