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CERTIFICATE OF ANALYSIS

PRODUCT NAME: CHEMICAL: SILICA TYPE: LOT NUMBER: ECPSACB506P CUPSA (bottom layer), CUCARB (top layer) Irregular particles 40-63 micron, 60 Angstroms 044009-GG

| | | Specification Values | | Lot Analysis |
|--|-------------|----------------------|-------------------|--------------------------------|
| Test | Method | Min | <u>Max</u> 65Å | |
| Average Pore Size | SOP82-4.042 | 55Å | 65Å | 60Å |
| Surface Area (m^2/g) | SOP82-4.042 | 470 | 530 | 504 m²/g |
| Pore Volume (cm^3/g) | SOP82-4.042 | 0.70 | 0.85 | $0.79 \text{ cm}^{3}/\text{g}$ |
| Appearance | Visual | White F | Fine Powder | White Fine Powder |
| CUPSA (lot#918230-GG) | | | | |
| Carbon Analysis by Weight (Organic Loading) | SOP82-4.024 | 10.50% | 12.50% | 11.49% |
| Anion Exchange | SOP82-4.028 | 1.00 | 1.50 | 1.120meq/g |
| • Total sorbent weight per tube (500mg) | | 475 | 525 | Conforms |
| CUCARB (lot#917050-DW) | | | | |
| Graphitized carbon | SOP82-4.042 | | | $133 \text{ m}^2/\text{g}$ |
| • Total sorbent weight per tube (500mg) | | 475 | 525 | 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: 07/18/2019

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