Agilent Technologies SIGMA-ALDRICH®

Certificate of Analysis

Description : Amino Acid Standard (0.25 nmol/µl) 10/pk

Part.-No. : 5061-3331 Production date : 30-Jun 2017
Lot-No. : BCBV5067 Expiration date. : 30-Jun 2019

No.	Component	Molecular Weight	Final Concentration (mg/ml)
01	**L-Alanine**	89.10	0.02228
02	**L-Arginine**	174.20	0.04355
03	**L-Aspartic Acid**	133.11	0.03328
04	**L-Cystine**	240.30	0.06008
05	**L-Glutamic Acid**	147.13	0.03678
06	**Glycine**	75.07	0.01877
07	**L-Histidine Hydrochloride Monohydrate**	209.63	0.05241
08	**L-Isoleucine**	131.18	0.03279
09	**L-Leucine**	131.18	0.03279
10	**L-Lysine Hydrochloride**	182.65	0.04566
11	**L-Methionine**	149.21	0.03730
12	**L-Phenylalanine**	165.19	0.04130
13	**L-Proline**	115.13	0.02878
14	**L-Serine**	105.09	0.02627
15	**L-Threonine**	119.12	0.02978
16	**L-Tyrosine**	181.19	0.04530
17	**L-Valine**	117.15	0.02929

Purity Determination:
Amino acids by Titration, Loss on drying, Residue on ignition, IR-Spectroscopy, MicroSelect-Test, Trace Metal and Trace Anion Determination
Hydrochloric acid by Titration, MicroSelect-Test, Trace Metal and Trace Anion Determination

Raw materials
All raw materials used to prepare this amino acid standard are of the highest available purity (> 99%) and are routinely analyzed according to the above-mentioned purity-determinations.

Manufacturing
We employ precise measuring techniques in manufacturing this amino acid standard. Mass is determined with electronic balances capable of weighing to 0.0001 g and calibrated by the Swiss Office of Weights and Measures. Volume ist determined in dedicated high-purity borosilicate volumetric flasks capable of measuring a 2000 ml-volume with an accuracy of 0.3%.

Packaging and Storage
The final solution is handled under argon, filled into 1 ml amber ampoules under inert gas (argon) and sealed. 10 finished ampoules are packaged into a set and stored at 4 °C.

Stability
Every individual lot of the product is subjected to reanalysis and the experience allows to set the shelf life to two years, if the product is stored as received at 4 °C. The guaranteed stability is not applicable to ampoules stored after opening, even if resealed.

Analytical Quality Control
The scope of the analytical testing procedures covers identity, purity, homogeneity, accuracy, function test in amino acid analysis and stability of the finished product

Description	Lot Analysis	Specifications
Aspect	clear, colorless liquid	clear, colorless liquid
Density (20/4)	1.000	1.00 ± 0.01 g/ml
Index of Refraction (20/D)	1.334	1.334 ± 0.005
Amino Acid Analysis :	corresponds	corresponds
- Identity	corresponds	corresponds
- Purity	corresponds	corresponds
- Concentration Accuracy	corresponds	± 2.5% relative to primary standard

Buchs, 30.06.2017

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