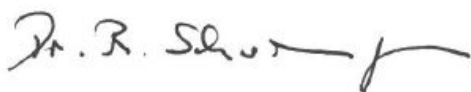


## Certificate of Analysis

**Product Name:** Copper(II) sulfate pentahydrate  
ACS reagent, >= 98.0 %  
**Product Number:** 209198  
**Batch Number:** BCCD1793  
**Brand:** Sigma-Aldrich  
**CAS Number:** 7758-99-8  
**Formula:**  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$   
**Formula Weight:** 249.69  
**Quality Release Date:** 12 MAY 2020  
**Recommended Retest Date:** MAR 2022

| TEST                    | SPECIFICATION                        | RESULT                        |
|-------------------------|--------------------------------------|-------------------------------|
| APPEARANCE (COLOR)      | BLUE                                 | BLUE                          |
| APPEARANCE (FORM)       | CRYSTALS                             | CRYSTALS                      |
| REDOX TITRATION         | 98.0 - 102.0 %                       | 100.3 %                       |
| REDOXTITRATION (METHOD) | BY NA2S2O3                           | BY NA2S2O3                    |
| ICP ANALYSIS            | CONFIRMS COPPER AND SULFUR COMPONENT | CORRESPONDS                   |
| ACS SPECIFICATIONS      | CORRESPONDS TO REQUIREMENTS          | CORRESPONDS TO ACS (11TH ED.) |
| REMARKS ON ACS          | INSOLUBLE MATTER ≤ 0.005 %           | INSOLUBLE MATTER < 0.005 %    |
| CALCIUM (ICP)           | ≤ 10 MG/KG                           | < 10 MG/KG                    |
| IRON (ICP)              | ≤ 30 MG/KG                           | < 30 MG/KG                    |
| POTASSIUM (ICP)         | ≤ 100 MG/KG                          | < 100 MG/KG                   |
| SODIUM (ICP)            | ≤ 200 MG/KG                          | < 200 MG/KG                   |
| NICKEL (ICP)            | ≤ 50 MG/KG                           | < 50 MG/KG                    |
| CHLORIDE (CL)           | ≤ 10 MG/KG                           | <10 MG/KG                     |
| TOTAL NITROGEN          | ≤ 20 MG/KG                           | < 20 MG/KG                    |



Dr. Reinhold Schwenninger  
Quality Assurance  
Buchs, Switzerland

Sigma-Aldrich warrants that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.