



# Certificate of analysis

Product name: Carmustin

Cas number: 154-93-8

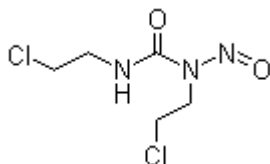
Molecular Formula: C<sub>5</sub>H<sub>9</sub>Cl<sub>2</sub>N<sub>3</sub>O<sub>2</sub>

Molecular Weight: 214.05

Date of production: Aug. 10, 2016

Batch NO: 20160810

Exp Date: Aug. 09, 2018



Chemical structure:

Items	Specifications	Results
Appearance	Light yellow crystalline powder	Conforms
Solubility	Soluble in methanol, ethanol. Hardly soluble in water	Conforms
Melting Point	30 °C~32 °C	30.4°C~32.0°C
Identification By IR	The IR spectra of standard and sample is concordant.	Conforms
Identification By H NMR	The H NMR spectra of standard and sample is concordant	Conforms
Clarify and color	Be Conform	Conforms
Heavy metals	Not more than 20ppm	Conforms
Water	Not more than 0.5 percent	0.28%
Retated Substance	Limit of ether-insoluble substance: NMT 0.1% Carmustine related compound A: NMT 0.5% Any unspecified impurity: NMT 0.1% 2-Chloroethylamine: NMT 0.2% 2-Chloroethanol: NMT 0.1% Acetaldehyde: NMT 0.1% Ethanol NMT 0.5%	N.D 0.18% 0.02% 0.12% N.D N.D N.D
Assay(hplc)	98.0%~102.0(on the dried basis)	99.6%

**Conclusion: It complies with the USP35 Standard.**

Analyst: Zhao

Checker: Liu

