



# JINAN JIUAN ESTER CHEMICAL CO.,LTD.

SHUIZHAI VILLAGE,SHUIZHAI TOWN,ZHANGQIU CITY,SHANDONG,CHINA

TEL:0086-531-82687186

FAX: 0086-531-82687186

Http:// [www.pengbobio.com](http://www.pengbobio.com)

E-mail:[info@pengbobio.com](mailto:info@pengbobio.com)

## CERTIFICATE OF ANALYSIS

|                   |                  |                    |           |
|-------------------|------------------|--------------------|-----------|
| Product Name :    | Choline Chloride | Country of Origin: | China     |
| Batch No.:        | 20170805         | Quantity:          | 800Kg     |
| Manufacture time: | Aug.10, 2017     | Package:           | 25Kg/Drum |
| Expiry Date:      | Aug.09, 2019     | Standard:          | FCC       |

| Item                | Specification             | Results | Test Method             |
|---------------------|---------------------------|---------|-------------------------|
| Appearance          | White crystalliner powder | Conform | Visual                  |
| Assay(d.s.)         | 98.0-100.5%               | 99.32%  | Titration               |
| Loss on Drying      | NMT 0.5%                  | 0.11%   | Drying(105 °C,3h)       |
| pH(10% aqua):       | 4.0-7.0                   | 6.30    | pH meter                |
| Residue on Ignition | NMT 0.05%                 | 0.02%   | Electric furnace(550°C) |
| Heavy Metals        | NMT 10 ppm                | Conform | Colorimetric method     |
| Arsenic             | NMT 2ppm                  | Conform | ICP                     |
| Lead                | NMT 2 ppm                 | Conform | ICP                     |
| Cdmium              | NMT0.2ppm                 | Conform | ICP                     |
| Mercury             | NMT 0.1ppm                | Conform | ICP                     |
| 1,4 Dioxane         | NMT 10 ppm                | Conform | USP                     |
| Total Plate Count   | NMT 1000cfu/g             | Conform | Viable plate count      |
| Yeast and Mold      | NMT 100cfu/g              | Conform | Viable plate count      |
| E.coli              | Negative                  | Conform | USP<62>                 |
| Salmonella          | Negative                  | Conform | USP<62>                 |
| Staphylococcus      | Negative                  | Conform | USP<62>                 |
| Particle Size       | NLT 95% Thru20 mesh       | 100%    | Sieving                 |

### Conclusion:

The test results correspond to FCC.

  
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