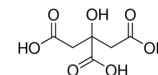


**ChemPure* Brand
Chemicals**

May 29, 2019

CERIFICATE OF ANALYSIS ...Pure Quality



CITRIC ACID, Anhydrous

Gritty, Puriss., Meets Analytical Specifications for Ph. Eur., BP, USP, E330

Cat. No: CP-A1316D, -M1316D, -X1316D
CAS No: 77-92-9
Lot No: G3370H
Manufactured Date: December 1, 2018
MDL No: MFCD00011669

M.F.: $C_6H_8O_7$
M.W.: 192.123 g/mol
Density: 1.665 g/cm³
Retest Date: December 1, 2023
EC No: 201-069-1
Beilstein Registry Number: 782061

Parameter	Specification	Units	Result	Units
Assay (calc.on the anhydrous basis)	99.5-100.5	%	99.8	%
Water (Karl Fischer)	max. 0.5	%	0.05	%
Sulfated ash	max. 0.05	%	<0.05	%
Aluminium (Al)	max. 0.2	ppm	<0.2	ppm
Arsenic (As)	max. 1	ppm	<1	ppm
Calcium (Ca)	max. 0.02	%	<0.02	%
Copper (Cu)	max. 0.001	%	<0.001	%
Iron (Fe)	max. 0.001	%	<0.001	%
Mercury (Hg)	max. 1	ppm	<1	ppm
Lead (Pb)	max. 0.5	ppm	<0.5	ppm
Zinc (Zn)	max. 0.001	%	<0.001	%
Heavy metals (as Pb)	max. 5	ppm	<5	ppm
Chloride (Cl)	max. 0.005	%	<0.005	%
Oxalate (as oxalic acid)	max. 100	ppm	<100	ppm
Sulfate (SO ₄)	max. 100	ppm	<100	ppm
Reaction against H ₂ SO ₄	complying		complying	
Residual solvents	complying		complying	
Appearance of the solution	complying		complying	

Important: The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all inclusive as to the manner and conditions of use, handling, storage, disposal, and other factors that may involve other or additional legal, environmental, safety or performance considerations, and CHEMPURE BRAND CHEMICALS assumes no liability whatsoever for the use of or reliance upon this information. Our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, are recommendation to infringe any existing patents or to violate any Federal, State, Local or foreign laws.

It is certified that the above copy is a true copy of the actual lot analysis from the manufacturer.

Vyto Mekesa, QC Director

SUPPORT@CHEMPUREBRAND.COM - WWW.CHEMPUREBRAND.COM

ChemPure Brand Chemicals • P: 440.725.2802 • F: 734.405.6623 • 39103 Warren Rd., Westland, MI 48185