

## Certificate of Analysis

Date of Testing: 2023-08-24 10:17:18  
 Date of Next Testing: 2027-08-23 10:17:18  
 Product Name: **Sulfobetaine 12**  
 CAS Number: 14933-08-5  
 Specifications & Purity: 98%  
 Lot #: H2318708  
 SKU #: **S105512**  
**Analysis:** **259071**  
 Storage Temperature: Store at 2-8°C, Argon charged

| Parameter  | Limit Values                | Result                      |
|--|-----------------------------|-----------------------------|
| Ignition Residue   | 0-0.1 (%)                   | 0.05 %                      |
| Nitrogen by Elemental Analysis                           | 3.9-4.4 (%)                 | 4.25 %                      |
| Zinc(Zn)   | 0-5 (ppm)                   | 0.00 ppm                    |
| Carbon by Elemental Analysis                             | 59.4-61 (%)                 | 60.62 %                     |
| Insoluble matter   | 0-0.1 (%)                   | 0.06 %                      |
| Calcium(Ca)  | 0-0.002 (%)                 | 0.00 %                      |
| Copper(Cu)   | 0-5 (ppm)                   | 0.00 ppm                    |
| Potassium(K)   | 0-50 (ppm)                  | 9.43 ppm                    |
| Phosphate(PO4)   | 0-5 (ppm)                   | 0.03 ppm                    |
| Chloride (Cl-)   | 0-0.05 (%)                  | 0.01 %                      |
| Purity(HPLC)   | 98-100 (%)                  | 99.85300 %                  |
| Iron(Fe)   | 0-5 (ppm)                   | 0.00 ppm                    |
| Hydrogen by Elemental Analysis                           | 10.7-11.3 (%)               | 10.92 %                     |
| Aluminum(Al)   | 0-5 (ppm)                   | 0.00 ppm                    |
| Magnesium(Mg)  | 0-5 (ppm)                   | 0.00 ppm                    |
| Sulfur by Elemental Analysis                             | 0-0.05 (%)                  | 0.01 %                      |
| (Pb)Lead   | 0-0.001 (%)                 | 0.00 %                      |
| Ammonia (NH4)  | 0-500 (ppm)                 | 0.00 ppm                    |
| Sodium(Na)   | 0-50 (ppm)                  | 22.80 ppm                   |
| Appearance (S105512)                                     | White powder                | White powder                |
| metal trace analysis (icp)                               | corresponds to requirements | CORRESPONDS TO REQUIREMENTS |
| Infrared spectrum  | Conforms to Structure       | Conforms to Structure       |
| Solubility in H2O(20°C , colorless clear (< 3.5 ntu),1M) | pass                        | Pass                        |



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A handwritten signature in black ink that reads "John Su". The signature is written in a cursive, flowing style.

John Su  
QA & QC Manager