

## Certificate of Analysis

Date of Testing: 2023-02-08 19:18:38  
Date of Next Testing: 2027-02-07 19:18:38  
Product Name: **D(+)-Glucosamine hydrochloride**  
CAS Number: 66-84-2  
Specifications & Purity:  $\geq 99\%$ , for cell culture  
Lot #: B2303784  
SKU #: **G119456**  
**Analysis: 005193**  
Storage Temperature: Argon charged

Parameter	Limit Values	Result
Purity(HPLC with pulsed amperometric detection)	99-100 (%)	99.59%
Specific Rotation $[\alpha]_{20/D(c=1 \text{ in H}_2\text{O})}$ (after 20hours)	70-74 ( $^{\circ}$ )	70.84 $^{\circ}$
Purity(Titration by HClO <sub>4</sub> )	98.5-101.5 (%)	100.50%
Appearance (G119456)	white powder	White powder
Cell Culture Test	pass	Pass
Infrared spectrum	Conforms to Structure	Conforms to Structure
Solubility in H <sub>2</sub> O , clear colorless , 100mg/ml in water	pass	Pass



John Su  
QA & QC Manager