

## Certificate of Analysis

Date of Testing: 2023-12-18 11:22:47  
Date of Next Testing: 2027-12-17 11:22:47  
Product Name: **Choline chloride**  
CAS Number: 67-48-1  
Specifications & Purity: Analytical Reagent, 98%  
Lot #: L2311355  
SKU #: **C108896**  
**Analysis:** **301023**  
Storage Temperature: Argon charged

Parameter	Limit Values	Result
Assay(as Cl)	25-25.75 (%)	25.33 %
Assay	98-100 (%)	99.91 %
Assay(as N)	9.8-10.1 (%)	9.95 %
Ignition Residue (as sulfate)	0-0.05 (%)	0.03 %
Heavy metal (as Pb)	0-0.002 (%)	0.00 %
Ammonia (NH <sub>4</sub> )	0-0.1 (%)	0.06 %
Appearance (C108896)	White Powder or Crystals	White Powder or Crystals
Proton NMR spectrum	Conforms to Structure	Conforms to Structure
Solubility in H <sub>2</sub> O , 500 mg/ml in H <sub>2</sub> O	pass	Pass
Trimethylamine	pass	Pass



John Su  
QA & QC Manager