

## Certificate of Analysis

1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System  
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	A144	Quality Test / Release Date	12/17/2019
Lot Number	197089		
Description	HYDROCHLORIC ACID, CERTIFIED A.C.S. PLUS		
Country of Origin	Canada	Suggested Retest Date	Dec/2024
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		
Comment	No Bisphenol-A or any other organic compound is used in the manufacture of this product. No melamine is used in the production or packaging of this product. It is not manufactured using genetically modified organisms or genetically engineered additives or raw materials.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear, colorless free from suspended matter.
ALUMINUM	ppm	<= 0.3	<0.1
AMMONIUM (NH4)	ppm	<= 3	<3
ARSENIC AND ANTIMONY	ppm	<= 0.005	<0.005
ASSAY	w/w %	Inclusive Between 36.5 - 38.0	36.8
BORON (B)	ppm	<= 0.1	<0.1
BROMIDE	%	<= 0.005	<0.005
CALCIUM (Ca)	ppm	<= 0.3	<0.3
CHROMIUM (Cr)	ppm	<= 0.2	<0.05
COLOR	APHA	<= 10	5
COPPER (Cu)	ppm	<= 0.1	<0.05
EXTRACTABLE ORGANIC SUBSTANCES	ppm	<= 5	<5
FREE CHLORINE	ppm	<= 0.4	<0.4
GOLD (Au)	ppm	<= 0.3	<0.1
HEAVY METALS (as Pb)	ppm	<= 0.1	<0.1
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	ppm	<= 0.1	<0.1
LEAD (Pb)	ppm	<= 0.1	<0.1
MAGNESIUM (Mg)	ppm	<= 0.3	<0.1
MANGANESE (Mn)	ppm	<= 0.3	<0.1
MERCURY (Hg)	ppb	<= 5	<5

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.  
 If there are any questions with this certificate, please call at (800) 227-6701.

\*Based on suggested storage condition.

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NICKEL (Ni)	ppm	<= 0.1	<0.05
PHOSPHATE (PO4)	ppm	<= 0.05	<0.05
POTASSIUM (K)	ppm	<= 0.3	<0.3
RESIDUE AFTER IGNITION	ppm	<= 4	<4
SODIUM (Na)	ppm	<= 0.3	<0.3
SULFATE (SO4)	ppm	<= 0.5	<0.5
SULFITE	ppm	<= 0.8	<0.8
TIN (Sn)	ppm	<= 0.3	<0.3
TITANIUM (Ti)	ppm	<= 0.3	<0.3
ZINC (Zn)	ppm	<= 0.3	<0.1



Peter Yang - Quality Control Manager - Bridgewater

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