

## Certificate of Analysis

Date of Testing: 2023-12-14 14:14:22  
Date of Next Testing: 2027-12-13 14:14:22  
Product Name: **Piperazine, anhydrous**  
CAS Number: 110-85-0  
Specifications & Purity: 99%  
Lot #: L2307426  
SKU #: **P105274**  
**Analysis:** **300385**  
Storage Temperature: Argon charged

Parameter	Limit Values	Result
Purity(Titration by HCl)	98.5-101.5 (%)	100.28 %
Water by Karl Fischer	0-1 (%)	0.12 %
Purity(GC)	99-100 (%)	99.50 %
Appearance (P105274)	White to Light Yellow Flakes, Crystals or Powder	White to Light Yellow Flakes, Crystals or Powder
Infrared spectrum	Conforms to Structure	Conforms to Structure
Proton NMR spectrum	Conforms to Structure	Conforms to Structure



John Su  
QA & QC Manager