



**ANALYTICAL STANDARDS  
CUSTOM MADE SOLUTIONS**





## C.P.A.

specialised in custom-made solution, now offers over 1000 different standardized solutions, titrants and buffers for use with standard methodologies and according the European Pharmacopoeia.

- All products are prepared with chemical substances, meeting or exceeding reagent grade Ph Eur specifications.
- Balances are routinely calibrated using NIST - traceable reference weights.








- Aqueous - based solutions are prepared using High Purity Water.
- All containers are inertness - tested, washed, preleached and triple rinsed in high purity water.

- Formulations are standardized directly against NIST-SRMs when available. When the appropriate NIST-SRM is not available, standardization is performed against the highest purity primary standard available.
- Certificate of Analysis is included with each standard.
- C.P.A.'s ISO 9001:2000 certified quality system ensures a dependable analytical product.



**C.P.A.**  
**The standard solutions you can trust.**

# CONTENTS

Conductivity Standard Solutions		5 - 6
pH-buffer Solutions		7 - 8
Standards of Ethanol in Water		9 - 10
European Pharmacopoeia Products		11 - 24
Analytical Volumetric Solutions		25 - 29

# Custom-made (Non-Standard) Solution Request

*(if the needed product is not present in this catalogue)*

Requested by: .....

.....

Company Name: .....

.....

Address: .....

.....

Telephone/ Fax N°: .....

E-mail: .....

Product description: .....

.....

.....

.....

Prescription of Non-Standard solution (if available): .....

.....

.....

.....

.....

.....

Application Field (if known): .....

.....

.....

Volume and Quantity: .....

.....

.....

Other information: .....

.....

.....

.....

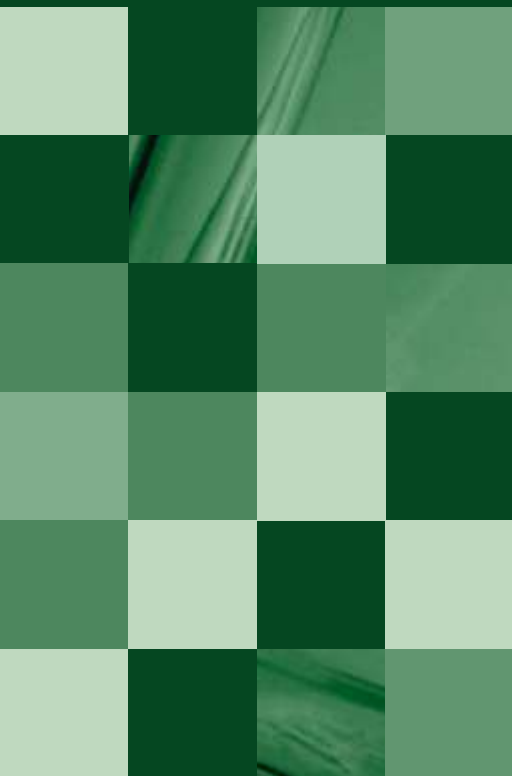
.....

**Please photocopy, complete the information requested  
and fax to us at ++359 42 607 716.**





# Conductivity Standard Solutions



# Conductivity Standard Solutions



Certified reagent-grade solutions can be traced to standards provided by NIST.

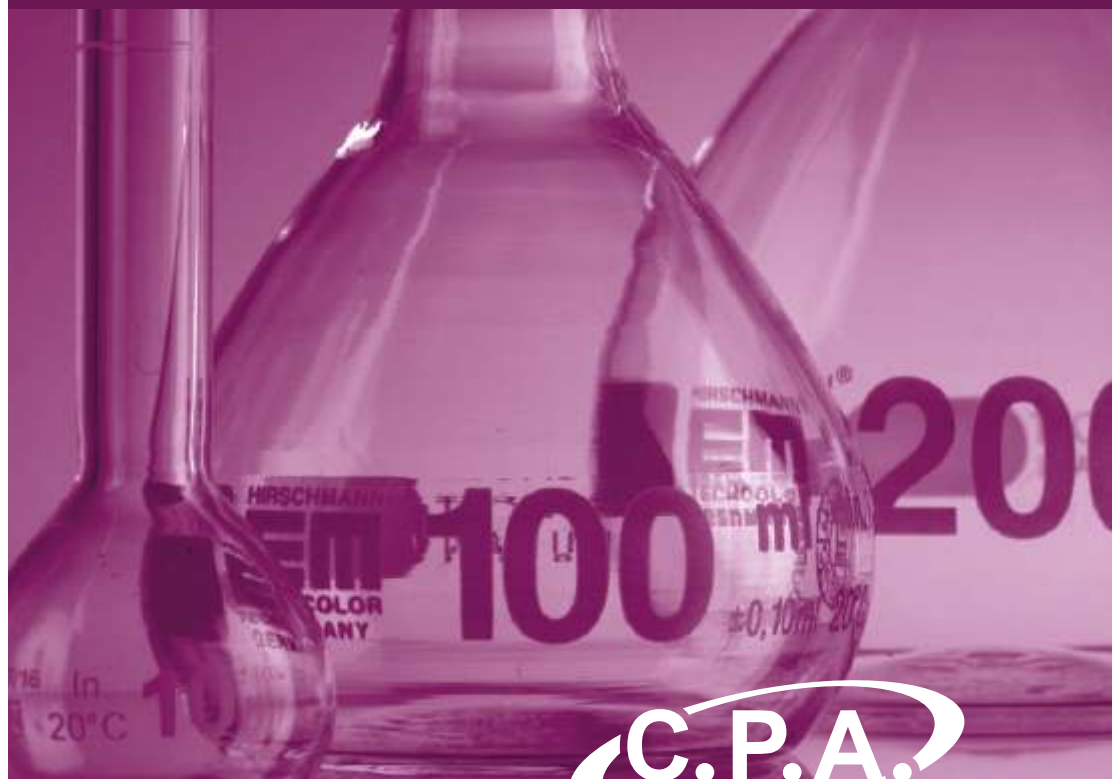
Accuracy  $\pm 1\%$ . Supplied in a 500 ml.

HDPE bottle with Certificate.

DESCRIPTION	Volume, ml	Price, EU	Code No
0 - 2 $\mu\text{S/cm}$	250	80	CS2M0SL25
5 $\mu\text{S/cm}$	500	65	CS5M0SL5
10 $\mu\text{S/cm}$	500	65	CS10M0SL5
15 $\mu\text{S/cm}$	500	65	CS15M0SL5
20 $\mu\text{S/cm}$	500	65	CS20M0SL5
29.4 $\mu\text{S/cm}$ (26.6 $\mu\text{S/cm}$ at 20°C)	500	65	CS294M1SL5
50 $\mu\text{S/cm}$	500	65	CS50M0SL5
84 $\mu\text{S/cm}$	500	30	CS84M0SL5
100 $\mu\text{S/cm}$	500	65	CS1P2SL5
147 $\mu\text{S/cm}$ (133 $\mu\text{S/cm}$ at 20°C)	500	30	CS147M0SL5
200 $\mu\text{S/cm}$	500	65	CS2P2SL5
500 $\mu\text{S/cm}$	500	65	CS5P2SL5
1000 $\mu\text{S/cm}$	500	65	CS1P3SL5
1413 $\mu\text{S/cm}$ (1330 $\mu\text{S/cm}$ at 20°C)	500	30	CS1413M0SL5
2000 $\mu\text{S/cm}$	500	65	CS2P3SL5
5000 $\mu\text{S/cm}$	500	65	CS5P3SL5
10000 $\mu\text{S/cm}$	500	65	CS1P4SL5
12880 $\mu\text{S/cm}$	500	30	CS1288P1SL5
15000 $\mu\text{S/cm}$	500	65	CS15P3SL5
20000 $\mu\text{S/cm}$	500	65	CS2P4SL5



# pH-buffer Solutions



**C.P.A.**

## Colour Coded pH-buffer Solutions



These pH buffers are colour coded for simplicity, and each lot is traceable to NIST Standards to ensure accuracy.

Accuracy is  $\pm 0.012$  pH. Each pH buffer includes a certificate.

DESCRIPTION	Volume, ml	Price, EU	Code No
pH 4.00 at 20°C Coloured Citric Acid/ Sodium Hydroxide/ Sodium Chloride	500	13	PH004.L5
pH 4.00 at 20°C Coloured Citric Acid/ Sodium Hydroxide/ Sodium Chloride	1000	20	PH004.1L
pH 7.00 at 20°C Coloured Potassium Dihydrogen Phosphate/di- Sodium Hydrogen Phosphate	500	13	PH007.L5
pH 7.00 at 20°C Coloured Potassium Dihydrogen Phosphate/di- Sodium Hydrogen Phosphate	1000	20	PH007.1L
pH 10.00 at 20°C Coloured Borax/Sodium Hydroxide	500	13	PH010.L5
pH 10.00 at 20°C Coloured Borax/Sodium Hydroxide	1000	20	PH010.1L

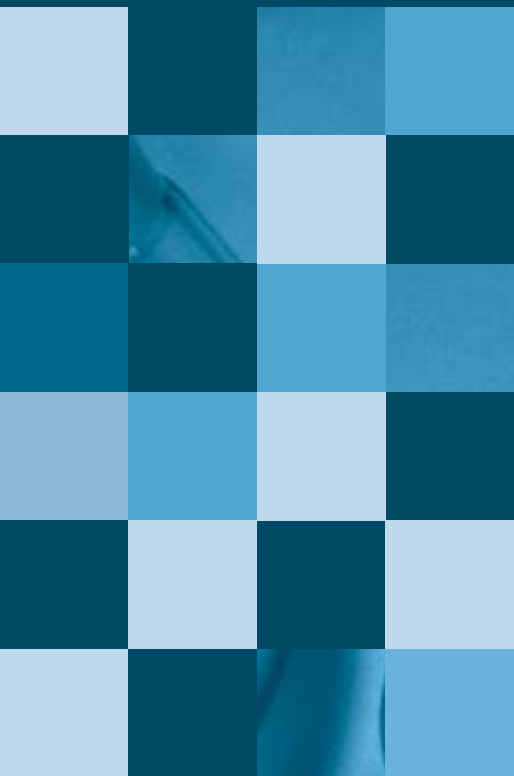
## Reference pH-buffer Solutions

Buffer solutions are prepared with carefully weighed chemicals of the highest grade following International Laboratory Practices guidelines.

Each bottle comes with a certificate of analysis, prepared by comparison with NIST standards. Accuracy is  $\pm 0.003$  pH.

DESCRIPTION	Volume, ml	Price, EU	Code No
pH 1.679 at 25°C Potassium Tetraoxalate	500	10	PH014.L5
pH 1.679 at 25°C Potassium Tetraoxalate	1000	15	PH014.1L
pH 3.776 at 25°C Potassium Dihydrogen Citrate	500	10	PH015.L5
pH 3.776 at 25°C Potassium Dihydrogen Citrate	1000	15	PH015.1L
pH 4.008 at 25°C Potassium Hydrogen Phthalate	500	10	PH016.L5
pH 4.008 at 25°C Potassium Hydrogen Phthalate	1000	15	PH016.1L
pH 6.865 at 25°C Potassium Dihydrogen Phosphate/ Hydrogen Phosphate	500	10	PH017.L5
pH 6.865 at 25°C Potassium Dihydrogen Phosphate/ Hydrogen Phosphate	1000	15	PH017.1L
pH 7.413 at 25°C Potassium Dihydrogen Phosphate/ di-Sodium Hydrogen Phosphate	500	10	PH018.L5
pH 7.413 at 25°C Potassium Dihydrogen Phosphate/ di-Sodium Hydrogen Phosphate	1000	15	PH018.1L
pH 9.180 at 25°C Sodium Tetraborate (Borax)	500	10	PH019.L5
pH 9.180 at 25°C Sodium Tetraborate (Borax)	1000	15	PH019.1L

# Standards of Ethanol in Water



C.P.A.

## Standards of Ethanol in water



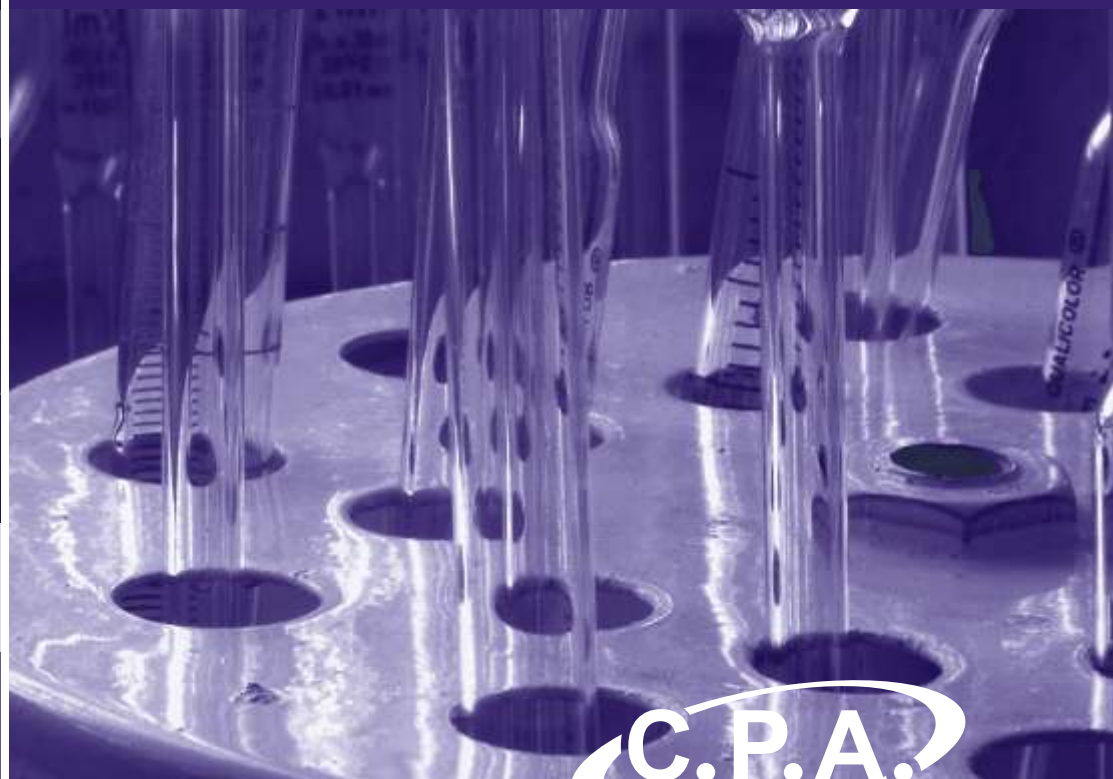
These standards are intended for use as reference solutions for alcohol content measuring instruments.

They are prepared using organic-free water, and the certified concentrations are based on results obtained from the gravimetric preparation of each solution and from the analytical results determined using gas chromatography and titrimetry.

Accuracy is  $\pm 0.02\%$ .

DESCRIPTION	Volume, ml	Price, EU	Code No
Kit of ethanolic solutions - 9%, 11.5%, 14%	3x100	30	KET1
Kit of ethanolic solutions - 5%, 9%, 11.5%, 14%	3x100	40	KET1a
Kit of ethanolic solutions - 35%, 40%, 45%	3x100	33	KET2
Kit of ethanolic solutions - 50%, 60%, 70%, 80%	3x100	53	KET3

# European Pharmacopoeia Products



C.P.A.

# European Pharmacopoeia Opalescence and Coloration Solutions



These solutions are specially intended for use in testing Ph Eur and monographs. These solutions are produced according 2.2.1 and 2.2.2 of Ph Eur requirements using Ph Eur reagent quality (or better) components and water meeting the Ph Eur monograph requirements for Purified Water.

Every bottle is accompanied by a certificate of analysis.

DESCRIPTION	Volume, ml	Price, EU	Code No
Primary opalescent suspension	100	53	OP001
Primary blue solution	100	53	CB004
Primary red solution	100	79	CR003
Primary yellow solution	100	53	CY002
Standard solution B (brown)	125	79	B005
Standard solution R (red)	125	79	R009
Standard solution Y (yellow)	125	67	Y007
Standard solution BY (brownish yellow)	125	67	BY006
Standard solution GY (greenish yellow)	125	67	GY008
Hydrochloric Acid (Dilution Matrix)	1000	53	DM015



## European Pharmacopoeia

- Reagents
- Standard Solutions
- Buffer Solutions

These solutions are produced according specifications given in chapter 4.1 using Ph Eur reagent quality (or better) components and water meeting the Ph Eur monograph requirements for Purified Water.

Every bottle is accompanied by a certificate of analysis.

The identity of C.P.A. Product Codes with Ph Eur Codes makes the desired product easy to find.

## European Pharmacopoeia Reagents

DESCRIPTION	Volume, ml	Price, EU	Code No
Acetic acid 30%	1000	34	1000401
Acetic acid, dilute	1000	28	1000402
Acetic anhydride solution R1	1000	222	1000501
Acetylacetone reagent R1	100	30	1000901
Alcohol, aldehyde - free	1000	129	1002501
Alizarin S solution	100	34	1002601
Aluminium chloride solution	100	54	1002701
Aluminium chloride reagent	1000	79	1002702
Aminohippuric acid reagent	100	23	1003701
Ammonia, dilute R1	1000	28	1004702
Ammonia, dilute R2	1000	28	1004703
Ammonia, dilute R3	1000	28	1004704
Ammonium carbonate solution	1000	129	1005201
Ammonium chloride solution	1000	56	1005301
Ammonium molybdate solution	1000	57	1005702
Ammonium molybdate solution R2	1000	57	1005703
Ammonium molybdate solution R3 (I+II)	200+800	102	1005704
Ammonium molybdate solution R4	500	57	1005705
Ammonium oxalate solution	1000	64	1005901
Ammonium Thiocyanate	1000	64	1006701

DESCRIPTION	Volume, ml	Price, EU	Code No
Ammonium vanadate solution	1000	64	1006801
Anisaldehyde solution	100	23	1007301
Anisaldehyde solution R1	100	23	1007302
Antimony trichloride solution	100	32	1007701
Antimony trichloride solution R1	100	98	1007702
Arsenite solution	100	24	1008301
Ascorbic acid solution	100	26.	1008401
Barium chloride solution R1	1000	60	1009301
Barium chloride solution R2	1000	54	1009302
Barium hydroxide solution	1000	64	1009401
Bismuth subnitrate solution	500	60	1011502
Biuret reagent	1000	23	1011601
Destaining solution	1000	46	1012202
Bromine solution	100	34	1012401
Bromine water	100	27	1012402
Bromocresol green solution	100	23	1012601
Bromocresol green- methyl red solution	100	23	1012602
Bromocresol purple solution	100	23	1012701
Bromophenol blue solution	100	23	1012801
Bromophenol blue solution R1	100	23	1012802
Bromophenol blue solution R2	100	23	1012803
Bromothymol blue solution R1	100	23	1012901
Bromothymol blue solution R2	100	38	1012902
Bromothymol blue solution R3	100	34	1012903
BRP indicator solution	100	24	1013000
Calcium chloride solution	1000	70	1014601
Calcium chloride solution 0.01M	1000	36	1014602
Calcium chloride solution 0.02M	1000	42	1014603
Calcium sulphate solution	1000	88	1015201
Chloral hydrate solution	100	50	1017901
Congo red solution	100	23	1022001
Congo red paper	pack of 50	134	1022002
Copper edetate solution	1000	60	1022300
Copper sulphate solution	1000	58	1022501
Copper tetrammine, ammoniacal solution of	100	50	1022600
Cresol red solution	100	23	1022801
Crystal violet solution	100	23	1022901
Cupri-citric solution	1000	64	1023100



DESCRIPTION	Volume, ml	Price, EU	Code No
Cupri-citric solution R1	1000	68	1023200
Cupri-tartaric solution (I+II)	500+500	88	1023300
Cupri-tartaric solution R4 (I+II)	500+500	108	1023304
Dimethylaminobenzaldehyde solution R6	100	108	1029803
Dimethylaminobenzaldehyde solution R7	100	108	1029804
Dinitrobenzene solution	1000	108	1031201
Dinitrobenzoic acid solution	1000	146	1031301
Dioxan stock solution	100	88	1032001
Dioxan solution	100	84	1032002
Diphenylamine solution	1000	34	1032101
Diphenylamine solution R1	1000	56	1032102
Diphenylcarbazone mercuric reagent (I+II)	100+100	46	1032601
Disodium hydrogen phosphate solution	1000	46	1033301
Borate solution	1000	46	1033601
Dithizone solution R2	100	108	1033903
Divanadium pentoxide solution in sulphuric acid	100	68	1034001
Ethyl acetate, treated	1000	184	1035301
Ethylene oxide stock solution	100	135	1036401
Ferric ammonium sulphate R2	1000	49	1037702
Ferric ammonium sulphate R5	100	36	1037704
Ferric ammonium sulphate R6	100	40	1037705
Ferric chloride solution R1	1000	54	1037801
Ferric chloride solution R2	1000	50	1037802
Ferric chloride solution R3	100	46	1037803
Ferric chloride-sulphamic acid reagent	1000	54	1037804
Ferroun	100	42	1038100
Formaldehyde solution	100	26	1039101
Formamide, treated	100	40	1039201
Fuchsin solution, decolorised	100	24	1039401
Fuchsin solution, decolorised R1	100	24	1039402
Holmium perchlorate solution	1000	999	1043101
Hydrochloric acid, R1	1000	49	1043501
Hydrochloric acid, dilute	1000	49	1043503
Hydrochloric acid, dilute R1	1000	49	1043504
Hydrochloric acid, dilute R2	1000	49	1043505
Hydrochloric acid, ethanolic	1000	90	1043506
Hydrochloric acid, brominated	1000	96	1043507
Hydrogen peroxide solution, dilute	1000	52	1043800

DESCRIPTION	Volume, ml	Price, EU	Code No
Hydroxylamine solution, alcoholic	100	60	1044301
Hydroxylamine solution, alkaline (I+II)	500+500	112	1044302
Hydroxylamine solution, alkaline R1 (I+II)	100+100	56	1044303
Hydroxylamine hydrochloride solution R2	100	60	1044304
Hypophosphorous reagent	100	60	1045200
Indigo carmine solution	1000	50	1045601
Indigo carmine solution R1	1000	55	1045602
Iodine solution, alcoholic	1000	112	1045804
Iodine solution, chloroformic	1000	112	1045805
Iodine solution R4	1000	56	1045806
Iodine bromide solution	1000	155	1045901
Iodoplatinate reagent	200	134	1046300
Iron salicylate solution	500	116	1046700
Lanthanum nitrate solution	1000	512	1048001
Lead acetate cotton	10	80	1048101
Lead acetate paper	pack of 50	134	1048102
Lead acetate solution	1000	46	1048103
Lead nitrate solution	1000	40	1048301
Magnesium nitrate solution	1000	120	1049801
Malachite green solution	1000	88	1050501
Mercuric acetate solution	100	23	1052001
Mercuric bromide paper	pack of 50	134	1052101
Mercuric sulphate solution	100	23	1052600
Mercury, nitric acid solution of	100	23	1052801
Methanol, hydrochloric	100	23	1053203
Mehoxyphenylacetic reagent	100	99	1053601
Methyl orange mixed solution	100	23	1054801
Methyl orange solution	100	23	1054802
Methyl red mixed solution	100	23	1055101
Methyl red solution	100	23	1055102
Methylene chloride, acidified	100	23	1055901
Molybdovanadic reagent	100	23	1056700
Mordant black 11 triturate	100	23	1056801
Naphtholbenzein solution	100	23	1057601
Ninhydrin and stannous chloride reagent	100	23	1058301
Ninhydrin and stannous chloride reagent R1	100	23	1058302
Ninhydrin solution	100	32	1058303
Ninhydrin solution R1	100	32	1058304

DESCRIPTION	Volume, ml	Price, EU	Code No
Ninhydrin solution R2	100	32	1058305
Ninhydrin solution R3	100	36	1058306
Nitric acid, dilute	100	23	1058402
Nitrochromic reagent	100	30	1059100
Nitro-molybdovanadic reagent	200	48	1060100
Oxalic acid and sulphuric acid solution	1000	68	1061401
Palladium chloride solution	100	100	1061501
Decolorised pararosaniline solution	100	66	1062201
Perchloric acid solution	100	23	1062901
Periodic acetic acid solution	100	65	1063000
Phenol red solution	100	23	1063601
Phenol red solution R2	500	43	1063603
Phenol red solution R3	500	43	1063604
Phenolphthalein solution	100	23	1063702
Phenolphthalein solution R1	100	25	1063703
Phenolphthalein paper	pack of 50	137	1063704
Phenylhydrazine hydrochloride solution	250	46	1064501
Phosphomolybdotungstic reagent	100	88	1065000
Phosphomolybdotungstic reagent, dilute	100	46	1065001
Phosphoric acid, dilute	100	23	1065101
Phosphotungstic acid solution	100	32	1065200
Picric acid solution	100	32	1065801
Picric acid solution R1	100	23	1065802
Potassium chloride 0.1M	1000	43	1069101
Potassium chromate solution	1000	43	1069201
Potassium dichromate solution	1000	96	1069501
Potassium dichromate solution R1	1000	32	1069502
Potassium dihydrogen phosphate, 0.2 M	1000	32	1069601
Potassium ferrocyanide solution	100	32	1069801
Potassium hydrogen phthalate, 0.2M	1000	34	1070001
Potassium hydroxide, alcoholic 2M	100	23	1070301
Potassium hydroxide in alcohol (10% V/V), 0.5M	1000	43	1070302
Potassium hydroxide solution, alcoholic	100	43	1070303
Potassium hydroxide solution, alcoholic R1	1000	132	1070304
Potassium iodide and starch solution	100	28	1070501
Potassium iodide solution	1000	43	1070502
Potassium iodide solution, iodinated	100	34	1070503
Potassium iodide solution, saturated	100	34	1070504

DESCRIPTION	Volume, ml	Price, EU	Code No
Potassium iodobismuthate solution	100	28	1070600
Potassium iodobismuthate solution R1	600	194	1070601
Potassium iodobismuthate solution R2	100	68	1070602
Potassium iodobismuthate solution, dilute	500	83	1070603
Potassium iodobismuthate solution R4	100	104	1070605
Potassium ferriperiodate solution	50	42	1070801
Potassium permanganate and phosphoric acid solution	100	28	1070901
Potassium permanganate solution	1000	38	1070902
Potassium plumbite solution	100	34	1071200
Potassium pyroantimonate solution	125	34	1071301
Potassium tetraiodomercurate solution	100	34	1071500
Potassium tetraiodomercurate solution, alkaline (I+II)	100+100	46	1071600
Potassium thiocyanate solution	1000	34	1071801
Quinaldine red solution	100	34	1073801
Silver manganese paper	pack of 50	134	1078200
Silver nitrate solution R1	1000	78	1078301
Silver nitrate solution R2	1000	73	1078302
Silver nitrate solution in pyridine	100	143	1078304
Silver nitrate reagent	100	67	1078305
Sodium carbonate solution	1000	74	1079301
Sodium carbonate solution R1	1000	74	1079302
Sodium carbonate solution R2	1000	74	1079303
Sodium chloride solution	1000	54	1079502
Sodium hydrogen carbonate solution	1000	56	1081301
Sodium hydroxide solution	1000	49	1081401
Sodium hydroxide solution, dilute	1000	35	1081402
Sodium hydroxide solution, methanolic	100	44	1081403
Sodium hydroxide solution, strong	1000	74	1081404
Sodium hydroxide solution, methanolic R1	100	46	1081405
Sodium hydroxide solution, carbonate - free	1000	66	1081406
Sodium hypochlorite solution, strong	1000	53	1081600
Sodium sulphide solution	100	28	1083901
Stannous chloride solution	100	34	1085001
Starch iodate paper	pack of 50	158	1085101
Starch solution	100	28	1085103
Starch iodide paper	pack of 50	36	1085106
Sulphanilic acid solution R1	100	36	1086201
Sulphanilic acid solution	100	42	1086203

DESCRIPTION	Volume, ml	Price, EU	Code No
Sulphomolybdc reagent R2	100	36	1086400
Sulphomolybdc reagent R3	100	44	1086500
Sulphuric acid, alcoholic, 2.5M	100	36	1086801
Sulphuric acid, alcoholic, 0.25M	100	36	1086802
Sulphuric acid, alcoholic solution of	100	36	1086803
Sulphuric acid, dilute	1000	36	1086804
Sulphuric acid-formaldehyde reagent	100	34	1086805
Thioacetamide solution	1000	121	1089602
Thymol blue solution	100	23	1090601
Thymolphthalein solution	100	23	1090701
Titan yellow paper	pack of 50	134	1090901
Titan yellow solution	100	23	1090902
Titanium trichloride solution	100	34	1091201
Titanium trichloride - sulphuric acid reagent	100	35	1091202
Trichloroacetic acid solution	100	36	1092501
Tris (hydroxymethyl) aminomethane solution	100	43	1094201
Water R	5000	63	1095500
Water, ammonium-free	1000	24	1095501
Water, carbon dioxide - free	1000	24	1095502
Water for chromatography	1000	26	1095503
Water, nitrate-free	1000	24	1095506
Water, particle-free	1000	24	1095507
Xylenol orange triturate	50	53	1096301
Zinc iodide and starch solution	100	56	1096502
Zinc chloride-formic acid solution	1000	88	1096601
Zinc chloride solution, iodinated	1000	155	1096602
Zirconyl nitrate solution	100	42	1097201
Zinc acetate solution	1000	88	1102301
Lanthanum chloride solution	1000	249	1114001
Developer solution	500	40	1122500
Fixing solution	500	45	1122600
o-Tolidine solution	500	46	1123001
Fixing solution for isoelectric focusing in polyacrylamide gel	500	66	1138700

# European Pharmacopoeia Standard Solutions for Limit Tests

DESCRIPTION	Volume, ml	Price, EU	Code No
Acetaldehyde standard solution 100 times concentrated (10000 ppm C <sub>2</sub> H <sub>4</sub> O)	100	51	5000100C
Acetaldehyde standard solution 100 times concentrated R1 (10000 ppm C <sub>2</sub> H <sub>4</sub> O)	100	51	5000101C
Aluminium standard solution (200 ppm Al).	100	39	5000203
Ammonium standard solution 2.5 times concentrated (250 ppm NH <sub>4</sub> )	100	39	5000300C
Arsenic Standard Solution 100 times concentrated (1000 ppm As)	100	39	5000500C
Barium standard solution 20 times concentrated (1000 ppm Ba)	100	39	5000600C
Bismuth standard solution 10 times concentrated (1000 ppm)	100	39	5005300C
Cadmium standard solution (0.1 per cent Cd)	100	39	5000700
Calcium standard solution, 10 times concentrated (4000 ppm Ca)	100	49	5000800C
Calcium standard solution, alcoholic 10 times concentrated (1000 ppm Ca)	100	49	5000802C
Chloride standard solution 100 times concentrated (800 ppm Cl)	100	39	5000900C
Chloride standard solution 100 times concentrated (500 ppm)	100	39	5000901
Chromium standard solution (100 ppm Cr)	1000	51	5001000
Copper standard solution (0.1 per cent Cu)	100	39	5001100
Iodide standard solution 100 times concentrated (1000 ppm I)		39	5003800C
Iron standard solution 10 times concentrated (200 ppm Fe)	100	39	5001600C
Iron standard solution 10 times concentrated (80 ppm Fe)	100	39	5001602C
Ferrocyanide standard solution 10 times concentrated (1000 ppm Fe(CN) <sub>6</sub> )	100	39	5001200C
Fluoride standard solution 20 times concentrated (200 ppm F)	100	39	5001400C
Iron standard solution (0.1 per cent Fe)	100	39	5001605
Lead standard solution (0.1% Pb)	100	39	5001700
Magnesium standard solution 10 times concentrated (1000 ppm Mg)	100	39	5001800C
Nickel standard solution 100 times concentrated (1000 ppm Ni)	100	39	5002000C
Nitrate standard solution 10 times concentrated (1000 ppm NO <sub>3</sub> )	100	39	5002100C
Nitrate standard solution 5 times concentrated (10 ppm NO <sub>3</sub> )	100	39	5002102C
Phosphate standard solution 100 times concentrated (500 ppm PO <sub>4</sub> )	100	39	5002200C
Potassium standard solution 20 times concentrated (2000 ppm K)	100	39	5002400C
Selenium standard solution (100 ppm Se)	1000	51	5002500
Sodium standard solution 10 times concentrated (2000 ppm Na)	100	39	5002700C
Sulphate standard solution R1 100 times concentrated (1000 ppm SO <sub>4</sub> )	100	46	5002801C
Sulphate standard solution 10 times concentrated (1000 ppm)	100	39	5002802C
Tin standard solution 100 times concentrated (500 ppm Sn)	100	39	5003100
Titanium standard solution (100 ppm Ti)	1000	51	5003200
Vanadium standard solution (1 g/l V)	100	39	5003300
Zinc standard solution 10 times concentrated ( 1000 ppm Zn)	100	39	5003401C
Zirconium standard solution (1 g/l Zr)	100	39	5003500

# European Pharmacopoeia Buffer Solutions

DESCRIPTION	Volume, ml	Price, EU	Code No
Buffered acetone solution	1000	39	4000100
Buffer solution pH 2.0	1000	39	4000200
Buffer solution pH 2.5	1000	39	4000300
Buffer solution pH 2.5 R1	1000	39	4000400
Phosphate buffer solution pH 3.0	1000	39	4000500
Buffer solution pH 3.5	1000	39	4000600
Phosphate buffer solution pH 3.5	1000	39	4000700
Buffer solution pH 3.6	1000	39	4000800
Buffer solution pH 3.7	1000	39	4000900
Buffer copper sulphate solution pH 4.0	1000	39	4001000
Acetate buffer solution pH 4.4	1000	39	4001100
Phthalate buffer solution pH 4.4	1000	39	4001200
Acetate buffer solution pH 4.6	1000	39	4001400
Succinate buffer solution pH 4.6	1000	39	4001500
Acetate buffer solution pH 4.7	1000	39	4001600
Buffer solution pH 5.2	1000	39	4001700
Buffer solution pH 5.5	1000	39	4001800
Acetate-edetate buffer solution pH 5.5	1000	39	4001900
Phosphate buffer solution pH 5.5	1000	39	4002000
Phosphate buffer solution pH 5.8	1000	39	4002100
Acetate buffer solution pH 6.0	1000	39	4002200
Diethylammonium phosphate buffer solution pH 6.0	1000	39	4002300
Phosphate buffer solution pH 6.0	1000	39	4002400
Phosphate buffer solution pH 6.0 R1	1000	39	4002500
Phosphate buffer solution pH 6.0 R2	1000	39	4002600
Phosphate buffer solution pH 6.4	1000	39	4002800
Buffer solution pH 6.5	1000	39	4002900
Imidazole buffer solution pH 6.5	1000	39	4003000
Buffer solution pH 6.6	1000	39	4003100
Phosphate buffered saline pH 6.8	1000	39	4003200
Phosphate buffer solution pH 6.8	1000	39	4003300
Phosphate buffer solution pH 6.8 R1	1000	39	4003400
Buffer solution pH 7.0	1000	39	4003500
Maleate buffer solution pH 7.0	1000	39	4003600
Phosphate buffer solution pH 7.0	1000	39	4003700
0.067M Phosphate buffer solution pH 7.0	1000	39	4003800

DESCRIPTION	Volume, ml	Price, EU	Code No
0.03M Phosphate buffer solution pH 7.0 R1	1000	39	4003900
Phosphate buffer solution pH 7.0 R2	1000	39	4004000
Phosphate buffer solution pH 7.2	1000	39	4004200
Buffered salt solution pH 7.2	1000	39	4004300
Imidazole buffer solution pH 7.4	1000	39	4004500
Buffer solution pH 7.4	1000	39	4004600
Barbital buffer solution pH 7.4	1000	39	4004700
Phosphate buffer solution pH 7.4	1000	39	4004800
Phosphate buffered saline pH 7.4	1000	39	4005000
Borate buffer solution pH 7.5	1000	39	4005200
0.33M Phosphate buffer solution pH 7.5	1000	39	4005300
0.2M Phosphate buffer solution pH 7.5	1000	39	4005400
Buffer solution pH 8.0	1000	39	4005900
0.0015 M Borate buffer solution pH 8.0	1000	39	4006000
0.02M Phosphate buffer solution pH 8.0	1000	39	4006100
Barbital buffer solution pH 8.4	1000	39	4006400
Tris acetate buffer solution pH 8.5	1000	39	4006700
Barbital buffer solution pH 8.6 R1	1000	39	4006900
Buffer solution pH 9.0	1000	39	4007000
Buffer solution pH 9.0 R1	1000	39	4007100
Ammonium chloride buffer solution pH 9.5	1000	39	4007200
Ammonium chloride buffer solution pH 10.0	1000	39	4007300
Diethanolamine buffer solution pH 10.0	1000	39	4007500
Buffer solution pH 10.9	1000	39	4007600
1M Phosphate buffer solution pH 8.0	1000	39	4007800
Phosphate buffer solution pH 2.0	1000	39	4007900
Buffer solution pH 3.0	1000	39	4008000
Phosphate buffer solution pH 3.2	1000	39	4008100
0.1M Phosphate buffer solution pH 7.0	1000	39	4008200
Buffer (phosphate) solution pH 9.0	1000	39	4008300
0.1M Phosphate buffer solution pH 8.0	1000	39	4008400
Phosphate buffer solution pH 3.2 R1	1000	39	4008500
Phosphate buffer solution pH 7.0 R3	1000	39	4008600
Phosphate-citrate buffer solution pH 5.5	1000	39	4008700
Total-ionic-strength-adjustment buffer R1	1000	39	4008800
Sulphate buffer solution pH 2.0	1000	39	4008900
0.05 M Phosphate buffer solution pH 4.5	1000	39	4009000
Acetate buffer solution pH 5.0	1000	39	4009100



DESCRIPTION	Volume, ml	Price, EU	Code No
0.5M Phthalate buffer solution pH 6.4	1000	39	4009200
0.025M Phosphate buffer solution pH 7.0	1000	39	4009400
0.063M Phosphate buffer solution pH 7.0	1000	39	4009500
Sodium citrate buffer solution pH 7.8 (0.034M sodium citrate, 0.101M sodium chloride)	1000	39	4009800
1.5M tris-hydrochloride buffer solution pH 8.8	1000	39	4009900
Phosphate buffer solution pH 3.0 R1	1000	39	4010000
Sodium acetate buffer solution pH 4.5	1000	39	4010100
Phosphate buffer solution pH 7.0 R4	1000	39	4010200
0.03M Phosphate buffer solution pH 7.0	1000	39	4010300
Buffer solution pH 8.0 R1	1000	39	4010400
Buffer solution pH 2.2	1000	39	4010500

## Volumetric Solutions acc. 4.2.2 of European Pharmacopoeia

Volumetric solutions are prepared according to the usual chemical analytical methods. The concentration of volumetric solutions is indicated in terms of molarity. Molarity expresses, as the number of moles, the amount of substance dissolved in 1 litre of solution. The molarity of the volumetric solutions is determined by an appropriate number of titrations.

The repeatability does not exceed 0.2 per cent (relative standard deviation).

Volumetric solutions are standardised by the methods given in Ph Eur and accompanied by a certificate of analysis.

The identity of C.P.A. Product Codes with Ph Eur Codes makes the desired product easy to find.

DESCRIPTION	Volume, ml	Price, EU	Code No
Ammonium and cerium nitrate 0.1 M	1000	92	3000100
Ammonium and cerium nitrate 0.01 M	1000	53	3000200
Ammonium and cerium sulphate 0.1M	1000	92	3000300
Ammonium and cerium sulphate 0.01M	1000	53	3000400
Ammonium thiocyanate 0.1M	1000	27	3000500
Barium chloride 0.1M	1000	32	3000600
Barium perchlorate 0.05M	1000	39	3000700
Benzethonium chloride 0.004 M	1000	24	3000900

DESCRIPTION	Volume, ml	Price, EU	Code No
Bromide-bromate 0.0167M	1000	26	3001000
Cerium sulphate 0.1 M	1000	87	3001100
Copper sulphate 0.02M	1000	21	3001200
Ferric ammonium sulphate 0.1M	1000	78	3001300
Ferrous sulphate 0.1M	1000	53	3001400
Hydrochloric acid 6M	1000	23	3001500
Hydrochloric acid 3M	1000	23	3001600
Hydrochloric acid 2M	1000	23	3001700
Hydrochloric acid 1M	1000	16	3001800
Hydrochloric acid 0.1M	1000	16	3002100
Iodine 0.05M	1000	41	3002700
Iodine 0.01M	1000	34	3002900
Lead nitrate 0.1M	1000	32	3003100
Lithium methoxide 0.1M	1000	103	3003300
Magnesium chloride 0.1M	1000	47	3003400
Nitric acid 1M	1000	24	3003600
Perchloric acid 0.1M	1000	24	3003900
Perchloric acid 0.05M	1000	52	3004000
Potassium bromate 0.033M	1000	53	3004200
Potassium bromate 0.02M	1000	52	3004300
Potassium bromate 0.0167M	1000	52	3004400
Potassium bromate 0.0083M	1000	52	3004500
Potassium dichromate 0.0167M	1000	32	3004600
Potassium Hydroxide 0.1M	1000	31	3004800
Potassium Hydroxide in alcohol (60% v/v) 0.5M	1000	44	3004900
Potassium Hydroxide alcoholic 0.5M	1000	44	3005000
Potassium Hydroxide alcoholic 0.1M	1000	44	3005100
Potassium iodate 0.05M	1000	34	3005200
Potassium permanganate 0.02M	1000	24	3005300
Silver nitrate 0.1M	1000	58	3005600
Sodium arsenite 0.1M	1000	58	3005800
Sodium edetate 0.1M	1000	26	3005900
Sodium edetate 0.02M	1000	26	3006000
Sodium hydroxide 1M	1000	16	3006300
Sodium hydroxide 0.1M	1000	15	3006600
Sodium hydroxide, ethanolic 0.1M	1000	49	3007000
Sodium methoxide 0.1M	1000	98	3007100
Sodium nitrite 0.1M	1000	32	3007200
Sodium thiosulphate 0.1M	1000	22	3007300
Sulphuric acid 0.5M	1000	15	3007800
Sulphuric acid 0.05M	1000	15	3008000
Tetrabutylammonium hydroxide 0.1M	1000	124	3008300
Tetrabutylammonium hydroxide in 2-propanol, 0.1M	1000	128	3008400
Zinc chloride 0.05M	1000	31	3008500
Zinc sulphate 0.1M	1000	39	3008600
Cupriethylenediamine hydroxide solution 1M	1000	182	3008700
Hydrochloric acid, alcoholic 0.1M	1000	34	3008800
0.1 M Acetic acid	1000	17	3008900
Potassium Hydroxide alcoholic 0.01M	1000	41	3009000
Potassium Hydroxide 1M	1000	31	3009100
Potassium iodide 0.001M	1000	36	3009200
Silver nitrate 0.001M	1000	36	3009300
Iodine 0.5M	1000	89	3009400
Barium perchlorate 0.025M	1000	24	3009600
Lead nitrate 0.05M	1000	32	3009700
Sodium hydroxide 2M	1000	26	3009800

# Analytical Volumetric Solutions



**C.P.A.**

# READY-TO-USE VOLUMETRIC SOLUTIONS



Titration is the oldest but still the most precise procedure in chemical analysis. However, such reliable analyses require accurately adjusted volumetric solutions.

Certificate of Analysis with actual concentration, lot number, expiry date, stability and traceability to NIST, where applicable.

Titer precision at 20°C - T=1±0.1 %

DESCRIPTION	Volume (ml)	Concentration M (mol/l)	Concentration N (eq/l)	Price (EU)	Code No
Acetic Acid	1000	0.1	0.1	13	Z10141000
Acetic Acid	1000	2	2	20	Z10141001
Ammonia (Ammonium Hydroxide)	1000	0.1	0.1	17	Z12271002
Ammonium iron(III) sulphate	1000	0.1	0.1	23	Z12181003
Ammonium Sulphate	1000	0.5	1	24	Z12341004
Ammonium Thiocyanate	1000	0.1	0.1	12	Z12351005
Ammonium Thiocyanate	1000	1	1	20	Z12351006
Barium Chloride	1000	0.05	0.1	15	Z12461007
Barium Perchlorate	1000	0.005	0.010	20	Z16021008
Benzethonium chloride	1000	0.004	0.004	17	Z12491009
Benzethonium chloride	1000	0.04	0.04	38	Z12491010
Bromine - Bromate/Bromide	1000	0.05	0.1	10	Z16001011
Calcium Chloride	1000	0.005	0.01	15	Z12721012
Calcium Chloride	1000	0.01	0.02	15	Z12721013
Calcium Chloride	1000	0.02	0.04	15	Z12721014
Calcium Chloride	1000	0.5	1	15	Z12721015
Cerium (IV) Sulphate	1000	0.05	0.05	20	Z12801016
Cerium (IV) Sulphate	1000	0.1	0.1	48	Z12801017
Copper (II) Sulphate	1000	0.1	0.1	15	Z13071018
EDTA (disodium salt)	1000	0.01	0.02	11	Z10311019
EDTA (disodium salt)	1000	0.1	0.2	18	Z10311020
EDTA (disodium salt)	1000	0.5	1	40	Z10311021
Hydrochloric Acid	1000	0.05	0.05	15	Z13411022
Hydrochloric Acid	1000	0.1	0.1	10	Z13411023
Hydrochloric Acid	1000	0.25	0.25	15	Z13411024
Hydrochloric Acid	1000	0.2	0.2	15	Z13411025
Hydrochloric Acid	1000	0.5	0.5	10	Z13411026
Hydrochloric Acid	1000	1	1	10	Z13411027
Hydrochloric Acid	1000	2	2	15	Z13411028
Hydrochloric Acid	1000	5	5	16	Z13411029
Hydrochloric Acid	1000	6	6	16	Z13411030
Iodide-Iodate	1000	0.00333	0.02	20	Z16011031

DESCRIPTION	Volume (ml)	Concentration M (mol/l)	Concentration N (eq/l)	Price (EU)	Code No
Iodide-Iodate	1000	0.005	0.3	20	Z16011032
Iodine	1000	0.02365	0.0473	26	Z13501033
Iodine	1000	0.05	0.1	26	Z13501034
Iodine	1000	0.5	1	74	Z13501035
Iron (II) Sulphate	1000	0.1	0.1	23	Z13591036
Lead (II) Nitrate	1000	0.01	0.02	20	Z13711037
Lead (II) Nitrate	1000	0.5	1	63	Z13711038
Magnesium Chloride	1000	0.01	0.02	22	Z13851039
Mercury (I) (Mercurous) Nitrate	1000	0.1	0.1	57	Z14031040
Mercury (II) (Mercuric) Nitrate	1000	0.01	0.02	22	Z14041041
Mercury (II) (Mercuric) Nitrate	1000	0.05	0.1	22	Z14041042
Nitric Acid	1000	0.01	0.01	16	Z14221043
Nitric Acid	1000	1	1	17	Z14221044
Nitric Acid	1000	2	2	24	Z14221045
Nitric Acid	1000	4	4	36	Z14221046
Nitric Acid	1000	8	8	36	Z14221047
Oxalic Acid	1000	0.025	0.05	21	Z14291048
Oxalic Acid	1000	0.05	0.1	21	Z14291049
Oxalic Acid	1000	0.5	1	21	Z14291050
Perchloric Acid	1000	0.1	0.1	46	Z14331051
Perchloric Acid	1000	1	1	63	Z14331052
Potassium Bromate	1000	1/60 (0.01667)	0.1	20	Z14421053
Potassium Bromide	1000	0.5	0.5	20	Z14431054
Potassium Bromide	1000	1	1	20	Z14431055
Potassium Chloride	1000	0.5	0.5	20	Z14461056
Potassium Chloride	1000	1	1	20	Z14461057
Potassium Chromate	1000	1/30 (0.0333)	0.1	20	Z14471058
Potassium Dichromate	1000	1/60 (0.0167)	0.1	16	Z14411059
Potassium Dichromate	1000	1/24 (0.0417)	0.25	16	Z14411060
Potassium Dichromate	1000	0.167	1	33	Z14411061
Potassium hydrogen phthalate	1000	0.1	0.1	16	Z14651062
Potassium Hydroxide	1000	0.05	0.05	14	Z14571063
Potassium Hydroxide in ethanol	1000	0.1	0.1	32	Z14571064
Potassium Hydroxide	1000	0.1	0.1	14	Z14571065
Potassium Hydroxide	1000	0.5	0.5	15	Z14571066
Potassium Hydroxide in ethanol	1000	0.5	0.5	32	Z14571067
Potassium Hydroxide in methanol	1000	1	1	32	Z14571068
Potassium Hydroxide	1000	1	1	15	Z14571069
Potassium Iodate	1000	0.0147	0.08833	16	Z14581070
Potassium Iodate	1000	0.01667	0.1	16	Z14581071
Potassium Iodate	1000	0.05	0.3	16	Z14581072
Potassium Iodide	1000	0.1	0.1	15	Z14591073
Potassium Iodide	1000	1	1	39	Z14591074
Potassium Iodide	1000	3	3	133	Z14591075
Potassium Permanganate	1000	0.01	0.05	20	Z14641076
Potassium Permanganate	1000	0.02	0.1	20	Z14641077

DESCRIPTION	Volume (ml)	Concentration M (mol/l)	Concentration N (eq/l)	Price (EU)	Code No
Potassium Permanganate	1000	0.05	0.25	20	Z14641078
Potassium Permanganate	1000	0.2	1	15	Z14641079
Potassium Thiocyanate	1000	0.1	0.1	16	Z16031080
Silver Nitrate	1000	0.01	0.01	28	Z14941081
Silver Nitrate	1000	0.05	0.05	28	Z14941082
Silver Nitrate	1000	0.1	0.1	46	Z14941083
Silver Nitrate	1000	0.5	0.5	28	Z14941084
Silver Nitrate	1000	1	1	198	Z14941085
Sodium Arsenite	1000	0.05	0.1	16	Z15201086
Sodium Arsenite	1000	0.005	0.01	18	Z15201087
Sodium Arsenite	1000	0.15	0.3	26	Z15201088
Sodium Carbonate	1000	0.05	0.1	16	Z15031089
Sodium Carbonate	1000	0.5	1	16	Z15031090
Sodium Chloride	1000	0.05	0.05	15	Z15081091
Sodium Chloride	1000	0.1	0.1	15	Z15081092
Sodium Chloride	1000	1	1	15	Z15081093
Sodium Hydroxide	1000	0.02	0.02	10	Z15171094
Sodium Hydroxide	1000	0.1	0.1	10	Z15171095
Sodium Hydroxide	1000	0.25	0.25	10	Z15171096
Sodium Hydroxide	1000	0.2	0.2	10	Z15171097
Sodium Hydroxide	1000	0.5	0.5	10	Z15171098
Sodium Hydroxide	1000	1	1	10	Z15171099
Sodium Hydroxide	1000	2	2	10	Z15171100
Sodium Hydroxide	1000	4	4	12	Z15171101
Sodium Nitrite	1000	0.1	0.2	10	Z15231102
Sodium Nitrite	1000	0.2	0.4	10	Z15231103
Sodium Nitrite	1000	0.5	1	10	Z15231104
Sodium Nitrite	1000	1	2	12	Z15231105
Sodium Nitrite	1000	4	8	13	Z15231106
Sodium Oxalate	1000	0.05	0.1	19	Z15241107
Sodium Thiocyanate	1000	0.1	0.1	20	Z16041108
Sodium Thiosulphate	1000	0.01	0.01	10	Z15321109
Sodium Thiosulphate	1000	0.05	0.05	10	Z15321110
Sodium Thiosulphate	1000	0.1	0.1	10	Z15321111
Sodium Thiosulphate	1000	1	1	15	Z15321112
Sulphuric Acid	1000	0.05	0.1	10	Z15451113
Sulphuric Acid	1000	0.1	0.2	10	Z15451114
Sulphuric Acid	1000	0.25	0.5	10	Z15451115
Sulphuric Acid	1000	1	2	10	Z15451116
Sulphuric Acid	1000	0.5	1	10	Z15451117
Sulphuric Acid	1000	2.5	5	15	Z15451118
Sulphuric Acid	1000	5	10	15	Z15451119
Zinc Chloride	1000	0.1	0.1	20	Z15871120
Zinc Chloride	1000	0.5	0.5	31	Z15871121
Zinc Sulphate	1000	0.05	0.05	15	Z16051122
Zinc Sulphate	1000	0.1	0.1	15	Z16051123

# CONCENTRATED VOLUMETRIC SOLUTIONS



Volumetric concentrates offer the convenience of prepared volumetric solutions with the benefits of reduced shipping costs and storage space. Concentrates are designed to be quantitatively transferred and brought to volume.

Concentrated volumetric solutions in sealed bottles. Exact volume in each bottle. Certificate of Analysis with actual concentration, lot number, expiry date, stability and traceability to NIST, where applicable. Easy to use.

No ampules to break. No need for pipetting. Empty the bottle in a volumetric flask, rinse and complete to volume. Titer precision at 20°C - T=1±0.2 %

DESCRIPTION	Final Volume (ml)	Final Concentration M (mol/l)	Final Concentration N (eq/l)	Price (EU)	Code No
Acetic Acid	1000	1	1	13	CC1014001
Ammonia	1000	1	1	15	CC1227002
Ammonia	1000	0.1	0.1	12	CC1227003
Ammonium Thiocyanate	1000	0.1	0.1	10	CC1235004
EDTA (0.2N)	1000	0.1	0.2	12	CC1031005
EDTA (0.2N)	1000	0.01	0.02	12	CC1031006
Hydrochloric Acid	1000	1	1	10	CC1341007
Hydrochloric Acid	1000	0.5	0.5	10	CC1341008
Hydrochloric Acid	1000	0.2	0.2	12	CC1341009
Hydrochloric Acid	1000	0.1	0.1	10	CC1341010
Iodine	1000	0.05	0.1	14	CC1350011
Iodine	1000	0.025	0.05	14	CC1350012
Iodine	1000	0.005	0.01	14	CC1350013
Nitric Acid	1000	1	1	13	CC1422014
Nutric Acid	1000	0.1	0.1	10	CC1422015
Potassium Permanganate	1000	0.02	0.1	18	CC1464016
Potassium Permanganate	1000	0.002	0.01	16	CC1464017
Silver Nitrate	1000	0.1	0.1	46	CC1494018
Sodium Hydroxide	1000	1	1	10	CC1517019
Sodium Hydroxide	1000	0.5	0.5	10	CC1517020
Sodium Hydroxide	1000	0.1	0.1	10	CC1517021
Sodium Hydroxide	1000	0.01	0.01	10	CC1517022
Sodium Thiosulphate	1000	0.1	0.1	10	CC1532023
Sodium Thiosulphate	1000	0.01	0.01	10	CC1532024
Sulphuric Acid	1000	0.5	1	10	CC1545025
Sulphuric Acid	1000	0.05	0.1	10	CC1545026
Sulphuric Acid	1000	0.005	0.01	10	CC1545027



Contact us at:

**C.P.A. Ltd**

4-b-7 Han Asparuh Str.

6000 Stara Zagora

Bulgaria

Tel/fax:+359 42 60 77 16

Mobile:+359 887 377 973

E-mail: [info@cpachem.com](mailto:info@cpachem.com)

E-mail: [taralova@cpachem.com](mailto:taralova@cpachem.com)

[www.CPAchem.com](http://www.CPAchem.com)

