



JINAN JIUAN ESTER CHEMICAL CO.,LTD.

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CERTIFICATE OF ANALYSIS

Product Name :	Choline Chloride	Country of Origin:	China
Batch No.:	20170503	Quantity:	800Kg
Manufacture time:	2017.05.12	Package:	25Kg/Drum
Expiry Date:	2019.05.11	Standard:	USP

Item	Specification	Results	Test Method
Appearance	White crystalliner powder	Conform	Visual
Assay(d.s.)	99.0-100.5%	99.32%	USP<541>
Loss on Drying	NMT 0.5%	0.11%	USP<731>
pH(10% aqua):	4.0-7.0	4.10	USP<791>
Residue on Ignition	NMT 0.05%	0.02%	USP<281>
Heavy Metals	NMT 10 ppm	Conform	USP<231>
Arsenic	NMT 2ppm	Conform	USP<730>
Lead	NMT 0.3ppm	Conform	USP<730>
Cdmium	NMT0.2ppm	Conform	USP<730>
Mercury	NMT 0.1ppm	Conform	USP<730>
1,4 Dioxane	NMT 10 ppm	Conform	USP
Limit of Total Amine	NMT 10 ppm	Conform	USP
Chromatographic Purity	Meets USP Requirements	Conform	USP
Total Plate Count	NMT 1000cfu/g	Conform	USP<61>
Yeast and Mold	NMT 100cfu/g	Conform	USP<61>
E.coli	Negative	Conform	USP<62>
Salmonella	Negative	Conform	USP<62>
Staphylococcus	Negative	Conform	USP<62>
Particle Size	NLT 95% Thru20 mesh	100%	USP<786>

Conclusion:

The test results correspond to USP.


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