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CERTIFICATE OF ANALYSIS

PRODUCT NAME: CHEMICAL: SILICA TYPE: LOT NUMBER:

CUMPSC18CT Mixture of MgSO4, CUPSA, CEC18 Irregular particles 40-63 micron, 60 Angstroms 041947-TN

| | | Specification Values | | Lot Analysis |
|--|--|----------------------|--|--|
| Test Average Pore Size Surface Area (m ² /g) Pore Volume (cm ³ /g) Appearance MgSO4 (lot#919010-BE) | <u>Method</u> SOP82-4.042 SOP82-4.042 SOP82-4.042 Visual | | Max 65Å 530 0.85 iine Powder | 60Å 493 m ² /g 0.76 cm ³ /g White Fine Powder |
| AssayTotal sorbent weight per tube (150mg) | Ignition | 99.50% 143 | 100.5% 158 | 100.0% Conforms |
| CUPSA (lot#817221-GE) Carbon Analysis by Weight (Organic Loading) | SOP82-4.024 | 10.50% | 12.50% | 11.40% |
| Anion ExchangeTotal sorbent weight per tube (50mg) | SOP82-4.028 | 1.00 48 | 1.50 53 | 1.041meq/g Conforms |
| CEC18 (lot#813190-BH) Carbon Analysis by Weight (Organic Loading) | SOP82-4.024 | 20.50% | 22.70% | 20.85% |
| EndcappingTotal sorbent weight per tube (50mg) | SOP82-4.027 | 0.00abs 48 | 0.90abs 53 | 0.372abs 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: L. Bender

TITLE: QC ANALYST

Certificate issue DATE: 06/07/2019

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