



JINAN JIUAN ESTER CHEMICAL CO.,LTD.

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CERTIFICATE OF ANALYSIS

Product Name :	Choline dihydrogen citrate	Country of Origin:	China
Batch No.:	20170502	Quantity:	500Kg
Manufacture Date:	2017.05.11	Package:	25Kg/Drum
Expiry Date:	2019.05.10	Standard:	NF12

Item	Specification	Results	Test Method
Appearance	White crystalline granular powder	Conform	Visual
Assay (on a dry basis)	NLT 98%	99.46%	Non-aqueous titration
Loss on Drying	NMT 0.25%	0.19%	Drying(80°C,4h)
pH(10% aqua):	3.5-4.5	3.82	pH meter
Melting Point	103-107.5°C	Conform	Capillarymethod
Residue on Ignition	NMT 0.05%	0.01%	Electric furnace(550°C)
Heavy Metals	NMT 10 PPM	Conform	Colorimetric method
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	Through 20 mesh	100%	Sieving

Conclusion:

The test results correspond to NF12.

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