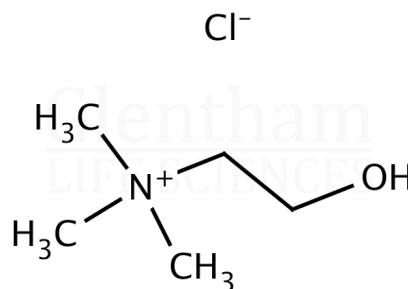


## Certificate of Analysis

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](http://www.glentham.com) or contact us using the details above for the current version of this document.

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