



# Environmental Analysis



**CARLO ERBA**

REAGENTS

**CARLO ERBA Reagents, a recognized chemical supplier for more than 150 years, operates at an international level in Analytical and Industrial Chemistry in the laboratory and industry sectors.**

With its two production units, the CARLO ERBA Reagents Group offers its customers quality and service through the flexibility of production and installations. Mixers up to 7000l, distillation columns, storage tanks, automated packaging lines, clean rooms are some of the technologies engineered to meet the vast range of the market needs.

Standard operational procedures highly qualified operators for better plant management, permanent controls all phases of production and packaging are the criteria that guide CARLO ERBA Reagents in its industrial activity.



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  - ERBAqua® Water Standards

# SOLVENTS FOR UHPLC-MS

UHPLC-MS remains at the cutting edge of liquid chromatography and has become one of the most prevalent instrument in analytical labs that allows to work at very high pressure, with minimum solvent consumption and a guarantee of resolution and reproducibility of results.

CARLO ERBA Reagents has developed a specific range of solvents dedicated to UHPLC-MS in order to meet the quality requirements of this refined and demanding analytical technique.

- Purity greater than **99.95 %**
- High UV transmission
- Excellent baseline quality in gradient **tested specifically for UHPLC**
- Reserpine test (< 30 ppb) => specific test for MS application
- Low content in inorganic and metallic ions
- Non volatile residue less than 1 ppm
- Filtration at least 0.2µm or 0.1µm
- Packaged in 1.1-difluoroethane treated amber glass to significantly reduce the potential formation of metals adducts

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<b>Standard Analysis Certificate</b>		
<b>PRODUCT</b>	:ACETONITRILE RS UHPLC-MS	
<b>CODE</b>	:412040	
<b>METHOD</b>	:20274	
TEST	U.M.	SPECIFICATION
Description	-	Clear colourless liquid
Colour	APHA	<= 5
Identification (I.R.)	-	Positive
Refractive index at 20°C	-	1.342 - 1.348
Residue on evaporation	ppm	<= 1
Acidity	meq/g	<= 0.0003
Alkalinity	meq/g	<= 0.0002
Assay (CPG)	%	>= 99.99
Water (K.F.)	ppm	<= 100
Transmittance	-	-
At 191 nm	%	>= 40
At 195 nm	%	>= 90
At 200 nm	%	>= 95
At 215 nm	%	>= 97
>= 230 nm	%	>= 99
Absorbance	AU	-
At 191 nm	AU	<= 0.4
At 200 nm	AU	<= 0.03
At 220 nm	AU	<= 0.007
At 254 nm	AU	<= 0.005
Fluorescence (quinine)	-	-
At 254 nm	ppb	<= 1
At 365 nm	ppb	<= 0.5
At 450 nm	ppb	<= 0.5
UHPLC gradient peak	-	-
At 210 nm	mAU	<= 0.4
At 254 nm	mAU	<= 0.2
Drift at 210 nm	mAU	<= 6
Drift at 254 nm	mAU	<= 2
Test LC-MS TIC (50-2000m/z) ES (+)	-	-
Sensitive Impurities (reserpine)	ppb	<= 30
Metals compounds	-	-
Al	ppb	<= 20
Fe	ppb	<= 20
Na	ppb	<= 50
Ca	ppb	<= 50
Mg	ppb	<= 20
K	ppb	<= 50
UV cut off 190 nm	-	-
Metals compounds : measured at batch release	-	-
Date	:21/02/2015	
		<b>QUALITY CONTROL RESPONSIBLE</b> B. COULANGE (VDR)

Product	Quality	UHPLC Gradient	Drift UHPLC	Pkg	Code
Acetonitrile	UHPLC-MS	At 210 nm <= 0.4 mAU	At 210 nm <= 6 mAU	1 L	412041
		At 254 nm <= 0.2 mAU	At 254 nm <= 2 mAU	2,5 L	412042
Methanol	UHPLC-MS	At 220 nm <= 4 mAU	At 220 nm <= 30 mAU	1 L	414941
		At 235 nm <= 2 mAU	At 235 nm <= 10 mAU	2,5 L	414942
		At 254 nm <= 1 mAU			
Water	UHPLC-MS	At 210 nm <= 2 mAU	At 210 nm <= 3 mAU	1 L	412091
		At 254 nm <= 0.5 mAU	At 254 nm <= 30 mAU	2,5 L	412092



# SOLVENTS, ADDITIVES AND BLENDS FOR LC-MS

FOR your LC-MS routine analysis, CARLO ERBA Reagents offers a complete range of products the most common solvents, additives and solutions ready-to-use among the most used mobile phases :

- Time saving
- Precise composition
- The assurance of an LC-MS quality
- Traceability
- Repeatability

Produced from LC-MS quality solvents and specifically tested for LC-MS coupling, these solutions guarantee :

- Test in gradient mode
- High UV transmission
- Solvent purity > 99.95 %
- Precise additive content
- Low content in inorganic and metallic ions
- Packaged in 1.1-difluoroethane treated amber glass to significantly reduce the potential formation of metals adducts



	Product	Quality	Pkg	Code
<b>Solvents</b>	Acetonitrile	LC/MS	1 L	412341
			2,5 L	412342
	Ethyl acetate	LC/MS	1 L	448383
			2,5 L	448384
	Methanol	LC/MS	1 L	414831
			2,5 L	414832
Propanol-2	LC/MS	1 L	415183	
		2,5L	415184	
Water	LC/MS	1 L	412111	
		2,5 L	412112	
<b>Additives</b>	Acetic acid	LC/MS	10 x 1 ml	401411
			10 x 2,5 ml	401412
			50 ml	401413
			1 L	401414
	Ammonium acetate	LC/MS	50 g	418781
	Ammonium formate	LC/MS	50 g	419741
	Formic acid	LC/MS	10 x 1 ml	405821
			10 x 2,5 ml	405822
			50 ml	405823
	Trifluoroacetic acid	LC/MS	10 x 1 ml	411541
10 x 2,5 ml			411542	
50 ml			411543	
<b>Blends</b>	Acetonitrile + 0.1% v/v formic acid	LC/MS	1 L	412331
			2,5 L	412332
	Acetonitrile + 0.1% v/v trifluoroacetic acid	LC/MS	1 L	412321
			2,5 L	412322
	Methanol + 0.1% v/v formic acid	LC/MS	1 L	414861
			2,5 L	414862
	Méthanol + 0.1% v/v trifluoroacetic acid	LC/MS	1 L	414871
			2,5 L	414872
Water+ 0.1% v/v formic acid	LC/MS	1 L	412121	
		2,5 L	412122	

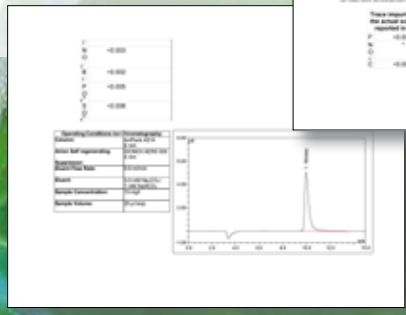
# ION CHROMATOGRAPHY / STANDARD SOLUTIONS

Our standard solutions for ion chromatography are obtained by a high-purity salt (+99.9%) in water.

They are characterized by :

- Concentrations equal to 1000 ppm
- Guaranteed titer with its uncertainty
- Raw materials selected and verified against N.I.S.T. Standard Reference Materials
- Available in HDPE bottles
- Certificate of analysis with references on the analytical method, the N.I.S.T. Standard Reference Materials and the confidence interval
- Shelf life, for the unopened product package, of 2 years.

Product	Pkg	Code
Ammonium standard solution	100 mL	503311
conc. 1.000 ppm Matrix : Water	500 mL	503313
Bromate standard solution	100 mL	503171
conc. 1.000 ppm Matrix : Water	500 mL	503173
Bromide standard solution	100 mL	503211
conc. 1.000 ppm Matrix : Water	500 mL	503213
Calcium standard solution	100 mL	503221
conc. 1.000 ppm Matrix : Water and nitric acid	500 mL	503223
Chlorate standard solution	100 mL	503181
conc. 1.000 ppm Matrix : Water	500 mL	503183
Chloride standard solution	100 mL	503231
conc. 1.000 ppm Matrix : Water	500 mL	503233
Chlorite standard solution	100 mL	503191
conc. 1.000 ppm Matrix : Water	500 mL	503193
Chromate standard solution	100 mL	503241
conc. 1.000 ppm Matrix : Water	500 mL	503243
Cyanide standard solution	100 mL	503358
conc. 1.000 ppm Matrix : Water and nitric acid		
Fluoride standard solution	100 mL	503251
conc. 1.000 ppm Matrix : Water	500 mL	503253
Iodide standard solution	100 mL	503261
conc. 1.000 ppm Matrix : Water	500 mL	503263
Lithium standard solution	100 mL	503281
conc. 1.000 ppm Matrix : Water	500 mL	503283
Magnesium standard solution	100 mL	503291
conc. 1.000 ppm Matrix : Water and nitric acid	500 mL	503293
Nitrate standard solution	100 mL	503331
conc. 1.000 ppm Matrix : Water	500 mL	503333
Nitrite standard solution	100 mL	503321
conc. 1.000 ppm Matrix : Water	500 mL	503323
Phosphate standard solution	100 mL	503271
conc. 1.000 ppm Matrix : Water	500 mL	503273
Potassium standard solution	100 mL	503221
conc. 1.000 ppm Matrix : Water	500 mL	503223
Sodium standard solution	100 mL	503301
conc. 1.000 ppm Matrix : Water	500 mL	503303
Strontium standard solution	100 mL	503361
conc. 1.000 ppm Matrix : Water		
Sulfate standard solution	100 mL	503351
conc. 1.000 ppm Matrix : Water	500 mL	503353

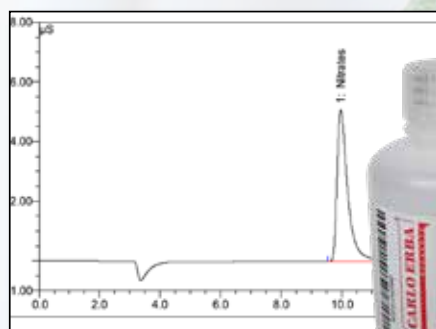


# ION CHROMATOGRAPHY / CONCENTRATED MOBILE PHASES

**F**OR your ion chromatography analysis, we have selected common mobile phases. The following eluents are filtered at 0.2µm and prepared from ultra-pure salts and 18-megaohm deionized water. These are concentrated solutions that should be diluted by a factor of 100.

They are characterized by :

- Guaranteed titer with its uncertainty
- Raw materials selected and verified against N.I.S.T. Standard Reference Materials
- Available in HDPE bottles
- Certificate of analysis with references on the analytical method, the N.I.S.T. Standard Reference Materials and the confidence interval
- Shelf life, for the unopened product package, of 2 years.

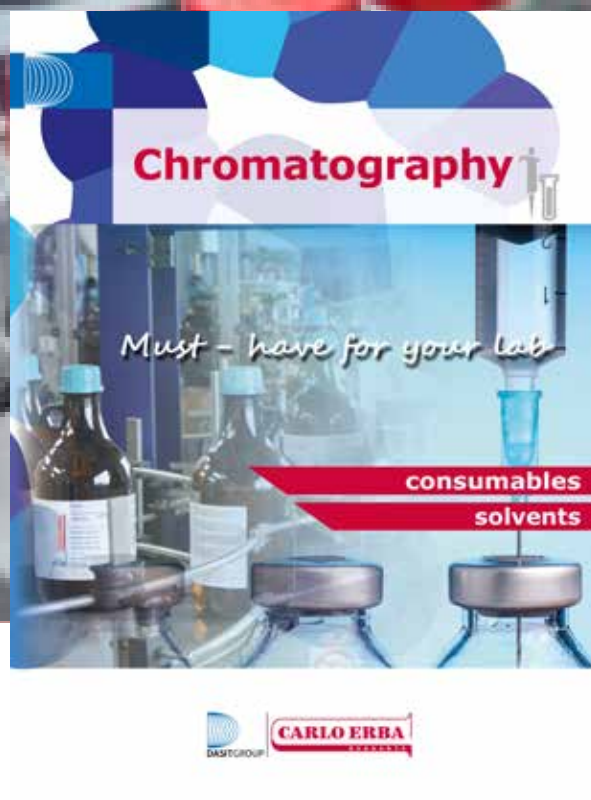


Product		Pkg	Code
Eluent sodium bicarbonate	0.17 M Sodium bicarbonate	100 mL	504534
Eluent sodium bicarbonate	0.5 M Sodium bicarbonate	1 L	507578
Eluent sodium carbonate	0.5 M Sodium carbonate	100 mL	504533
		1 L	507577
Eluent sodium carbonate/sodium bicarbonate	0.18 M Sodium carbonate / 0.17 M Sodium bicarbonate	100 mL	504530
Eluent sodium carbonate/sodium bicarbonate	0.22 M Sodium carbonate / 0.28 M Sodium bicarbonate	100 mL	504531
Eluent sodium carbonate/sodium bicarbonate	0.35 M Sodium carbonate / 0.1 M Sodium bicarbonate	100 mL	504532

# Chromatography

From the preparation of your samples to the analysis in HPLC, MS, GC, HEADSPACE, GC-MS, ... find **ALL you need** in a single catalog dedicated to **CHROMATOGRAPHY!**

- n Solvents
- n Filter aids
- n Standards
- n Vials
- n Columns
- n Filters
- n And much more ...



*Download our dedicated  
brochure on :*

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# SOLVENTS GC-MS

THE recent technological advances of GC-MS, GC-MS/MS and 2D GC-MS have opened new analytical horizons, in terms of selectivity of the result, and allowed a reduction of detection limits, reducing the need for cleaning the sample and the introduction of faster methods for sample preparation.

The role and the choice of the quality of the solvent is consequently crucial for the production of a precise and accurate analytical data. That is why we are introducing a new product range dedicated to the most demanding need for GC-MS. These products were specifically tested for GC/MS test for individual signals, with a retention range of  $C_{11}$  to  $C_{40}$  with a scanning area of 30-600 amu with a guarantee of less than 2µg/l of impurities.

The CARLO ERBA Reagents GC-MS solvents guarantee excellent performance, even for the analysis of the most complex mixtures. They are characterized by :

- Very high purity
- Extremely low non volatile residue content
- Functionality tested in GC-MS

Product	Pkg	Code
Acetone	1 L	400952
Chloroform stabilized with ethanol	1 L	438732
Dichloromethane stabilized with amylene	1 L	463342
Dichlorométhane stabilized with ethanol	1 L	463332
Ethyl acetate	1 L	448342
n-Hexane 99 %	1 L	447212
Methanol	1 L	414952
n-Pentane 99%	1 L	468172
n-Pentane	1 L	468182





# PESTIPUR®

## FOR PESTICIDES RESIDUE ANALYSIS

**T**HE CONTROL of pesticide residues in the food and environmental sectors is remarkably important today, as these substances represent a potential public health hazard. The purity of the solvent is a determinant factor in obtaining reliable results. Thus it is essential to have products available with suitable parameters for this type of application.

To meet these needs, CARLO ERBA Reagents offers its **PESTIPUR®** line of solvents, specific for the extraction of pesticides and the analysis of chlorinated and nitrogenous residues, even at trace levels. Our products are prepared according to the most advanced distillation techniques and strictly controlled in order to guarantee the highest level of quality.

Various functionality tests ensure a stable base line in gas chromatography. For the entire **PESTIPUR®** line, the absence of critical impurities is ensured by means of precise functionality tests in GC-ECD and GC-NPD .

Product	Pkg	Code
Acetone	1 L	400991
	2,5 L	400992000
Acetonitrile	1 L	401241
	2,5 L	401242
tert-Butylmethylether	1 L	432061
	2,5 L	432062
Chloroform stabilized with amylene	1 L	438681
	2,5 L	438682
Chloroform stabilized with ethanol	1 L	438651
	2,5 L	438652
Cyclohexane	1 L	436931
	2,5 L	436932
Dichloromethane stabilized with amylene	1 L	442291
	2,5 L	442292000
	4 L	442294
Dichlorométhane stabilized with ethanol	1 L	442261
	2,5 L	442262
Diethyl ether not stabilized	1 L	447651
	2,5 L	447652
Dimethylformamide	1L	444941
Ethyl acetate	1 L	448351
	2,5 L	448352000

Product	Pkg	Code
n-Heptane 99%	1 L	446951
	2,5 L	446952
Heptane mixture of isomers	1 L	446841
	2,5 L	446842
n-Hexane 99 %	1 L	447111
	2,5 L	447112000
n-Hexane	1 L	447011
	2,5 L	447012
	4 L	447013
Hexane Mixture of isomers	1 L	447181
	2,5L	447182
Isohexane	1 L	447131
	2,5 L	447132
Isooctane	1 L	456791
	2,5 L	456792
Methanol	1 L	414930
	2,5 L	414932
n-Pentane	1 L	468161
	2,5 L	468162
Petroleum ether 40 - 65°C	1 L	447851
	2,5 L	447852
Petroleum ether 35 - 60°C	1 L	447862
	2,5 L	447861
	2,5 L	447861
Propan-2-ol	1 L	415281
Toluene	1 L	488591
	2,5 L	488592
	4 L	488594

ISO 17993:2002 specifies a method using high performance liquid chromatography (HPLC) with fluorescence detection for the determination of 15 selected PAHs in drinking and ground water in mass concentrations greater than 0,005 µg/l (for each single compound) and surface waters in mass concentrations above 0,01 µg/l.

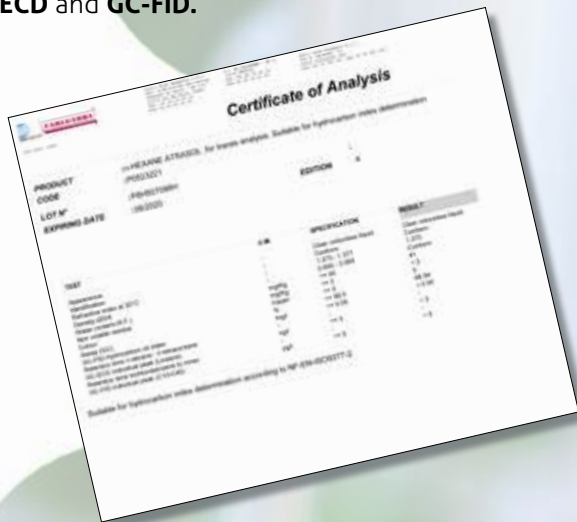
**To avoid additional internal validation, CARLO ERBA Reagents tests the PAH content of Dichloromethane quality PESTIPUR® according to NF EN ISO 17993: 2002 and guarantees the minimum possible interference to use.**

# ATRASOL® SOLVENTS FOR THE DETECTION OF TRACES IN ORGANIC COMPOUNDS AND HYDROCARBONS

RIGOROUS gas chromatographic controls and extreme operation accuracy in both production and packaging make these the best-suited solvents in gas chromatography for all determinations of traces of organics requiring extreme precision and sensitivity.

High purity, guaranteed absence of extraneous peaks in gas chromatographic determinations and guarantee of reproducibility and repeatability of the results are the main feature of this product line.

For the entire **ATRASOL®** line, the absence of critical impurities is ensured by means of precise functionality tests in **GC-ECD** and **GC-FID**.



Product	Pkg	Code
Acetone	1 L	P0053216
	2,5 L	P0053221
	4 L	P0053282
Chloroform stabilized with ethanol	1 L	P02432E16
	2,5 L	P02432E21
Dichloromethane stabilized with amylene	1 L	P02932A16
	2,5 L	P02932A21
	4 L	P02932A82
Dichloromethane stabilized with ethanol	1 L	P02932E16
	2,5 L	P02932E21
n,n-Dimethylformamide	1 L	P0343216
	2,5 L	P0343221
Dimethylsulphoxide	1 L	P0353216
	2,5 L	P0353221
Ethyl acetate	1 L	P0023216
	2,5 L	P0023221
n-Hexane 99%	1 L	P052323016
	2,5 L	P052323021
Methanol	1 L	P0933216
	2,5 L	P0933221
n-Pentane 99%	1 L	P064323016
	2,5 L	P064323021
Toluene	1 L	P0713216
	2,5 L	P0713221
	4 L	P0713282

# ATRASOL® SOLVENTS FOR HYDROCARBON INDEX DETERMINATION ACCORDING TO EN ISO 9377-2

THE EUROPEAN regulation EN ISO 9377-2 "Determination of hydrocarbon oil index - Method using solvent extraction and gas chromatography", established the criteria for the evaluation of the hydrocarbon index in water using gas chromatography. This procedure is suitable for surface water, wastewater and water from sewage treatment plants.

**Isohexane, hexane and petroleum ether ATRASOL®, with their boiling range between 36 and 69°C, are ideal for this application.** Each batch is specifically analyzed so that the hydrocarbon index is less than or equal to 0.1 mg/l, in the retention time window between n-decane and n-tetracontane.

Product	Pkg	Code
n-Hexane	1 L	P0523216
	2,5 L	P0523221
Isohexane	1 L	P6263216
	2,5 L	P6263221
n-Pentane	1 L	P0643216
	2,5 L	P0643221
Petroleum ether 35 - 60°C	1 L	P0883216
	2,5 L	P0883221

# ACIDS FOR TRACE METAL ANALYSIS

**I**N choosing the most appropriate analytical method to determine metals, each laboratory must consider the sample type and concentration levels, the number of elements to be determined and the costs the choice implies. As a result, flame and graphite furnace atomic absorption spectrophotometry (AA) and inductively coupled plasma (ICP and ICP-MS) emission spectrometry are the most widely used analytical methods for determining trace elements.

Instrumental analysis, using ICP or AA, generally involves a preliminary treatment of the sample. This operation, known as acid mineralization, consists in a digestion process with hot concentrated acid in order to extract the elements of interest. CARLO ERBA Reagents offers two specific complete range of products (acids, bases and water) for sample and blank preparation. The purity of these products guarantees maximum reliability of the result.



ENVIRONMENTAL  
CONTAMINANTS:  
TRACE METALS

## SUPERPURE ACIDS FOR TRACE METAL ANALYSIS AT PPB LEVEL

**S**UPERPURE range is characterized by blank values generally between 0.5 and 1 ppb, for the 60-plus declared impurities. They are produced using the most advanced sub-boiling distillation techniques, in special equipment made of quartz or Teflon and packaged in a controlled environment. In order to minimize the possibility for contamination of the resultant distillate, the packaging is performed in a clean room. They are available in a wide variety of molecules and sizes.

Product	Pkg	Code
Acetic acid glacial	500 mL	401405
	1 L	401406
	2,5 L	401407
Hydrochloric acid 34-37%	500 mL	403915
	1 L	403916
	2,5L	403917
Hydrofluoric acid 47-51%	500 mL	405716
	500 mL	408115
Nitric acid 67-69%	1 L	408116
	2,5 L	408117
	Sulfuric acid 93-98%	500 mL
1 L		410406
2,5L		410407
Ammonia 20-22%	500 ml	420175

## ULTRAPURE ACIDS FOR TRACE METAL ANALYSIS AT PPT LEVEL

**U**LTRAPURE range is characterized by blank values generally between 50 and 1 ppt, for the 60-plus declared impurities. This extreme level of purity is obtained using the double sub-boiling distillation process and preserved in Teflon packaging, preconditioned with hot acid for at least one week.

Product	Pkg	Code
Acetic acid glacial	500 mL	401361
Ammonia 20-22%	500 ml	420161
Hydrochloric acid 32-35%	500 mL	403891
Hydrofluoric acid 47-51%	500 mL	405611
Hydrogen peroxide 30-32%	500 ml	412051
Nitric acid 67-69%	1 L	408051
Sulfuric acid 93-98%	500 mL	410351
Water	500 ml	412185

# STANDARDS FOR ATOMIC ABSORPTION SPECTROSCOPY

THE ATOMIC absorption is the most sensitive technique available to analysts for the determination of metal impurities. It is a technique based on a sequential system which is generally slow but achieves sensitivity limits unattainable with other instrumental techniques. The following ready-to-use standard single-element solutions are obtained by dissolution of the metal, at a purity level of 99.9%, in hydrochloric or nitric acid.

They are characterized by :

- Concentration of the metal equal to 1.000 ppm
- Available in 100ml and 500ml bottles in polyethylene or glass depending on compatibility
- Certificate of analysis with references on the analytical method, the N.I.S.T. Standard Reference Materials and uncertainty
- Shelf life, for the unopened product package, of 2 years.



Product		Pkg	Code
Aluminum standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	504190
Antimony standard solution	conc. 1.000 ppm Matrix : Nitric acid+hydrofluoric acid	100 ml	507525
Arsenic standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	504439
Barium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507527
Beryllium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	506941
Calcium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507530
Chromium standard solution	conc. 1.000 ppm Matrix : Hydrochloric acid	100 ml	504195
Cobalt standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507533
Copper standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	504545
Iron standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	504194
Lanthanum standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507744
Lead standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	E497595
Lithium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507745
Magnesium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	503718
Manganese standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507746
Mercury standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	503640
Molybdenum standard solution	conc. 1.000 ppm Matrix : Hydrofluoric acid+nitric acid	100 ml	507747
Nickel standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507749
Palladium standard solution	conc. 1.000 ppm Matrix : Nitric acid+hydrofluoric acid	100 ml	507751
Potassium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507753
Selenium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507758
Silver standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507526
Sodium standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507759
Tin standard solution	conc. 1.000 ppm Matrix : Hydrofluoric acid+nitric acid	100 ml	503949
Zinc standard solution	conc. 1.000 ppm Matrix : Nitric acid	100 ml	507769

See our complete range of atomic absorption and ICP standards on [www.carloerbareagents.com](http://www.carloerbareagents.com)

# STANDARDS FOR ICP-OES

ICP-OES is a widely used analytical technique for trace metal analysis. It is based on a simultaneous system which allows quick and convenient analyses for a large number of determinable elements. One of the latest technological advances in the area is ICP-OES which is used for the determination of trace elements in soil. These standard solutions are obtained by dissolution of the metal, at a purity level of 99.99%, in an acid (usually nitric acid).

They are characterized by :

- Guaranteed titer with its uncertainty
- Raw materials selected and verified against N.I.S.T. Standard Reference Materials
- Available in 100ml and 500ml polyethylene bottles
- Certificate of analysis with references on the analytical method, the N.I.S.T. Standard Reference Materials the confidence interval
- Shelf life, for the unopened product package, of 3 years.

Product		Pkg	Code
Aluminum standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503411
Antimony standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503891
Antimony standard solution	conc. 1 000 ppm Matrix : Nitric acid+hydrofluoric acid	100 ml	503899
Arsenic standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503421
Barium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503451
Beryllium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503461
Bismuth standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503471
Boron standard solution	conc. 1 000 ppm Matrix : Water	100 ml	503441
Cadmium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503491
Calcium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503481
Cesium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503531
Chromium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503521
Cobalt standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503511
Copper standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503541
Germanium standard solution	conc. 1 000 ppm Matrix : Nitric acid+hydrofluoric acid	100 ml	504251
Gold standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503431
Iron standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503581
Lanthanum standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503681
Lead standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503801
Lithium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503691
Magnesium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503711
Manganese standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503721
Mercury standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503631
Molybdenum standard solution	conc. 1 000 ppm Matrix : Ammonium hydroxide	100 ml	503731
Nickel standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503771
Palladium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503811
Phosphorus standard solution	conc. 1 000 ppm Matrix : Water	100 ml	503791
Platinum standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503831
Potassium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503671
Selenium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503911
Silicon standard solution	conc. 1 000 ppm Matrix : Water	100 ml	503921
Silicon standard solution	conc. 1 000 ppm Matrix : Nitric acid+hydrofluoric acid	100 ml	504271
Silver standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503401
Sodium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503741
Strontium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	503951
Sulfur standard solution	conc. 1 000 ppm Matrix : Water	100 ml	504291
Tin standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	503941
Titanium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid+hydrofluoric acid	100 ml	504001
Vanadium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	504041
Zinc standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	504081

# STANDARDS FOR ICP-MS

ONE of the latest technological advances in the area of coupled analytical techniques involves the optimization of the ICP-MS technique, a versatile and vital instrument for the quick and reliable analysis of trace and ultra-trace metals. These standard solutions are obtained by dissolution of the metal, at a purity level of 99.999%, in an acid (usually nitric acid).

They are characterized by :

- Guaranteed titer with its uncertainty

- Raw materials selected and verified against N.I.S.T. Standard Reference Materials and packaged in a cleanroom
- Available in 100ml LDPE bottles
- Certificate of analysis with references on the analytical method, the N.I.S.T. Standard Reference Materials the confidence interval
- Shelf life, for the unopened product package, of 2 years.

Product		Pkg	Code
Aluminum standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505309
Antimony standard solution	conc. 1 000 ppm Matrix : Nitric acid and hydrofluoric acid	100 ml	505833
Arsenic standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505313
Barium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505329
Beryllium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505333
Bismuth standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505339
Boron standard solution	conc. 1 000 ppm Matrix : Water	100 ml	505323
Cadmium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505549
Calcium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505543
Chromium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505569
Cobalt standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505563
Copper standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505579
Gallium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505619
Germanium standard solution	conc. 1 000 ppm Matrix : Nitric acid and hydrofluoric acid	100 ml	505633
Gold standard solution	conc. 1000 ppm Matrix : Hydrochloric acid	100 ml	505319
Indium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505663
Iron standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505613
Lanthanum standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505693
Lead standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505769
Lithium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505703
Lutetium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505709
Magnesium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505713
Manganese standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505719
Mercury standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505654
Molybdenum standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505723
Nickel standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505753
Phosphorus standard solution	conc. 1 000 ppm Matrix : Water	100 ml	505763
Platinum standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	505789
Potassium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505683
Rhodium standard solution	conc. 1 000 ppm Matrix : Hydrochloric acid	100 ml	505809
Scandium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505839
Selenium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505843
Silver standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505303
Sodium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505733
Strontium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505869
Sulfur standard solution	conc. 1 000 ppm Matrix : Water	100 ml	505823
Terbium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505883
Thallium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505913
Tin standard solution	conc. 1 000 ppm Matrix : Nitric acid and hydrofluoric acid	100 ml	505863
Titanium standard solution	conc. 1 000 ppm Matrix : Hydrofluoric acid and nitric acid	100 ml	505909
Vanadium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505929
Yttrium standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505943
Zinc standard solution	conc. 1 000 ppm Matrix : Nitric acid	100 ml	505953



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# ORGANIC MIXTURES

CARLO ERBA Reagents offers the possibility to realize tailored formulations of organic substances (pesticides, IPA, PCB, nitrogenous substances, chlorinated, etc ...) produced according to an ISO 17025 accredited Quality Management System and ISO Guide 34.

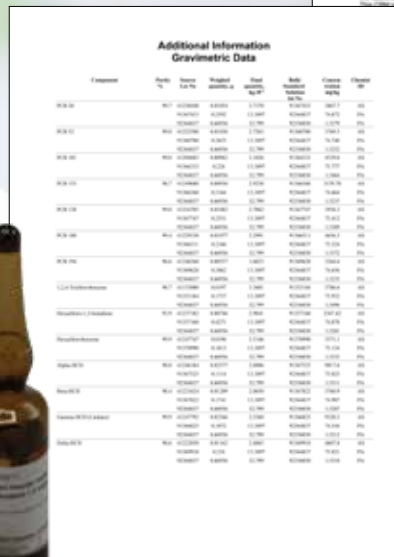
Organic standard solutions are prepared according to your analytical needs for HPLC, GC and GC-MS. These solutions are custom-made standards which bring you lots of advantages :

- Time saving for preparing and controlling standard solutions
- Traceability to NIST
- Specific for instrument calibration
- No risk of precipitation mixing incompatible solutions : the best solution ( two or more mixes or another solvent) is proposed if there's a problem of compatibility.
- Exact quantity needed (from 0.5 ml in ampules or CERTAN bottles to 500 ml)

Each of our products are delivered with a certificate of analysis including :

- Batch number
- Expiry date
- Storage information
- CAS number, formula, purity of each starting material
- Gravimetric data

ENVIRONMENTAL CONTAMINANTS: ORGANIC MIXTURES





# PESTICIDE STANDARDS

Product	Composition	Matrix	Pkg	Code
Pesticides Mixture 12 components 10µg/ml	Azoxystrobin [CAS:131860-33-8]; Boscalid [CAS:188425-85-6]; Carbendazim [CAS:10605-21-7]; Chlorpyrifos [CAS:2921-88-2]; Cyprodinil [CAS:121552-61-2]; Linuron [CAS:330-55-2]; Metalaxyl [CAS:57837-19-1]; Methomyl [CAS:16752-77-5]; Myclobutanil [CAS:88671-89-0]; Pyrimethanil [CAS:53112-28-0]; Pirimicarb [CAS:23103-98-2]; Thiabendazole [CAS:148-79-8]	Acetonitrile	10 ml	506803
Pesticides Mixture 17 components 20µg/ml each	Cyfluthrin [CAS:68359-37-5]; Cypermethrin [CAS:52315-07-8]; Fenvalerate [CAS:51630-58-1]; Permethrin [CAS:52645-53-1]; Phenothrin [CAS:26002-80-2]; Tetramethrin [CAS:7696-12-0]; lambda-Cyhalothrin [CAS:91465-08-6]; Piperonyl butoxide [CAS:51-03-6]; Bifenthrin [CAS:82657-04-3]; Chlorothalonil [CAS:1897-45-6]; Quintozene [CAS:82-68-8]; Tecnazene [CAS:117-18-0]; Chlorobenzilate [CAS:510-15-6]; Vinclozolin [CAS:50471-44-8]; Chlordecone hydrate [CAS:143-50-0]; Captan [CAS:133-06-2]	Toluene/ Acetone	1 ml	506950
Pesticides Mixture 30 components 20µg/ml each	Aldrin [CAS:309-00-2]; Alpha-HCH [CAS:319-84-6]; Beta-HCH [CAS:319-85-7]; Delta-HCH [CAS:319-86-8]; cis-Chlordane (alpha-Chlordane) [CAS:5103-71-9]; Dieldrin [CAS:60-57-1]; Endosulfan-alpha [CAS:959-98-8]; Endosulfan-beta [CAS:33213-65-9]; Endosulfan-total (sulfate) [CAS:1031-07-8]; Endrin [CAS:72-20-8]; Endrin aldehyde [CAS:7421-93-4]; Endrin ketone [CAS:53494-70-5]; Gamma-HCH (Lindane) [CAS:58-89-9]; trans-Chlordane (Gamma-Chlordane) [CAS:5103-74-2]; Heptachlor [CAS:76-44-8]; Heptachlor-exo-epoxide (cis-Heptachlorepoxide (cis-, exo-)) [CAS:1024-57-3]; Methoxychlor (DMTD) [CAS:72-43-5]; 4,4'-DDD (TDE) [CAS:72-54-8]; 4,4'-DDE [CAS:72-55-9]; 4,4'-DDT [CAS:50-29-3]; Dicofol [CAS:115-32-2]; Nitrofen [CAS:1836-75-5]; Isodrin [CAS:465-73-6]; Alachlor [CAS:15972-60-8]; Hexachlorobenzene (HCB) [CAS:118-74-1]; 2,4'-DDE [CAS:3424-82-6]; 2,4'-DDD [CAS:53-19-0]; 2,4'-DDT [CAS:789-02-6]; oxy-Chlordane [CAS:27304-13-8]; trans-Nonachlor [CAS:39765-80-5]	Toluene/ Acetone	1 ml	506948
Pesticides Mixture 45 components	Acetochlor [CAS:34256-82-1] 10mg/l; Aclonifen [CAS:74070-46-5] 10mg/l; Alachlor [CAS:15972-60-8] 10mg/l; Bifenthrin [CAS:82657-04-3] 10mg/l; Cadusafos [CAS:95465-99-9] 10mg/l; Captan [CAS:133-06-2] 10mg/l; Carbofuran [CAS:1563-66-2] 10mg/l; Chlorfenvinphos [CAS:470-90-6] 10mg/l; Chlormephos [CAS:24934-91-6] 10mg/l; Chlorothalonil [CAS:1897-45-6] 10mg/l; Chlorpyrifos [CAS:2921-88-2] 10mg/l; Chlorpyrifos methyl [CAS:5598-13-0] 10mg/l; lambda-Cyhalothrin [CAS:91465-08-6] 10mg/l; Cypermethrin [CAS:52315-07-8] 10mg/l; Delta-HCH [CAS:319-86-8] 10mg/l; Diazinon [CAS:333-41-5] 10mg/l; Dichlobenil [CAS:1194-65-6] 10mg/l; Dinoterb [CAS:1420-07-1] 10mg/l; Endosulfan-total (sulfate) [CAS:1031-07-8] 10mg/l; Fipronil [CAS:120068-37-3] 10mg/l; Folpet [CAS:133-07-3] 10mg/l; Heptachlor-endo-epoxide [CAS:28044-83-9] 10mg/l; Hexachloro-1,3-butadiene [CAS:87-68-3] 10mg/l; Iprodione [CAS:36734-19-7] 10mg/l; Isofenphos [CAS:25311-71-1] 10mg/l; Malathion [CAS:121-75-5] 10mg/l; Metazachlor [CAS:67129-08-2] 10mg/l; Oxadiazon [CAS:19666-30-9] 10mg/l; Oxyfluorfen [CAS:42874-03-3] 10mg/l; Parathion (Parathion-ethyl) [CAS:56-38-2] 10mg/l; Parathion-methyl [CAS:298-00-0] 10mg/l; Pendimethalin [CAS:40487-42-1] 10mg/l; Pentachlorobenzene [CAS:608-93-5] 10mg/l; Procymidone [CAS:32809-16-8] 10mg/l; Propachlor [CAS:1918-16-7] 10mg/l; Tebutam [CAS:35256-85-0] 10mg/l; Tefluthrin [CAS:79538-32-2] 10mg/l; Terbufos [CAS:13071-79-9] 10mg/l; Tolyfluanid [CAS:731-27-1] 10mg/l; Triazophos [CAS:24017-47-8] 10mg/l; Trifluralin [CAS:1582-09-8] 10mg/l; Vinclozolin [CAS:50471-44-8] 10mg/l; Piperonyl butoxide [CAS:51-03-6] 10mg/l; Metolachlor [CAS:51218-45-2] 5mg/l; S-Metolachlor [CAS:87392-12-9] 5mg/l	Cyclohexane/ Acetone	5 ml	506897

ENVIRONMENTAL  
CONTAMINANTS:  
ORGANIC MIXTURES

# PESTICIDE STANDARDS

Product	Composition	Matrix	Plg	Code
Pesticides Mixture 79 components	Bifenthrin [CAS:82657-04-3] 120µg/ml; lambda-Cyhalothrin [CAS:91465-08-6] 100µg/ml; Cypermethrin [CAS:52315-07-8] 130µg/ml; Deltamethrin [CAS:52918-63-5] 130µg/ml; Fenvalerate [CAS:51630-58-1] 105µg/ml; Permethrin [CAS:52645-53-1] 100µg/ml; tau-Fluvalinate [CAS:102851-06-9] 100µg/ml; Tetramethrin [CAS:7696-12-0] 100µg/ml; Aldrin [CAS:309-00-2] 20µg/ml; cis-Chlordane [CAS:5103-71-9] 20µg/ml; trans-Chlordane [CAS:5103-74-2] 20µg/ml; 2,4'-DDD [CAS:53-19-0] 20µg/ml; 4,4'-DDD (TDE) [CAS:72-54-8] 20µg/ml; 2,4'-DDE [CAS:3424-82-6] 20µg/ml; 4,4'-DDE [CAS:72-55-9] 20µg/ml; 2,4'-DDT [CAS:789-02-6] 20µg/ml; 4,4'-DDT [CAS:50-29-3] 20µg/ml; Dieldrin [CAS:60-57-1] 20µg/ml; Endosulfan-alpha [CAS:959-98-8] 20µg/ml; Endosulfan-beta [CAS:33213-65-9] 20µg/ml; Endosulfan-total (sulfate) [CAS:1031-07-8] 20µg/ml; Endrin [CAS:72-20-8] 20µg/ml; Endrin aldehyde [CAS:7421-93-4] 20µg/ml; Alpha-HCH [CAS:319-84-6] 20µg/ml; Beta-HCH [CAS:319-85-7] 20µg/ml; Delta-HCH [CAS:319-86-8] 20µg/ml; Gamma-HCH (Lindane) [CAS:58-89-9] 20µg/ml; Heptachlor [CAS:76-44-8] 20µg/ml; Heptachlor-endo-epoxide [CAS:28044-83-9] 20µg/ml; Heptachlor-exo-epoxide [CAS:1024-57-3] 20µg/ml; Hexachlorobenzene [CAS:118-74-1] 20µg/ml; PCB 209 [CAS:2051-24-3] 20µg/ml; PCB 29 [CAS:15862-07-4] 20µg/ml; Vinclozolin [CAS:50471-44-8] 20µg/ml; Alachlor [CAS:15972-60-8] 100µg/ml; Bromopropylate [CAS:18181-80-1] 50µg/ml; Chlorothalonil [CAS:1897-45-6] 25µg/ml; Dicofol [CAS:115-32-2] 75µg/ml; Iprodione [CAS:36734-19-7] 200µg/ml; Nitrofen [CAS:1836-75-5] 20µg/ml; oxy-Chlordane [CAS:27304-13-8] 20µg/ml; Phosalone [CAS:2310-17-0] 20µg/ml; Procymidone [CAS:32809-16-8] 150µg/ml; Tetradifon [CAS:116-29-0] 20µg/ml; Bromophos-ethyl [CAS:4824-78-6] 100µg/ml; Bromophos-methyl [CAS:2104-96-3] 100µg/ml; Chlorfenvinphos [CAS:470-90-6] 100µg/ml; Chlorpyrifos (Chlorpyrifos-ethyl) [CAS:2921-88-2] 100µg/ml; Chlorpyrifos methyl [CAS:5598-13-0] 100µg/ml; Diazinon [CAS:333-41-5] 100µg/ml; Dichlorvos [CAS:62-73-7] 100µg/ml; Dimethoate [CAS:60-51-5] 100µg/ml; Disulfoton [CAS:298-04-4] 50µg/ml; Fenchlorphos [CAS:299-84-3] 100µg/ml; Fenthion [CAS:55-38-9] 100µg/ml; Malathion [CAS:121-75-5] 100µg/ml; Parathion (Parathion-ethyl) [CAS:56-38-2] 100µg/ml; Parathion-methyl [CAS:298-00-0] 100µg/ml; Pirimiphos-methyl [CAS:29232-93-7] 100µg/ml; Terbufos [CAS:13071-79-9] 100µg/ml; Acephate [CAS:30560-19-1] 100µg/ml; Azinphos-ethyl [CAS:2642-71-9] 400µg/ml; Azinphos-methyl [CAS:86-50-0] 400µg/ml; Demeton-S-methyl [CAS:919-86-8] 100µg/ml; Ethion [CAS:563-12-2] 20µg/ml; Fenamiphos [CAS:22224-92-6] 50µg/ml; Fenitrothion [CAS:122-14-5] 50µg/ml; Fonofos [CAS:944-22-9] 40µg/ml; Metalaxyl [CAS:57837-19-1] 600µg/ml; Methamidophos [CAS:10265-92-6] 100µg/ml; Methidathion [CAS:950-37-8] 100µg/ml; Mevinphos [CAS:7786-34-7] 100µg/ml; Monocrotophos [CAS:6923-22-4] 100µg/ml; Oxadixyl [CAS:77732-09-3] 400µg/ml; Phorate [CAS:298-02-2] 50µg/ml; Phosphamidon [CAS:13171-21-6] 100µg/ml; Pirimiphos-ethyl [CAS:23505-41-1] 50µg/ml; Triazophos [CAS:24017-47-8] 100µg/ml; Tefluthrin [CAS:79538-32-2] 10µg/ml	Acetone	1.5 ml	506905

ENVIRONMENTAL  
CONTAMINANTS:  
ORGANIC MIXTURES

Send us :

- CAS number
- Concentration
- Solvent
- Volume
- Packaging

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# PCBs STANDARDS

## MONO-ELEMENTS

Product	CAS number	Concentration	Matrix	Pkg	Code
PCB 29	15862-07-4	10 µg/ml	Isooctane	1 ml	507127
PCB 30	35693-92-6	10 µg/ml	Isooctane	1 ml	507128
PCB 73	74338-23-1	10 µg/ml	Isooctane	1 ml	507129
PCB 89	73575-57-2	10 µg/ml	Isooctane	1 ml	507131
PCB 90	68194-07-0	10 µg/ml	Isooctane	1 ml	507132
PCB 106	70424-69-0	10 µg/ml	Isooctane	1 ml	507133
PCB 164	74472-45-0	10 µg/ml	Isooctane	1 ml	507134
PCB 143	68194-15-0	10 µg/ml	Isooctane	1 ml	507135
PCB 155	33979-03-2	10 µg/ml	Isooctane	1 ml	507136
PCB 198	68194-17-2	10 µg/ml	Isooctane	1 ml	507137
PCB 207	52663-79-3	10 µg/ml	Isooctane	1 ml	507138
PCB 209	2051-24-3	10 µg/ml	Isooctane	1 ml	507139
PCB 209	2051-24-3	100 µg/ml	Isooctane	1 ml	507154
PCB 138	35065-28-2	50 µg/ml	Isooctane	10 ml	509144
PCB 153	35065-27-1	50 µg/ml	Isooctane	10 ml	509145
PCB 18	37680-65-2	50 µg/ml	Isooctane	10 ml	509146
PCB 28	7012-37-5	50 µg/ml	Isooctane	10 ml	509147
PCB 52	35693-99-3	50 µg/ml	Isooctane	10 ml	509148

## MULTI-ELEMENTS

Product	Composition	Matrix	Pkg	Code
PCB Mixture 2 components 100 µg/ml each	PCB 30 [CAS:35693-92-6] ; PCB 155 [CAS:33979-03-2]	Isooctane	1 ml	507609
PCB Mixture 7 components 10 µg/ml each	PCB 28 [CAS:7012-37-5] ; PCB 52 [CAS:35693-99-3] ; PCB 101 [CAS:37680-73-2] PCB 118 [CAS:31508-00-6] ; PCB 138 [CAS:35065-28-2] ; PCB 153 [CAS:35065-27-1] ; PCB 180 [CAS:35065-29-3]	Isooctane	5x1 ml	507103
PCB Mixture 8 components 100 µg/ml each	PCB 28 [CAS:7012-37-5] ; PCB 52 [CAS:35693-99-3] ; PCB 101 [CAS:37680-73-2] PCB 118 [CAS:31508-00-6] ; PCB 138 [CAS:35065-28-2] ; PCB 153 [CAS:35065-27-1] ; PCB 180 [CAS:35065-29-3] ; PCB 194 [CAS:35694-08-7]	Hexane	1 ml	507679
PCB Mixture 14 components 1 mg/l each	PCB 28 [CAS:7012-37-5] ; PCB 52 [CAS:35693-99-3] ; PCB 101 [CAS:37680-73-2] PCB 153 [CAS:35065-27-1] ; PCB 138 [CAS:35065-28-2] ; PCB 180 [CAS:35065-29-3] PCB 194 [CAS:35694-08-7] ; 1,2,4-Trichlorobenzene [CAS:120-82-1] ; Hexachloro-1,3-butadiene [CAS:87-68-3] ; Hexachlorobenzene [CAS:118-74-1] ; Alpha-HCH [CAS:319-84-6] ; Beta-HCH [CAS:319-85-7] ; Gamma-HCH (Lindane) [CAS:58-89-9] ; Delta-HCH [CAS:319-86-8]	Hexane	5 ml	507889
PCB Mixture 14 components 10 mg/l each	PCB 28 [CAS:7012-37-5] ; PCB 31 [CAS:16606-02-3] ; PCB 52 [CAS:35693-99-3] PCB 101 [CAS:37680-73-2] ; PCB 105 [CAS:32598-14-4] ; PCB 118 [CAS:31508-00-6] ; PCB 132 [CAS:38380-05-1] ; PCB 138 [CAS:35065-28-2] ; PCB 149 [CAS:38380-04-0] ; PCB 153 [CAS:35065-27-1] ; PCB 160 [CAS:41411-62-5] ; PCB 163 [CAS:74472-44-9] ; PCB 180 [CAS:35065-29-3] ; PCB 193 [CAS:69782-91-8]	Hexane	1.2 ml	507062
PCB Mixture 14 components 10 µg/ml each according to EN 61619	PCB 18 [CAS:37680-65-2] ; PCB 28 [CAS:7012-37-5] ; PCB 31 [CAS:16606-02-3] PCB 44 [CAS:41464-39-5] ; PCB 52 [CAS:35693-99-3] ; PCB 101 [CAS:37680-73-2] ; PCB 118 [CAS:31508-00-6] ; PCB 138 [CAS:35065-28-2] ; PCB 149 [CAS:38380-04-0] ; PCB 153 [CAS:35065-27-1] ; PCB 170 [CAS:35065-30-6] ; PCB 180 [CAS:35065-29-3] ; PCB 194 [CAS:35694-08-7] ; PCB 209 [CAS:2051-24-3]	Isooctane	10 ml	507115
PCB Mixture 19 components	PCB 18 [CAS:37680-65-2] 0.34mg/l ; PCB 28 [CAS:7012-37-5] 0.6mg/l ; PCB 52 [CAS:35693-99-3] 0.9mg/l ; PCB 77 [CAS:32598-13-3] 2.2mg/l ; PCB 81 [CAS:70362-50-4] 3.3mg/l ; PCB 101 [CAS:37680-73-2] 2.28mg/l ; PCB 105 [CAS:32598-14-4] 2.6mg/l ; PCB 114 [CAS:74472-37-0] 9.6mg/l ; PCB 118 [CAS:31508-00-6] 2.6mg/l ; PCB 123 [CAS:65510-44-3] 2.7mg/l ; PCB 126 [CAS:57465-28-8] 3mg/l ; PCB 138 [CAS:35065-28-2] 6mg/l ; PCB 153 [CAS:35065-27-1] 5mg/l ; PCB 156 [CAS:38380-08-4] 5mg/l ; PCB 157 [CAS:69782-90-7] 7mg/l ; PCB 167 [CAS:52663-72-6] 8mg/l ; PCB 169 [CAS:32774-16-6] 10mg/l ; PCB 180 [CAS:35065-29-3] 10mg/l ; PCB 189 [CAS:39635-31-9] 7mg/l	Ethyle acetate	5 ml	506732

# PAHs STANDARDS

Product	Composition	Matrix	Pkg	Code
PAH Mixture 6 components	Fluoranthene [CAS:206-44-0] 2mg/l; Benzo(b)fluoranthene [CAS:205-99-2] 2mg/l; Benzo(k)fluoranthene [CAS:207-08-9] 2mg/l; Benzo(a)pyrene [CAS:50-32-8] 2mg/l; Benzo(g,h,i)perylene [CAS:191-24-2] 10mg/l; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5] 10mg/l	Acetonitrile	1 ml	506979
PAH Mixture 13 components	Phenanthrene [CAS:85-01-8] 600µg/ml; Anthracene [CAS:120-12-7] 40µg/ml; Fluoranthene [CAS:206-44-0] 160µg/ml; Pyrene [CAS:129-00-0] 160µg/ml; Benzo(a)anthracene [CAS:56-55-3] 20µg/ml; Chrysene [CAS:218-01-9] 80µg/ml; Benzo(b)fluoranthene [CAS:205-99-2] 20µg/ml; Benzo(k)fluoranthene [CAS:207-08-9] 10µg/ml; Benzo(j)fluoranthene [CAS:205-82-3] 20µg/ml; Benzo(a)pyrene [CAS:50-32-8] 20µg/ml; Dibenzo(a,h)anthracene [CAS:53-70-3] 10µg/ml; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5] 12µg/ml; Benzo(g,h,i)perylene [CAS:191-24-2] 20µg/ml	Acetonitrile/ Acetone	1 ml x 10 (95/5)	506835
PAH Mixture 15 components	Acenaphthene [CAS:83-32-9] 5mg/l; Fluorene [CAS:86-73-7] 5mg/l; Fluoranthene [CAS:206-44-0] 5mg/l; Benzo(a)anthracene [CAS:56-55-3] 5mg/l; Chrysene [CAS:218-01-9] 5mg/l; Benzo(b)fluoranthene [CAS:205-99-2] 5mg/l; Benzo(a)pyrene [CAS:50-32-8] 5mg/l; Dibenzo(a,h)anthracene [CAS:53-70-3] 5mg/l; Benzo(g,h,i)perylene [CAS:191-24-2] 10mg/l; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5] 10mg/l; 2-Methylnaphthalene [CAS:91-57-6] 10mg/l; 2-Methyl-Fluoranthene [CAS:33543-31-6] 10mg/l; Anthracene [CAS:120-12-7] 2mg/l; Benzo(k)fluoranthene [CAS:207-08-9] 2mg/l; Pyrene [CAS:129-00-0] 20mg/l	Acetonitrile	1 ml	506980
PAH Mixture 15 components 1 µg/ml each	Naphthalene [CAS:91-20-3]; Acenaphthene [CAS:83-32-9]; Fluorene [CAS:86-73-7]; Phenanthrene [CAS:85-01-8]; Anthracene [CAS:120-12-7]; Fluoranthene [CAS:206-44-0]; Pyrene [CAS:129-00-0]; Benzo(a)anthracene [CAS:56-55-3]; Chrysene [CAS:218-01-9]; Benzo(b)fluoranthene [CAS:205-99-2]; Benzo(k)fluoranthene [CAS:207-08-9]; Benzo(a)pyrene [CAS:50-32-8]; Dibenzo(a,h)anthracene [CAS:53-70-3]; Benzo(g,h,i)perylene [CAS:191-24-2]; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5]	Dichloro- methane	10 ml  10 x1 ml	507859  507899
PAH Mixture 15 components 50 µg/ml each	Acenaphthene [CAS:83-32-9]; Anthracene [CAS:120-12-7]; Benzo(b)fluoranthene [CAS:205-99-2]; Benzo(g,h,i)perylene [CAS:191-24-2]; Benzo(k)fluoranthene [CAS:207-08-9]; Chrysene [CAS:218-01-9]; Dibenzo(a,h)anthracene [CAS:53-70-3]; Fluoranthene [CAS:206-44-0]; Fluorene [CAS:86-73-7]; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5]; Naphthalene [CAS:91-20-3]; Phenanthrene [CAS:85-01-8]; Pyrene [CAS:129-00-0]	Acetonitrile	5 x 1 ml	507063
PAH Mixture 19 components	2-Methylnaphthalene [CAS:91-57-6] 40mg/l; Anthracene [CAS:120-12-7] 20mg/l; Fluoranthene [CAS:206-44-0] 20mg/l; 2-Methyl-Fluoranthene [CAS:33543316] 20mg/l; Benzo(a)anthracene [CAS:56-55-3] 20mg/l; Benzo(b)fluoranthene [CAS:205-99-2] 20mg/l; Benzo(k)fluoranthene [CAS:207-08-9] 20mg/l; Benzo(a)pyrene [CAS:50-32-8] 20mg/l; Dibenzo(a,h)anthracene [CAS:53-70-3] 20mg/l; Benzo(g,h,i)perylene [CAS:191-24-2] 20mg/l; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5] 20mg/l; Benzo(b)chrysene [CAS:214-17-5] 2mg/l; Naphthalene [CAS:91-20-3] 40mg/l; Acenaphthene [CAS:83-32-9] 40mg/l; Fluorene [CAS:86-73-7] 20mg/l; Phenanthrene [CAS:85-01-8] 20mg/l; Pyrene [CAS:129-00-0] 20mg/l; Chrysene [CAS:218-01-9] 20mg/l; Acenaphthylene [CAS:208-96-8] 400mg/l	Methanol	5 x 1 ml	507094
PAH Mixture 19 components 100 µg/ml each	Naphthalene [CAS:91-20-3]; Acenaphthylene [CAS:208-96-8]; 1-Methylnaphthalene [CAS:90-12-0]; 2-Methylnaphthalene [CAS:91-57-6]; Acenaphthene [CAS:83-32-9]; Fluorene [CAS:86-73-7]; Phenanthrene [CAS:85-01-8]; Anthracene [CAS:120-12-7]; Fluoranthene [CAS:206-44-0]; Pyrene [CAS:129-00-0]; 2-Methyl-Fluoranthene [CAS:33543-31-6]; Benzo(a)anthracene [CAS:56-55-3]; Chrysene [CAS:218-01-9]; Benzo(b)fluoranthene [CAS:205-99-2]; Benzo(k)fluoranthene [CAS:207-08-9]; Benzo(a)pyrene [CAS:50-32-8]; Benzo(g,h,i)perylene [CAS:191-24-2]; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5]; Dibenzo(a,h)anthracene [CAS:53-70-3]	Acetonitrile	1 ml	506878
PAH Mixture 23 components 1 µg/ml each	Anthracene [CAS:120-12-7]; Fluoranthene [CAS:206-44-0]; Naphthalene [CAS:91-20-3]; Benzo(a)pyrene [CAS:50-32-8]; Benzo(b)fluoranthene [CAS:205-99-2]; Benzo(g,h,i)perylene [CAS:191-24-2]; Benzo(k)fluoranthene [CAS:207-08-9]; Indeno(1,2,3-c,d)pyrene [CAS:193-39-5]; Biphenyl [CAS:92-52-4]; Acenaphthene [CAS:83-32-9]; Acenaphthylene [CAS:208-96-8]; Benzo(a)anthracene [CAS:56-55-3]; Chrysene [CAS:218-01-9]; Dibenzo(a,h)anthracene [CAS:53-70-3]; Fluorene [CAS:86-73-7]; 2-Methylnaphthalene [CAS:91-57-6]; 2-Methyl-Fluoranthene [CAS:33543-31-6]; Phenanthrene [CAS:85-01-8]; Pyrene [CAS:129-00-0]; 1-Benzothiophene [CAS:95-15-8]; Dibenzothiophene [CAS:132-65-0]; Benzo(e)pyrene [CAS:192-97-2]; Perylene [CAS:198-55-0]	Methanol	1 ml	506938

ENVIRONMENTAL  
CONTAMINANTS:  
ORGANIC MIXTURES

# HYDROCARBONS STANDARDS

Product	Composition	Matrix	Pkg	Code
Hydrocarbons Mixture 4 components 1000 µg/ml each	Tribromomethane; Chloroform; Bromodichloromethane; Dibromochloromethane	Methanol	1 ml	507191
Hydrocarbons Mixture 5 components 5000µg/ml each	Benzene; Toluene; o-Xylene; m-Xylene; p-Xylene	Methanol	1 ml	506736
Hydrocarbons Mixture 6 components 1000 µg/ml each	Benzene ; Ethylbenzene ; Toluene ; m-Xylene ; o-Xylene ; p-Xylene	Carbon disulfide	2 ml	507474
Hydrocarbons Mixture 6 components 1000 µg/ml each	Benzene ; Toluene ; o-Xylene ; m-Xylene ; p-Xylene ; Ethylbenzene	Methanol	1 ml	507189
Hydrocarbons Mixture 6 components 1000 µg/ml each	Trichloroethene ; Tetrachloroethene ; 1,2-Dichloroethane ; Tetrachloromethane 1,1,1-Trichloroethane ; 1,1,2-Trichloroethane	Methanol	1 ml	507190
Hydrocarbons Mixture 11 components	Benzene 10g/kg ; 1,1-Dichloroethane 170g/kg ; 1,2-Dichloroethane 180g/kg ; 1,1-Dichloroethene 120g/kg ; cis-1,2-Dichloroethene 20g/kg trans-1,2-Dichloroethene 20g/kg ; Dichloromethane 10g/kg ; Tetrachloromethane 180g/kg 1,1,1-Trichloroethane 20g/kg ; Chloroform 250g/kg ; Trichloroethene 20g/kg		100 ml	506613
Hydrocarbons Mixture 14 components	1,1-Dichloroethene 1000µg/ml ; Dichloromethane 5000µg/ml trans-1,2-Dichloroethene 5000µg/ml ; 1,1-Dichloroethane 5000µg/ml ; cis-1,2-Dichloroethene 5000µg/ml ; 1,2-Dichloroethane 5000µg/ml ; Chloroform 500µg/ml ; 1,1,1-Trichloroethane 500µg/ml ; Trichloroethene 500µg/ml ; Bromodichloromethane 500µg/ml ; Dibromochloromethane 500µg/ml ; Tribromomethane 500µg/ml ; tetrachloromethane 100µg/ml ; Tetrachloroethene 100µg/ml	Methanol	1 ml	506742
Hydrocarbons Mixture 22 components 2500mg/kg each	Benzene ; 1-Bromo-2-chloroethane ; Chlorobenzene ; 1,1-Dichloroethane 1,1-Dichloroethene ; cis-1,2-Dichloroethene ; trans-1,2-Dichloroethene Dichloromethane ; Pentachloroethane ; 1,1,2,2-Tetrachloroethane Tetrachloroethene ; Tetrachloromethane ; 1,1,2-Trichloroethane ; Trichloroethene Chloroprene ; Chloromethane ; Vinylchloride ; 1,3-Butadiene ; Chloroethane 1,2-Dichlorobutane ; Ethylene ; Chloroform	1,2-dichloroethane	100 ml	506614

ENVIRONMENTAL  
CONTAMINANTS:  
ORGANIC MIXTURES

## ISO 9377-2 STANDARD SOLUTIONS

FOR the determination of mineral oils, the regulation prescribes specific mixtures of standard solutions. CARLO ERBA Reagents has a complete range of standard mixtures, each with a certificate of analysis with complete information on the composition and gravimetric validation carried out in reference to NIST standards.



Product	Pkg	Code
Standard quality control of 2 mineral oils in acetone 0.5mg/ml each	1 mL	506002
Mixture of 2 mineral oils without additive 5 mg / ml each in hexane	1 mL	506010
	5 mL	506012
	10 mL	506013
Mixture of 2 mineral oil without additive 1 mg/ml each in hexane	10 mL	506011
Standard mixture of n-alkanes (C <sub>10</sub> to C <sub>40</sub> in pairs) of 50 µg/ml each in hexane	1 mL	506020
Mother solution of extraction solvent : N-tetracontane mixture (20 mg/l) and n-decane (20 µg/l) in hexane	5 mL	506040
Test solution stearyl stearate 2 g / l in hexane	10 mL	506030

# REAGENTS FOR COD ANALYSIS

THE COD (chemical oxygen demand) represents the measurement of oxygen necessary to chemically oxidize the substances present in a sample, by means of a strong oxidant in a hot acid environment.

The determination of this parameter, which represents the organic content in water, is an analytical factor commonly used in controlling the level of pollution in natural water as well as urban and industrial wastewater. CARLO ERBA Reagents offers a complete line of reagents for COD determination.

Product	Pkg	Code
Ferrous ammonium sulfate Reagent for titrating the excess potassium dichromate	500 g	451451
	1 kg	451457
Potassium dichromate Oxidizing reagent	500 g	470336
	1 kg	470337
Potassium hydrogen phthalate COD determination	250 g	471865
	2.5 kg	471867
Sulfuric acid concentration 96 % (d = 1.84)	1 l	410301
	2.5 l	410306
Silver sulfate Oxidizing reagent	25 g	424201
	100 g	424203

Ready-to-use solutions are also available to be used directly by analysts with significant time savings :

Product	Pkg	Code
Ferrous ammonium sulfate Solution 0.12 mol/l	1 l	526761
Iron o-Phenanthroline sulfate (Ferroun) Solution Indicator for titration in sulfuric acid	100 ml	E450043
Potassium dichromate Solution 0.25 N	1 l	470541
Potassium dichromate 0.04 mol/l ( $K_2Cr_2O_7$ ) in solution of 80 g/L $HgSO_4$	1 l	526711
	2.5 l	526712
Silver sulfate Solution 0.7% $Ag_2SO_4$ in conc. sulfuric acid	1 l	424191
	2.5 l	424192
10 g/L $Ag_2SO_4$ in conc. sulfuric acid	1 l	526605
	2.5 l	526606
6.6 g/L $Ag_2SO_4$ in conc. sulfuric acid	2.5 l	526602



Find in our **Labware** catalogue the dedicated chapter to COD analysis with consumables and equipments for both manual and automatic titration

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

# ACIDS & REAGENTS

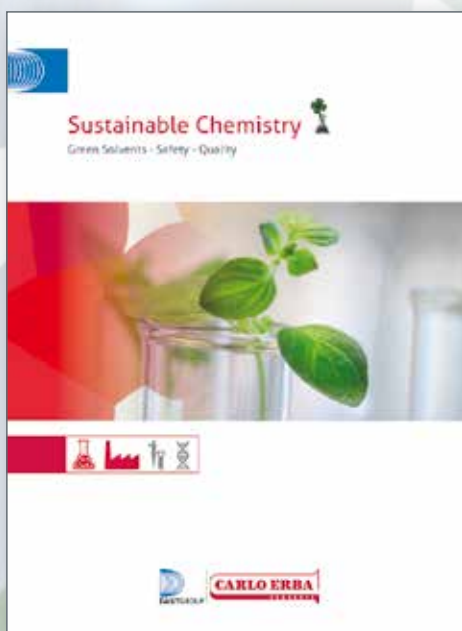
## LOW CONTENT OF MERCURY

**D**UE to its particular physico-chemical properties, as the only liquid metal at room temperature and an excellent conductor, mercury is widely used in the industrial sector.

However, the significant hazard it represents for the environment has led numerous government decrees to be issued imposing limits on the order of ppb depending on the type of water (underground water, surface water to be used as drinking water and water suitable for fish life). The analytical method used to determine mercury content is based on atomic absorption spectrophotometry at a wavelength of 253.7 nm.

The sample is mineralized with a mixture of sulfuric and nitric acids, and the mercury salts are subsequently reduced to metal with hydroxylamine, hydrochloride and stannous chloride in the presence of NaCl; the mercury content is then determined by means of atomic absorption spectrophotometry.

Product	Quantity of Hg	Pkg	Code
Nitric acid 65%	≤ 0.005 ppm	1 l	407951
Perchloric acid 65%	≤ 0.02 ppm	1 l	409121
Potassium permanganate	≤ 0.05 ppm	100 g	476671
Sodium chloride	≤ 0.005 ppm	100 g	479671
Sulfuric acid 96%	≤ 0.005 ppm	1 l	410261



Besides the obvious “green solvents”, water and ethanol, **CARLO ERBA Reagents** is happy to offer a variety of greener alternatives to several common solvents .

For more information on these solvents and what CARLO ERBA Reagents proposes in terms of “Green solutions” for Quality and Safety, download our dedicated brochure

# ACIDS & BASES FOR ANALYSIS

Product	Pkg	Code
Acetic acid 12%	1 l	401531
	5 l	PS0221/29
Acetic acid 27%	5 l	508645
Acetic acid 30%	1 l	611000401
Acetic acid 45%	5 l	526545
Acetic acid 80%	5 l	301855
Acetic acid 96%	1 l	302002
	2.5 l	302003
Acetic acid glacial	1 l	401391
	1 l PEHD	524520
	2.5 l	401392
	2.5 l PEHD	524521
Ammonia solution 10%	1 l	E420001
Ammonia solution 20 - 22 %	1 l	419981
Ammonia solution 28%	1 l	314861
Ammonia solution 30%	1 l	419941
	5 l	419945
Ammonia solution 32%	5 l	528503
Benzoic acid	250 g	402635
Boric acid	1 kg	402767
Citric acid monohydrate	1 kg	403727
Dichloroacetic acid	1 l	303151
	250 ml	405101
	1 l	405103
DL-Malic acid	100 g	407314
	500 g	407316
Ethylenediaminetetraacetic acid	1 kg	405463
Formic acid 85%	1 l	405832
	2.5 l	405833
Formic acid 99%	1 l	405792
Hydriodic acid 57%	100 ml	406831
Hydrobromic acid 48%	250 ml	402925
	1 l	402922
Hydrochloric acid 12%	5 l	PS0347/22
Hydrochloric acid 20%	5 l	PS0751/29
Hydrochloric acid 23%	1 l	403901
	2.5 l	403905
Hydrochloric acid 26%	2.5 l	PS0769/20
Hydrochloric acid 32%	1 l	302601
	2.5 l	403981
Hydrochloric acid 37%	1 l	403871
	1 l PEHD	524525
	2.5 l	403872
Hydrofluoric acid 39.5%	2.5 l PEHD	524526
	1 l	405761

Product	Pkg	Code
Hydrogen peroxide solution 3%	1 l	307671
Hydrogen peroxide solution 30%	250 ml	412071
	1 l	412072
	5 l	502044
Hydrogen peroxide solution 35% w/v	2,5 l	307742
Hydrogen peroxide solution 40% w/v	1 l	307701
	5 l	307708
Hypophosphorous acid 50%	1 l	406962
L(+) Tartaric Acid	250 g	411125
	1 kg	411127
L(+) Tartaric acid solution 20% in water	1 l	E411131
L(+)Ascorbic acid	100 g	402404
	500 g	402406
	1 kg	402407
Lactic acid	1 l	304652
Methanesulfonic acid	250 ml	407481
	1 l	407483
n-Butyric acid	250 ml	403236
n-Caprylic acid	250 ml	403421
Nitric acid 65%	1 l	408022
	1 l PEHD	524535
	2.5 l	408025
	2.5 l PEHD	524536
Nitric acid 67.5% (42Be)	2.5 l	305502
	5 l	528530
Nitric acid 69.5%	1 l	408071
	1 l PEHD	524530
	2.5 l	408072
	2.5 l PEHD	524531
Oleic acid	1 l	305704
Orthophosphoric acid 10%	5 l	PS0084/22
Orthophosphoric acid 75%	1 l	304051
	2.5 l	304054
Orthophosphoric acid 85%	1 l	406002
	2.5 l	406005
	5 l	528535
Orthophosphoric acid 99%	1 kg	405967
Oxalic acid dihydrate	1 kg	408737
Perchloric acid 65%	1 l	409111
Phosphosulfuric acid	1 l	E406101
Potassium hydroxide solution 38% (40° Bé) in water	1 l	E472151
Potassium hydroxide, pellets	1 kg	472057
Potassium hydroxide 33%	5 l	PS0766/22



# ACIDS & BASES FOR ANALYSIS

Product	Pkg	Code
Propionic acid	250 ml	409551
	1 l	409553
Sodium hydroxide solution 10% w/v	5 l	524506
Sodium hydroxide solution 20% w/w	1 l	480621
Sodium hydroxide solution 30%	1 l	369704
	5 l	502741
Sodium hydroxide solution 32%	1 l	480561
	2.5 l	480566
	5 l	526521
	10 l	480564
25 kg	524510	
Sodium hydroxide solution 35%	1 l	480591
Sodium hydroxide solution 35-37%	5 l	502112
Sodium hydroxide solution 40%	5 l	502721
Sodium hydroxide solution 5% w/v	5 l	524502
Sodium hydroxide, pellets	1 kg	480507
Sulfuric acid 10% v/v	1 l	502591
Sulfuric acid 20%	1 l	410511000
Sulfuric acid 25 %	2.5 l	PS0212/21

Product	Pkg	Code
Sulfuric acid 30 %	1 l	PS0009/15
Sulfuric acid 50%	1 l	E306702
	5 l	528541
Sulfuric acid 62%	2.5L	PS0894/21
Sulfuric acid 69%	2.5 l	PS0893/21
Sulfuric acid 72%	2.5 l	502771
Sulfuric acid 85 %	1 l	PS0433/15
Sulfuric acid 90%	1 l	410391
	2.5 l	410394
Sulfuric acid 95 - 97 %	1 l	502302
Sulfuric acid 96%	1 l	410301
	1 l PEHD	524540
	2.5 l	410306
2.5 l PEHD	524541	
Sulfuric acid 98%	1 l	410421
	2.5 l	502641
Sulfuric acid d=1,820	5 l	502020
Trifluoroacetic acid	250 ml	411564
	1 kg	P0080212

## Do you work safely?

asecos®

- Do you use dangerous chemicals ?
- Do you consider chemical incompatibilities for the storage of hazardous products?
- Do you know the legislation on the handling and storage of hazardous materials in effect on the workstation?
- Are your flammable substances stored in safety cabinets certified to NF-EN-14470-1?
- Do you apply these rules?

You do not have 5/5 to this questionnaire?  
**CARLO ERBA Reagents** in partnership with **asecos®** has the solutions to assist you in the security of your workstation.  
 Your sales manager is available to bring you his expertise.

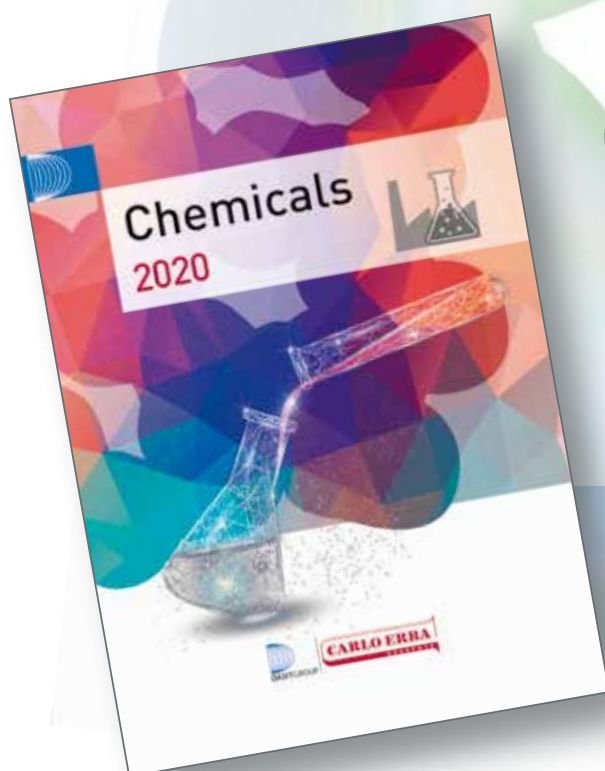
SAMPLE  
PREPARATION



# SOLVENTS FOR ANALYSIS

Product	Pkg	Code
Acetone	1 l	400961
	2,5 l	400965
Butanol-1	1 l	414131
Chloroform stabilized with ethanol	1 l	438601
	2,5 l	438603
Cyclohexane	1 l	436903
	2,5 l	436905
Dichloromethane stabilized with amylene	1 l	463311
	2,5 l	463314
Diethyl ether stabilized with BHT	1 l	447521
	2,5 l	447523
Diethyl ether not stabilized	1 l	447534
Dimethylsulphoxide	1 l	445103
Ethanol 96°	1 l	414634
	2,5 l	414632
Ethanol absolute anhydrous	1 l	414601
	2,5 l	414605
Ethyl acetate	1 l	448251
	2,5 l	448256
Ethyl methyl ketone	1 l	462701
Glycerol (30°Bé)	1 l	453752
	500 ml	453751
Isobutanol	1 l	414211
Isooctane	1 l	456734
	2,5 l	456732
Methanol	1 l	414819
	2,5 l	414815
Methyl isobutyl ketone	1 l	461945
n,n-Dimethylacetamide	1 l	444307
n-Heptane 99%	1 l	446787

Product	Pkg	Code
n-Hexane	1 l	446907
	2,5 l	446903
n-Hexane 99%	1 l	447041
n-Pentane 99%	1 l	468151000
Petroleum ether 30 - 40°C	5 l	447795
	1 l	447793
Petroleum ether 30 - 50°C	5 l	447804
	1 l	447801
Petroleum ether 35 - 60°C	2,5 l	528071
	1 l	528070
Petroleum ether 40 - 60°C	5 l	528280
	1 l	447833
Petroleum ether 40 - 65°C	2,5 l	447831
	5 l	447836
Petroleum ether 40 - 65°C	2,5 l	447812
	1 l	447811
Petroleum ether 40 - 70°C	5 l	447813
	1 l	447824
Petroleum ether 40 - 70°C	5 l	447824
	1 l	447821
Petroleum ether 60 - 80°C	1 l	427001
	2,5 l	427003
Petroleum ether 75 - 120°C	1 l	458001
	2,5 l	458003
Petroleum ether 80 - 100°C	1 l	427031
	1 l	415154
Propan-2-ol	2,5 l	415158
	1 l	487308
Tetrahydrofuran	1 l	487308
Toluene	1 l	488551
	2,5 l	488555
Water	10 l	307586
Xylene, mix of isomers	1 l	492301
	2,5 l	492306



Our **NEW Chemicals** catalogue will be available beginning of 2020!!  
 Meanwhile check our website to discover our complete range.  
[www.carloerbareagents.com](http://www.carloerbareagents.com)

# SALTS FOR ANALYSIS

Product	Plkg	Code
Aluminum ammonium sulfate dodecahydrate	1 kg	416897
Aluminum chloride hexahydrate	1 kg	416947
Aluminum nitrate nonahydrate	1 kg	417097
Aluminum potassium sulfate dodecahydrate	1 kg	417297
Aluminum sulfate	1 kg	417427
Ammonium acetate	1 kg	418777
Ammonium bicarbonate	1 kg	418927
Ammonium bromide	1 kg	419177
Ammonium carbamate	1 kg	419202
Ammonium carbonate	1 kg	419237
Ammonium chloride	1 kg	419417
Ammonium citrate dibasic	1 kg	419317
Ammonium fluoride	1 kg	419637
Ammonium formate	1 kg	419737
Ammonium molybdate tetrahydrate	500 g	420236
Ammonium nitrate	1 kg	420427
Ammonium oxalate monohydrate	1 kg	420477
Ammonium persulfate	1 kg	420627
Ammonium phosphate dibasic	1 kg	419837
Ammonium phosphate monobasic	1 kg	419787
Ammonium sulfate	1 kg	420777
Ammonium thiocyanate	1 kg	420887
Antimony potassium tartrate	1 kg	423037
Barium acetate	1 kg	424897
Barium chloride dihydrate	1 kg	425027
Barium nitrate	1 kg	425347
Barium sulfate	1 kg	425497
Cadmium acetate dihydrate	1 kg	432347
Calcium acetate monohydrate	1 kg	432987
Calcium carbonate	1 kg	433187
Calcium chloride anhydrous	1 kg	433407
Calcium chloride dihydrate	1 kg	433381
Calcium chloride hexahydrate	1 kg	433377
Calcium fluoride	1 kg	433587
Calcium nitrate tetrahydrate	1 kg	433957
Calcium oxide	1 kg	331567
Calcium phosphate monobasic monohydrate	250 g	433685
Chromium (III) chloride hexahydrate	1 kg	440727
Chromium (III) nitrate nonahydrate	1 kg	440776
Chromium (III) oxide	1 kg	440827
Chromium (III) potassium sulfate dodecahydrate	1 kg	440877
Chromium (III) sulfate	1 kg	440957
Cobalt (II) acetate tetrahydrate	1 kg	439156
Cobalt (II) ammonium sulfate hexahydrate	1 kg	439207
Cobalt (II) chloride hexahydrate	1 kg	439357
Cobalt (II) nitrate hexahydrate	1 kg	439457

Product	Plkg	Code
Copper (I) chloride	1 kg	475607
Copper (II) acetate hydrate	1 kg	475407
Copper (II) carbonate (basic)	1 kg	475557
Copper (II) chloride dihydrate	1 kg	475687
Copper (II) nitrate trihydrate	1 kg	475783
Copper (II) oxide	1 kg	475997
Copper (II) sulfate anhydrous	1 kg	476247
Copper (II) sulfate pentahydrate	1 kg	476097
Ethylenediaminetetraacetic acid disodium salt	1 kg	405497
Hydrazine dihydrochloride	1 kg	455057
Hydroxylamine sulphate	1 kg	455527
Iron (II) ammonium sulfate hexahydrate	1 kg	451457
Iron (II) chloride tetrahydrate	1 kg	451576
Iron (II) sulfate heptahydrate	1 kg	451877
Iron (III) ammonium sulfate dodecahydrate	1 kg	451507
Iron (III) chloride anhydrous sublimed	1 kg	451696
Iron (III) chloride hexahydrate	1 kg	451627
Iron (III) nitrate nonahydrate	1 kg	451727
Iron (III) sulfate	1 kg	451927
Lead (II) acetate basic	1 kg	468987
Lead (II) acetate trihydrate	1 kg	468937
Lead (II) carbonate basic	250 g	469155
Lead (II) nitrate	1 kg	469357
Lead (II) sulfate	1 kg	469506
Lead (IV) oxide	1 kg	469057
Lithium carbonate	1 kg	458207
Lithium chloride	1 kg	458257
Lithium nitrate	1 kg	458356
Lithium sulfate monohydrate	1 kg	458405
Magnesium acetate tetrahydrate	1 kg	459137
Magnesium carbonate basic	1 kg	459287
Magnesium chloride hexahydrate	1 kg	459337
Magnesium hydrogen phosphate trihydrate	1 kg	459437
Magnesium nitrate hexahydrate	1 kg	459537
Magnesium oxide	1 kg	459587
Magnesium perchlorate	1 kg	422252
Magnesium sulfate heptahydrate	1 kg	459667
Manganese (II) acetate tetrahydrate	1 kg	460007
Manganese (II) chloride tetrahydrate	1 kg	460159
Manganese (II) sulfate monohydrate	1 kg	460307
Manganese (IV) oxide	1 kg	460056
Mercury (II) sulfate	250 g	461405
Nickel (II) acetate tetrahydrate	1 kg	464477
Nickel (II) ammonium sulfate hexahydrate	1 kg	464547
Nickel (II) carbonate basic	1 kg	464605
Nickel (II) chloride hexahydrate	1 kg	464647
Nickel (II) nitrate hexahydrate	1 kg	464686
Nickel (II) sulfate hexahydrate	1 kg	464777

# SALTS FOR ANALYSIS

Product	Plkg	Code
Potassium acetate	1 kg	470147
Potassium bicarbonate	1 kg	470287
Potassium bisulfate	1 kg	470557
Potassium bromide	1 kg	470737
Potassium carbonate	1 kg	470807
Potassium chloride	1 kg	471177
Potassium chromate	1 kg	471297
Potassium citrate tribasic monohydrate	1 kg	471027
Potassium dichromate	500 g	470336
Potassium ferricyanide	1 kg	471367
Potassium ferrocyanide trihydrate	1 kg	471487
Potassium fluoride	1 kg	471562
Potassium hydrogen phthalate	1 kg	471866
Potassium iodide	1 kg	472737
Potassium iodate	50 g	472563
Potassium L-tartrate monobasic	1 kg	474517
Potassium nitrate	1 kg	473007
Potassium oxalate monohydrate	1 kg	473137
Potassium permanganate	100 g	476671
Potassium phosphate dibasic anhydrous	1 kg	471787
Potassium phosphate dibasic trihydrate	1 kg	471767
Potassium phosphate monobasic	1 kg	471687
Potassium pyrosulphate	100 g	474016
Potassium sodium tartrate tetrahydrate	1 kg	474117
Potassium sulfate	1 kg	474167
Potassium tartrate	1 kg	474467
Potassium thiocyanate	1 kg	474357
Silver nitrate	1 kg	423957
Silver sulfate	25 g	424201
Sodium acetate anhydrous	1 kg	478167
Sodium acetate trihydrate	1 kg	478137
Sodium ammonium hydrogen phosphate	1 kg	478357
Sodium bicarbonate	1 kg	478537
Sodium bisulfate monohydrate	1 kg	478677
Sodium bromide	1 kg	479057
Sodium carbonate anhydrous	1 kg	479307
Sodium carbonate decahydrate	1 kg	479127
Sodium carbonate monohydrate	1 kg	479257
Sodium chloride	1 kg	479687
Sodium citrate tribasic dihydrate	1 kg	479487
Sodium fluoride	1 kg	479957
Sodium metabisulfite	1 kg	481287
Sodium metaperiodate	1 kg	482236
Sodium molybdate dihydrate	1 kg	481687
Sodium nitrate	1 kg	481757
Sodium nitrite	1 kg	481827
Sodium oxalate	1 kg	482067
Sodium peroxide	1 kg	482252

Product	Plkg	Code
Sodium phosphate dibasic anhydrous	1 kg	480141
Sodium phosphate dibasic dihydrate	1 kg	480227
Sodium phosphate dibasic dodecahydrate	1 kg	480137
Sodium phosphate monobasic monohydrate	1 kg	480087
Sodium phosphate tribasic dodecahydrate	1 kg	480277
Sodium pyrophosphate decahydrate	1 kg	482427
Sodium sulfate anhydrous	1 kg	483007
Sodium sulfate anhydrous	1 kg	483007
Sodium sulfate decahydrate	1 kg	482957
Sodium sulfide nonahydrate	1 kg	483487
Sodium sulfite anhydrous	1 kg	483257
Sodium tartrate dihydrate	1 kg	483637
Sodium tetraborate anhydrous	1 kg	483736
Sodium tetraborate decahydrate	1 kg	478817
Sodium thiosulfate pentahydrate	1 kg	483827
Strontium chloride hexahydrate	1 kg	485457
Strontium nitrate	1 kg	485607
Tin (II) chloride dihydrate	1 kg	485007
Titanium dioxide	1 kg	488257
Zinc acetate dihydrate	1 kg	493807
Zinc chloride anhydrous	1 kg	494107
Zinc nitrate hexahydrate	1 kg	494507
Zinc oxide	1 kg	494607
Zinc sulfate heptahydrate	1 kg	494907
Zinc sulfate monohydrate	1 kg	495007
Zinc sulfide	1 kg	495107

SAMPLE  
PREPARATION



# FILTER AIDS

**B**ESIDES the widely used silica gel, other products with particular characteristics are also available and offer a series of valid alternatives for resolving numerous separation problems.

CARLO ERBA Reagents proposes a wide range of silica gel among the general used types.



Product	Pkg	Code
Aluminum oxide (acid)	250 g	417185
	1 kg	417182
Aluminum oxide (basic)	100 g	417214
	1 kg	417217
Aluminum oxide (neutral)	250 g	417245
	1 kg	417241
Aluminum oxide activated	1 kg	312261
Calcium carbonate	250 g	433245
Cellulose, powder	250 g	436061
Charcoal activated	250 g	434455
	1 kg	434454
Dicalite 4158	500 g	P8880014
	1 kg	P8880017
	5 kg	P8880027
Florisil 100-200 mesh	100 g	452351
	500 g	452353
Florisil 60-100 mesh for chromatography	100 g	452331
	500 g	452333
	1 kg	452332
Florisil 60-100 mesh for pesticides analysis	100 g	452271
	500 g	452273
Kieselguhr composed	250 g	449895
	250 g	449897
Magnesium oxide	1 kg	459617
Sand purified	1 kg	477153

Product	Pkg	Code
Silica gel 60A 6 - 35 $\mu$	1 kg	P2010017
	5 kg	P2010027
	25 kg	P2010044
Silica gel 60A 20 - 45 $\mu$	1 kg	P2200017
	5 kg	P2200027
Silica gel 60A 35 - 70 $\mu$	1 kg	P2000017
	2 kg	P2000026
	5 kg	P2000027
	25 kg	P2000044
Silica gel 60A 40 - 63 $\mu$	1 kg	P2050017
	5 kg	P2050027
	25 kg	P2050044
Silica gel 60A 70 - 200 $\mu$	1 kg	P2100017
	2 kg	P2100026
	5 kg	P2100027
Silica gel 60A 0,06+0,20 mm	25 kg	P2100044
	500 g	453336
	1 kg	453337
	5 kg	453332
	20 kg	453331

SAMPLE PREPARATION

# VOLUMETRIC SOLUTIONS / READY-TO-USE

To meet the requirements of users, both in the field of production control and in the area of research it is important to:

- Identify and control according to increasing demands
- Work according to Good Laboratory Practice
- Follow the general requirements for accreditation and certification of laboratories

CARLO ERBA Reagents offers a complete range for large consumption of ready-to-use volumetric solutions, with guaranteed quality.

- Exact title of the batch printed on the label and on the certificate of analysis
- Reference and traceability to S.R.M. of N.I.S.T.
- Assay precision: +/- 0.1%, where indicated
- Available in both polythene or glass bottles, with ISO 45 bottle mouths which are adaptable to automatic titrators
- Available in 5L and 10L Kubidos® packages supplied with tap and cap, ideal for excellent storage and dosing of the product.



*Kubidos® consists of a cubic box with a HDPE container, a tap and cap ensuring easy flow of the required volume. With the low volume of product in contact with air, the risks of carbonation of alkaline solutions and microbial contamination are limited.*

# VOLUMETRIC SOLUTIONS / READY-TO-USE

Product	NIST traceability	Pkg	Code	Product	NIST traceability	Pkg	Code
Acetic acid 0.1 mol/l (0.1N)		1 l	P3100015	Hydrochloric acid 4 mol/l (4N)		1 L	502010
Acetic acid 1 mol/l (1N)		1 l	502000			1 l	PS0589/15
		5 l	524605			5 l	PS0589/22
Ammonium thiocyanate 0.1 mol/l (0.1N)		1 l	420977	Iodine 0.05 mol/l (0.1N)	x	500 ml	456036000
Ethylenediaminetetraacetic acid disodium salt 0.05 mol/l (0.1N)	x	1 l	405501000		x	1 l	456037000
Ethylenediaminetetraacetic acid disodium salt 0.1 mol/l (0.2N)	x	5 l	405502000	Iodine 0.5 mol/l (1N)	x	500 ml	456135000
	x	1 l	405511000		x	1 l	456137000
	x	10 l	405512000	Nitric acid 0.1 mol/l (0.1N)	x	500 ml	408206000
	x	5 l	405513000	Nitric acid 1 mol/l (1N)	x	1 l	408171000
Ethylenediaminetetraacetic acid disodium salt 0.01 mol/l (0.02N)	x	1 l	405442000		x	500 ml	408176000
Hydrochloric acid 6 mol/l (6N)		1 L	502831	Nitric acid 2 mol/l (2N)	x	5 l	408185000
Hydrochloric acid 0.0714 mol/l (N/14)		10 l	526533	Nitric acid 8 mol/l (8N)		2,5 l	PS0311/20
Hydrochloric acid 0.714 mol/l (N/1.4)		10 l	526531	Perchloric acid 0.1 mol/l (0.1N) in acetic acid	x	1 l	409131
Hydrochloric acid 1.128% (m/v)		1 l	502761		x	500 ml	409136
Hydrochloric acid 3 mol/l (3N)		25 l	502011	Potassium chloride 0.01 mol/l (0.01N)		1 L	505033
Hydrochloric acid 6 mol/l (6N)		18 l	502832	Potassium hydroxide 0.1 mol/l (0.1N)	x	10 l	472451000
Hydrochloric acid 0.01 mol/l (0.01N)	x	1 l	404267		x	5 l	472452000
Hydrochloric acid 0.02 mol/l (0.02N)		5 L	526537		x	1 l	472457000
		1 L	PS0342/15	Potassium hydroxide 0.1 mol/l (0.1N) in ethanol	x	1 l	472041000
Hydrochloric acid 0.05 mol/l (0.05N)		1 l	PS0587/15	Potassium hydroxide 0.1 mol/l (0.1N) in methanol	x	1 l	472484000
Hydrochloric acid 0.1 mol/l (0.1N)	x	10 l	404191000		x	500 ml	472486000
	x	5 l	404192000	Potassium hydroxide 0.23 mol/l (0.23N)		5 L	502092
	x	1 l	404197000	Potassium hydroxide 0.25 mol/l (0.25N)	x	10 l	472421000
Hydrochloric acid 0.1 mol/l (0.1N) in propanol-2		1 L	526536		x	5 l	472422000
Hydrochloric acid 0.2 mol/l (0.2N)		1 l	502631		x	1 l	472427000
Hydrochloric acid 0.2 mol/l (0.2N) in propanol-2		1 l	526535	Potassium hydroxide 0.46 mol/l (0.46N)		5 L	502212
Hydrochloric acid 0.5 mol/l (0.5N)	x	10 l	404141000	Potassium hydroxide 0.5 mol/l (0.5N)	x	10 l	472331000
	x	5 l	404142000		x	5 l	472332000
	x	1 l	404147000		x	1 l	472337000
Hydrochloric acid 1 mol/l (1N)		5 l	528673	Potassium hydroxide 0.5 mol/l (0.5N) in ethanol	x	1 l	472021000
	x	10 l	404091000		x	1 l	472022000
	x	5 l	404092000	Potassium hydroxide 0.5 mol/l (0.5N) in methanol	x	1 l	472364000
	x	1 l	404097000		x	500 ml	472366000
Hydrochloric acid 2 mol/l (2N)	x	10 l	404061000		x	5 l	472367000
	x	5 l	404062000	Potassium hydroxide 1 mol/l (1N)	x	10 l	472281000
	x	1 l	404067000		x	5 l	472282000
Hydrochloric acid 3 mol/l (3N)		1 L	502621		x	1 l	472287000
		2,5 l	502622	Potassium nitrate 1 mol/l (1N)		250 ml	473045
				Potassium permanganate 0.02 mol/l (0.1N)	x	5 l	473565000
					x	1 l	473567000
					x	1 l	473514000

# VOLUMETRIC SOLUTIONS / READY-TO-USE

Product	NIST traceability	Pkg	Code
Potassium thiocyanate 0.1 mol/l (0.1N)		1 l	E474417
Silver nitrate 0.01 mol/l (N/100)		1 l	PS0030/15
Silver nitrate 0.05 mol/l (0.05N)	x	1 l	424101000
Silver nitrate 0.1 mol/l (0.1N)	x	10 l	424061000
	x	5 l	424062000
	x	5 l	424063000
	x	1 l	424067000
Silver nitrate 0.5 mol/l (0.5N)	x	1 l	424051000
Silver nitrate 1 mol/l (1N)	x	1 l	424035000
	x	500 ml	424036000
Sodium chloride 5 mol/l (5N)		1 l	502131
Sodium hydroxide 0.1 mol/l (N/10)	x	5 l	480891000
	x	10 l	480892000
	x	10 l	480893000
Sodium hydroxide 0.25 mol/l (N/4)	x	1 l	480897000
	x	5 l	480861000
	x	10 l	480862000
Sodium hydroxide 0.357 mol/l (0.357N)		1 l	480837000
		1 l	480837000
Sodium hydroxide 0.5 mol/l (N/2)	x	5 l	480771000
	x	10 l	480772000
	x	10 l	480773000
	x	1 l	480777000
	x	5 l	480711000
Sodium hydroxide 1 mol/l (1N)	x	10 l	480713000
	x	5 l	480714000
	x	1 l	480717000
Sodium hydroxide 2 mol/l (2N)	x	10 l	480681000
	x	5 l	480682000
	x	500 ml	480686000
	x	1 l	480687000

Product	NIST traceability	Pkg	Code
Sodium hydroxide 4 mol/l (4N)		2,5 l	502662
Sodium hydroxide 5 mol/l (5N)		5 l	526512
		1 l	526513
Sodium hydroxide 0.2 mol/l (N/5)		500 ml	502782
		10 l	502781000
Sodium hydroxide 0.7 mol/l (N/1.4)		10 l	526511
Sodium thiosulfate 0,0197 mol/l (0,0197N)		2.5 l	484155
Sodium thiosulfate 0.0394 mol/l (0.0394N)		2.5 l	484141
Sodium thiosulfate 0.1 mol/l (0.1N)	x	5 l	484072000
	x	1 l	484077000
Sulfuric acid 0.005 mol/l (0.01N)		5 l	PS0026/95
Sulfuric acid 0.01 mol/l (0.02N)		1 l	PS0047/15
Sulfuric acid 0.02 mol/l (0.04N)		1 l	PS0219/15
		5 l	PS0219/95
Sulfuric acid 0.05 mol/l (0.1N)	x	5 l	410712000
	x	1 l	410717000
Sulfuric acid 0.1 mol/l (0.2N)		1 l	502100000
Sulfuric acid 0.125 mol/l (0.25N)		5 l	PS0445/22
Sulfuric acid 0.13 mol/l (0.26N)		5 l	502651
Sulfuric acid 0.25 mol/l (0.5N)	x	5 l	410663000
	x	1 l	410667000
Sulfuric acid 0.26 mol/l (0.52N)		5 l	502202
Sulfuric acid 0.33 mol/l (2N/3)		1 l	410634
Sulfuric acid 0.5 mol/l (1N)	x	5 l	410572000
	x	5 l	410575000
	x	1 l	410577000
Sulfuric acid 1 mol/l (2N)		1 l	410547000
Zinc sulfate 0.05 mol/l (0.05N)		1 l	494931
Zinc sulfate 0.1 mol/l (0.2N)		1 l	494921



# NORMEX / CONCENTRATED VOLUMETRIC SOLUTIONS

CARLO ERBA Reagents also offers a series of concentrated volumetric solutions packaged in convenient NORMEX vials. These are ideal for users who would like to prepare solutions immediately before the analysis in a rapid and precise manner. This brand comes in concentrated diluting ampoules, the preparation is effective into 1 liter of distilled water, rapidly transforming the vials contents into volumetric solution.

- 1 vial = 1 l of solution,
- To dilute with distilled water,
- Titration factor +/- 0,005 ,
- Economic and less bulky,
- Glass or plastic vial according to the molecule,
- Instructions for use on the box.



Product	Volume	Code
Acetic acid 0.1 mol/l (0.1N)	55 ml	401561
Ammonium thiocyanate 0.1 mol/l (0.1N)	55 ml	421001
Ammonium thiocyanate 0.01 mol/l (0.01N)	55 ml	421061
Ethylenediaminetetraacetic acid disodium salt 0.1 mol/l (0.2N)	165 ml	405421
Ethylenediaminetetraacetic acid disodium salt 0.01 mol/l (0.02N)	55 ml	405431
Hydrochloric acid 1 mol/l (1N)	165 ml	404111
Hydrochloric acid 0.5 mol/l (0.5N)	165 ml	404161
Hydrochloric acid 0.1 mol/l (0.1N)	55 ml	404211
Hydrochloric acid 0.01 mol/l (0.01N)	55 ml	404251
Iodine 0.05 mol/l (0.1N)	60 ml	456051
Iodine 0.005 mol/l (0.01N)	60 ml	456121
Nitric acid 0.1 mol/l (0.1N)	55 ml	408231
Oxalic acid 0.05 mol/l (0.1N)	165 ml	408871
Oxalic acid 0.005 mol/l (0.01N)	55 ml	408901
Potassium bromate 0.0167 mol/l (0.1N)	60 ml	470681
Potassium dichromate 0.0167 mol/l (0.1 N)	60 ml	470501
Potassium hydroxide 1 mol/l (1N)	165 ml	472311
Potassium hydroxide 0.5 mol/l (0.5N)	55 ml	472391
Potassium hydroxide 0.1 mol/l (0.1N)	55 ml	472511

Product	Volume	Code
Potassium iodate 0.0167 mol/l (0.1N)	60 ml	472601
Potassium iodate 0.00167 mol/l (0.01N)	60 ml	472631
Potassium permanganate 0.02 mol/l (0.1N)	65 ml	473591
Potassium permanganate 0.002 mol/l (0.01N)	60 ml	473661
Silver nitrate 0.1 mol/l (0.1N)	60 ml	424081
Silver nitrate 0.01 mol/l (N/100)	60 ml	424161
Sodium arsenite 0.05 mol/l (0.1N)	60 ml	402381
Sodium carbonate 0.05 mol/l (0.1N)	55 ml	479211
Sodium chloride 0.1 mol/l (0.1N)	55 ml	479781
Sodium hydroxide 1 mol/l (1N)	165 ml	480741
Sodium hydroxide 0.5 mol/l (0.5 N)	55 ml	480801
Sodium hydroxide 0.1 mol/l (0.1 N)	55 ml	480921
Sodium hydroxide 0.01 mol/l (0.01 N)	55 ml	481001
Sodium thiosulfate 0.1 mol/l (0.1N)	55 ml	484121
Sodium thiosulfate 0.01 mol/l (0.01N)	55 ml	484161
Sulfuric acid 0.5 mol/l (1N)	165 ml	410591
Sulfuric acid 0.25 mol/l (0.5N)	55 ml	410681
Sulfuric acid 0.05 mol/l (0.1N)	55 ml	410731
Sulfuric acid 0.005 mol/l (0.01N)	55 ml	410791

# BUFFERS IN SOLUTION / READY-TO-USE

THESE solutions are traceable to N.I.S.T and precisely standardized at 20°C, which makes them ideal for solving calibration problems with other solutions and preventing errors due to various factors such as the kind of salt or water used.

To enable immediate identification of the buffer, colored solutions, traceable to N.I.S.T, are available.



Product	Pkg	Code	
Ammonia buffer solution pH 10	5 l	PS0194/22	
	5 l	PS0194/95	
Boric buffer solution pH 10.4	10 l	PS0226/41	
Buffer acetate pH 4.5	5 l	PS0784/95	
Buffer pH 1	500 ml	486211	
Buffer pH 1.68	500 ml	486751	
Buffer pH 2	500 ml	486231	
Buffer pH 3	500 ml	486251	
	1 l	486252	
Buffer pH 3.56	500 ml	486741	
Buffer pH 4	500 ml	486271	
	1 l	486273	
	5 l	486274	
Color : Red	500 ml	486761	
Color : Red	1 l	486762	
Buffer pH 4.62	500 ml	486841	
Buffer pH 5	500 ml	486311	
Buffer pH 6	500 ml	486331	
Buffer pH 6.88	500 ml	486871	
Buffer pH 7	500 ml	486451	
	1 l	486453	
	5 l	486454	
Color : Green	500 ml	486791	
Color : Green	1 l	486792	
Buffer pH 8	500 ml	486541	
	1 l	486542	
Buffer pH 9	500 ml	486591	
	1 l	486593	
	5 l	486594	
Color : Blue	500 ml	PS0427/19	
Buffer pH 9.22	500 ml	486881	
Buffer pH 10	500 ml	486611	
	1 l	486613	
	5 l	486614	
Buffer pH 10.06	Color : Blue	500 ml	486811
	Color : Blue	1 l	486812
Buffer pH 11	500 ml	486771	
	1 l	486772	
Buffer pH 12	500 ml	486691	
Buffer pH 13	500 ml	486701	

# INDICATORS FOR pHMETRY

INDICATORS represent a practical and important tool for monitoring the progress of a reaction of an aqueous solution, operations which are often essential for obtaining correct analytical data. The direct method, i.e., placing the indicator in the solution being analyzed, is the most efficient and thus the most widely adopted method for acid-base titration. Since the indicator competes with the species being titrated, its use in significant quantities may alter the result of the titration; therefore it is critically important to choose the most appropriate indicator for the type of analysis being performed.

For the determination of pH values in aqueous solutions, universal indicators in solution are available for measurements in a variety of pH ranges. These products are supplied complete with a color scale and detailed instructions for use. The sensitivity of these solutions is higher than that of pH indicator papers.

Product	Pkg	Code
Alizarin saturated solution in ethanol	250 ml	E415932
Alkali Blue 6B solution 2% in ethanol	250 ml	E428541
Bromocresol Green 0.04% hydroalcoholic solution	250 ml	E491255
Bromocresol purple solution 0.4% in ethanol	250 ml	E470045
Bromophenol blue solution 0.4% in ethanol	250 ml	E428665
Bromophenol blue solution 0.02%	100 ml	428691
Bromothymol blue 0.4% in ethanol	250 ml	E428715
Bromothymol blue 0.02%	100 ml	428731
o-Cresol Red solution 0.2% in ethanol	250 ml	E476805
Crystal violet solution 0.5% in anhydrous acetic acid	500 ml	E491551
Indicator universal pH 0-5 hydroalcoholic solution	25 ml	E455661
	500 ml	E455662
Indicator universal pH 1-11 hydroalcoholic solution	25 ml	E455702
	500 ml	E455706
Indicator universal pH 1-11 water solution	25 ml	E455711
	500 ml	E455712
Methylene blue solution 1%	500 ml	E429011
Methyl Orange solution 0.1%	500 ml	E423562
Methyl red solution water/ethanol 0.2%	250 ml	E476915
Methyl red solution 0.1% in ethanol	250 ml	E476921
Phenol Red solution 0.2% in ethanol	250 ml	E476845
Phenolphthalein solution 1% in ethanol	250 ml	E451191
Phenolphthalein solution 1% in ethanol	1 l	E451192
Thymol blue 0.4% in ethanol	250 ml	E429235
Thymolphthalein 0.1% hydroalcoholic solution	250 ml	E487755
o-Tolidine solution 0.1%	1 l	488461

# INDICATORS FOR UV-FLUORESCENCE, REDOX, PRECIPITATION AND COMPLEXOMETRY

■ **UV Fluorescence indicators** : The use of chromatic indicators may not be equally effective with turbid or colored solutions, or when the change in concentration is not fast enough. In these cases, instrumental methods or fluorescence indicators may be adopted to identify the end point.

■ **Oxidation-reduction indicators**: These indicators are substances that vary in color depending on whether they are in oxidized or reduced form. Their behavior is very similar to that of the indicators used in acid-base titration; however, while the latter are sensitive to changes in the solution's pH, oxidation-reduction indicators are sensitive to changes in the system's potential. The color changes are usually very clear and well-defined.

■ **Precipitation indicators** : Precipitation titration methods have very limited applications compared to other types of volumetric analysis, but the few that are still employed are very useful in practical terms. The titration process is based on the formation of an insoluble compound between the titrating agent and the substance being titrated, which gradually results from the reaction that occurs during titration. Precipitation indicators allow visual identification of the end point of titration thanks to a change in color, which corresponds to the variation of a key characteristic, such as a change in the precipitate's electric charge (isoelectric point).

■ **Complexometry indicators** : These are organic colorings, mainly of the azo group, which form stable complexes with metals and are characterized by different colors depending on whether they are in free form or complex form in the solution.

Product	Pkg	Code
Alizarin	25 g	415892
Alizarin red	25 g	416002
Alizarin yellow R	10 g	453451
Anthrone	25 g	423282
Arsenazo III	1 g	424281
Arsenazo III	25 g	424282
Azomethine H	10 g	424691
Bromocresol Green	1 g	491207
Bromocresol purple	5 g	470038
Bromophenol blue	5 g	428658
Bromophenol blue indicator	1 l	PS0269/15
Bromothymol blue	5 g	428708
Calcon	25 g	434171
Calconcarbonic acid	5 g	403308
Calmagite	5 g	434181
Chloramine T sodium salt	25 g	437555
Chloranil	50 g	437601
Chromotropic acid disodium salt	25 g	404872
Clayton's yellow	5 g	453518
o-Cresol red	5 g	476778
m-Cresol purple	1 g	470067
Crystal violet	25 g	491502
Diacetyldioxime	50 g	441553



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Product	Pkg	Code
Diacetyldioxime sodium salt	50 g	441623
2,6-Dichlorophenolindophenol sodium salt	5 g	442508
2,6-Dichloroquinone-4-chlorimide	5 g	442458
Diethylenetriaminepentacetic acid	250 g	405192
Dimedone	25 g	444252
p-Dimethylaminobenzaldehyde	100 g	444604
p-Dimethylaminobenzylidenerhodanine	5 g	444678
Dimidium bromide	1 g	445232
sym-Diphenylcarbazide	25 g	443752
sym-Diphenylcarbazone	10 g	443801
Diphenylthiocarbazone	50 g	444053
Dodecylbenzenesulphonic acid sodium salt	25 g	405352
Eriochrome black T	10 g	464221
Eriochromocyanine R	10 g	446811
Ferrous 0.025 mol/l solution	100 ml	526751
Fluorescein	25 g	452086
Fluorescein sodium salt	25 g	452112
Gentian violet	25 g	388703
Glyoxal-bis-(2-hydroxyanil)	10 g	454131
Indicator for ammoniacal nitrogen solution	250 ml	E455651
Indicator for iodometry	25 g	455622
Indigo carmine dried	25 g	434932
Inulin	25 g	455902
Litmus	100 g	489054
Luminol	25 g	458772
Metanil yellow	25 g	453542
3-Methyl-2-benzothiazolinone hydrazone hydrochloride	5 g	462238

Product	Pkg	Code
Methylene blue	100 g	428984
Methylene blue	25 g	429982
Methyl orange	25 g	423504
Methyl red	25 g	476882
Methylthymol blue sodium salt	1 g	429021
Methyl yellow	25 g	444552
Murexide	5 g	463608
Murexide	25 g	463609
Neocuproine hydrochloride	1 g	444731
o-Phenantroline-Iron (II) sulphate solution in sulphuric acid	100 ml	E450043
Phenol red	5 g	476838
Phenolphthalein	100 g	451154
Pyrocatechol violet	25 g	491872
Quinaldine red	25 g	476688
Red for oils O	25 g	476961
Starch paste solution 1%	250 ml	E477301
Starch paste solution 1%	1 l	E477302
Sudan III hydroalcoholic saturated solution	250 ml	E485952
Sudan yellow	25 g	453582
Thymol blue	5 g	429228
Thymolphthalein	5 g	487728
Thymolphthalein	25 g	487729
Tropaeolin O	10 g	490001
Xylenecyanol	1 g	492211
Xylenol orange	1 g	423597
Xylenol orange	5 g	423598

# ERBAqua® REAGENTS FOR KARL FISCHER METHOD

**E**RBAQUA® is the new CARLO ERBA Reagents brand, for its complete range of pyridine-free reagents for the volumetric and coulometric Karl Fischer determination of water.

The main features of this range are: safer to use fast and stable endpoints and long term titre stability.

## ONE COMPONENT VOLUMETRIC REAGENTS

**I**N ONE-COMPONENT volumetric Karl Fischer Titration, the titrant contains all the reagents required by the reaction: iodine, sulfur dioxide, base and an alcohol.

Available in two different titer strengths, 5 mg/ml and 2 mg/ml, they are suitable for routine analysis, and thanks to their methanol-free formulation, they can be used also if the sample contains aldehydes and ketones.

Product	Pkg	Code
Karl Fischer reagent 1 component 5 mg H <sub>2</sub> O/ml	1 l	570011
Karl Fischer reagent 1 component 2 mg H <sub>2</sub> O/ml	1 l	570021
Karl Fischer reagent 1 component 5 mg H <sub>2</sub> O/ml for aldehydes and ketones	1 l	570081

We also provide specific working media to dissolve the sample :

Product	Pkg	Code
Methanol, Minimum purity 99.9% water <0.005%	1 l	414981
Chloroform, Stabilized with ethanol water <0.005%	1 l	P02410E16
Karl Fischer solvent for aldehydes and ketones	1 l	570091
Karl Fischer solvent for the titration of oils and non polar samples	1 l	570031
Karl Fischer solvent for aldehydes and ketones and high molecular weight substances and non polar	1 l	570041

## TWO COMPONENTS VOLUMETRIC REAGENTS

**F**OR users who do frequent Karl Fischer analysis and need a higher degree of accuracy than one-component volumetric titration can provide, we recommend the two components range.

They give more accuracy in the results and have longer shelf life because the reagents required by the Karl Fischer reaction are separated between the titrant (iodine) and the working medium (sulfur dioxide and base). For general purposes, we offer two different titer strengths, 5 mg/ml and 2 mg/ml.

Product	Pkg	Code
Karl Fischer titrant 2 component 5 mg H <sub>2</sub> O/ml - non hygroscopic	1 l	570051
Karl Fischer titrant 2 component 2 mg H <sub>2</sub> O/ml - non hygroscopic	1 l	570061

In order to avoid side reactions in presence of aldehydes and ketones in the sample, we recommend to perform the analysis using the dedicated formulations : **570081** as titrant to be used with **570091** as working medium. For oils or other non-polar compounds, **570101** is the suitable working medium. In case of need for an extra buffering capacity of 5 mmol of acid/ml, **570121** is the suitable working medium.

Product	Pkg	Code
Karl Fischer buffer solution	500 ml	570111
Karl Fischer solvent 2 component	1 l	570071
Karl Fischer solvent for oils one component	1 l	570031
Karl Fischer solvent 2 component for aldehydes and ketones - Methanol free	1 l	570091
Karl Fischer solvent for oils 2 component	1 l	570101

# ERBAqua® REAGENTS FOR KARL FISCHER METHOD

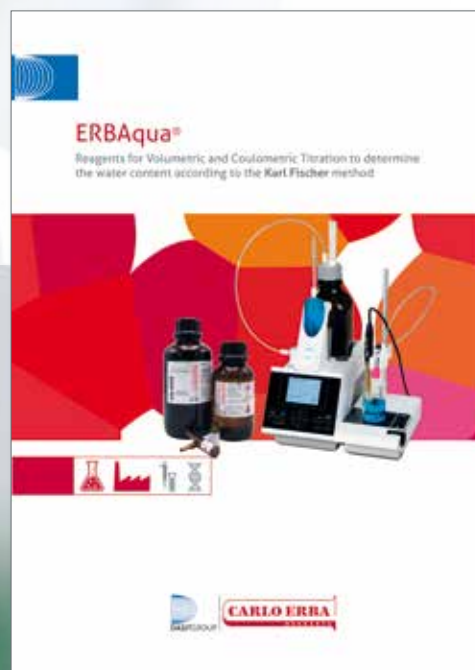
## WATER STANDARDS

**S**TANDARDIZATION of a Karl Fischer reagent is necessary in order to determine its water equivalency. The ERBAqua® range includes both volumetric and gravimetric reference materials suitable for this kind of application.

Download our **specific brochure** for more information on :

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

Product	Pkg	Code
Karl Fischer water standard 0.10 mg/g	10 x 5 ml	570201
Karl Fischer water standard 1.0 mg/g	10 x 5 ml	570211
Karl Fischer water standard 10.0 mg/g	10 x 5 ml	570221
Karl Fischer water standard 5.0 mg/ml	10 x 5 ml	570231





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