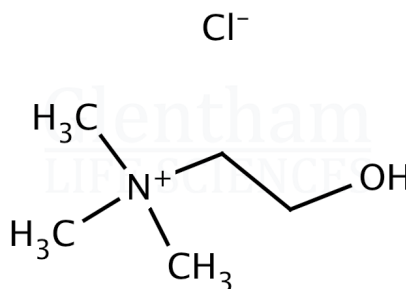


Certificate of Analysis

Product Name	Choline chloride, USP grade
Glentham Code	GV9961
CAS Number	67-48-1
EINECS	200-655-4
MDL Number	MFCD00011721
Additional CAS	62-49-7
Batch Number	310GIV
Molecular Weight	139.63
Molecular Formula	$C_5H_{14}ClNO$
Storage Temp.	+20°C



Property	Specification	Batch 310GIV
Physical Description	Colourless crystals or white crystalline powder	Conforms
Identification	A, B according to USP	Conforms
pH (10% in water)	4.0 - 7.0	5.6
Residue on Ignition	≤ 0.05%	0.03%
Heavy Metals	≤ 10ppm	Conforms
Lead (Pb)	To pass test	Conforms
Arsenic (As)	≤ 1ppm	Conforms
Mercury (Hg)	≤ 0.1ppm	Conforms
Cadmium (Cd)	≤ 1ppm	Conforms
Any Individual Impurity	≤ 0.3%	Conforms
Total Impurities	≤ 2.0%	Conforms
1,4-Dioxane	≤ 10µg/g	Conforms
Total Amines	≤ 10µg/g	Conforms
Water	≤ 0.5%	0.3%
Assay	99.0 - 100.5 % (anhydrous basis)	99.2%
Pharmacopoeia Specification(s)	USP	Conforms

Specification Version	v1.0
Manufacture Date	2023-02-20
Re-Test Date	2029-05-18

Glentham Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glentham.com or contact us using the details above for the current version of this document.

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