

# Certificate of Analysis

Product Name: L-Cysteine

Lot No.:

PKG Size:

Tomo Chemical Co. Ltd.

4th Floor, 4-7-19 Kudan-minami, Chiyoda-ku

Tokyo 102-0074 JAPAN

Test Item	Specification	Result
Appearance	White crystalline powder or powder	Passes test
Odor	Slightly characteristic odor	Passes test
Purity test		
Optical rotation $[\alpha]_D^{20}$	+7.0 - +9.5°	+9.10°
Solubility	Colorless	Passes test
Chloride	max. 0.10 %	max. 0.005 %
Sulfate	max. 0.029 %	max. 0.005 %
Heavy metal (as Pb)	max. 20 ppm	max. 2.5 ppm
Arsenic (as As <sub>2</sub> O <sub>3</sub> )	max. 1 ppm	max. 0.5 ppm
Iron	max. 3 ppm	max. 0.5 ppm
Cystine	Clear	Passes test
Loss on drying	max. 0.5 %	max. 0.00 %
Residue on ignition	max. 0.05 %	max. 0.00 %
Content	98.0 - 102.0 %	99.60%

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Inspecting Section Manager