



Certificate of Analysis

1.04092.0000 Glycerol for analysis EMSURE® ACS, Reag. Ph Eur
Batch K53143792

	Spec. Values		Batch Values	
Assay (GC, calc. on anhydrous substance)	≥ 99.5	%	≥ 99.5	%
Assay (alkalimetric, calculated on anhydrous substance)	98.0 - 101.0	%	100.2	%
Identity	passes test		passes test	
Color	≤ 10	APHA	≤ 10	APHA
Appearance of solution	passes test		passes test	
Acidity or alkalinity	passes test		passes test	
Free acid (CH ₃ COOH)	≤ 0.002	%	≤ 0.002	%
Neutrality	passes test		passes test	
Refractive index (n _{20/D})	1.470 - 1.475		1.474	
Chloride (Cl)	≤ 0.0010	%	≤ 0.0010	%
Sulfate (SO ₄)	≤ 0.001	%	≤ 0.001	%
Halogenated compounds (as Cl)	≤ 0.003	%	≤ 0.003	%
Heavy metals (as Pb)	≤ 0.0002	%	≤ 0.0002	%
Al (Aluminium)	≤ 0.00005	%	≤ 0.00005	%
B (Boron)	≤ 0.000002	%	≤ 0.000002	%
Ba (Barium)	≤ 0.00001	%	≤ 0.00001	%
Ca (Calcium)	≤ 0.0001	%	≤ 0.0001	%
Cd (Cadmium)	≤ 0.000005	%	≤ 0.000005	%
Co (Cobalt)	≤ 0.000005	%	≤ 0.000005	%
Cr (Chromium)	≤ 0.000002	%	≤ 0.000002	%
Cu (Copper)	≤ 0.000005	%	≤ 0.000005	%
Fe (Iron)	≤ 0.00001	%	≤ 0.00001	%
Mg (Magnesium)	≤ 0.0001	%	≤ 0.0001	%
Mn (Manganese)	≤ 0.00001	%	≤ 0.00001	%
Ni (Nickel)	≤ 0.000002	%	≤ 0.000002	%
Pb (Lead)	≤ 0.00001	%	≤ 0.00001	%
Sn (Tin)	≤ 0.00001	%	≤ 0.00001	%
Zn (Zinc)	≤ 0.00001	%	≤ 0.00001	%
Acetone	≤ 0.5	%	< 0.5	%
Other residual solvents (ICH Q3C)	...excluded by production process		...excluded by production process	
Acrolein, glucose and ammonium compounds	passes test		passes test	
Aldehydes	≤ 10	ppm	≤ 10	ppm
Diethylene glycol and related Substances (impurity A)	≤ 0.1	%	≤ 0.1	%
Diethylene glycol and related Substances (any further impurity)	≤ 0.1	%	≤ 0.1	%
Diethylene glycol and related Substances (Sum of all impurities)	≤ 0.5	%	≤ 0.5	%
Fatty acids and esters (as Butyric acid)	≤ 0.05	%	≤ 0.05	%
Substances darkened by sulfuric acid	passes test		passes test	
Sugar	passes test		passes test	

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Sulfated ash	≤ 0.005	%	≤ 0.005	%
Water	≤ 0.5	%	≤ 0.5	%

Date of release (DD.MM.YYYY) 26.02.2021

Minimum shelf life (DD.MM.YYYY) 28.02.2026

Dr. Nina Hegmann

Responsible laboratory manager quality control

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