



**Changzhou YongXu Chemical Co., Ltd**

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## Certificate of Analysis

<b>Product Name</b>	L-Pyroglutamic acid		
<b>Batch No.</b>	20161201	<b>CAS No.</b>	98-79-3
<b>Quantity</b>	1000kg	<b>Manufacturer Date</b>	Dec.1. 2016
<b>Reference</b>		<b>Retest Date</b>	Nov.30. 2017

Test Items	Specification	Test Results
Appearance	White to off-white powder	White powder
Specific rotation	-10.5° ~ -12.3°	-11.68°
Transmittance	≥98.0%	99.4%
Chloride(Cl)	≤0.02%	<0.02%
Ammonium(NH <sub>4</sub> <sup>+</sup> )	≤0.02%	<0.02%
Sulphate(SO <sub>4</sub> <sup>2-</sup> )	≤0.02%	<0.02%
Iron(Fe)	≤10ppm	<10ppm
Residue on ignition	≤0.10%	0.04%
Heavy metal(Pb)	≤10ppm	<10ppm
Arsenic	≤1ppm	<1ppm
Water Content (by KF)	≤1.0%	0.38%
Assay	98.5~100.5%	99.5%
Melting point	159~162°C	160-161°C

**Conclusion: The material complies with In-house standard.**

