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## CERTIFICATE OF ANALYSIS

**PRODUCT NAME:** CSDAU  
**CHEMICAL:** C8 + Benzyl Sulfonic Acid  
**SILICA TYPE:** Irregular particles 40-63 micron, 60 Angstrom pores  
**LOT NUMBER:** 220201-AE

| <u>Test</u>                                    | <u>Method</u> | <u>Specification Values</u> |            | <u>Lot Analysis</u>     |
|------------------------------------------------|---------------|-----------------------------|------------|-------------------------|
|                                                |               | <u>Min</u>                  | <u>Max</u> |                         |
| Appearance                                     | Visual        | White Fine Powder           |            | White Fine Powder       |
| Average Pore Size                              | SOP82-4.042   | 55Å                         | 65Å        | 60Å                     |
| Surface Area (m <sup>2</sup> /g)               | SOP82-4.042   | 470                         | 530        | 504m <sup>2</sup> /g    |
| Pore Volume (cm <sup>3</sup> /g)               | SOP82-4.042   | 0.70                        | 0.85       | 0.74 cm <sup>3</sup> /g |
| Carbon Analysis by Weight<br>(Organic Loading) | SOP82-4.024   | 12.00%                      | 12.80%     | 12.57%                  |
| Cation Exchange                                | SOP82-4.025   | 0.065meq/g                  | 0.088meq/g | 0.072meq/g              |
| %Recovery - Acid                               | SOP82-4.011   | 85.00%                      | 110.0%     | Pass                    |
| %Recovery - Neutral                            | SOP82-4.011   | 85.00%                      | 110.0%     | Pass                    |
| %Recovery - Base                               | SOP82-4.011   | 85.00%                      | 110.0%     | Pass                    |

*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:** 10/31/2022

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