



Competence in Labware

Labware range



Welcome!

Our extensive range of products provides you with optimal support in your laboratory work, in a wide variety of application ranges. Regardless of whether your work involves volume measurement, sampling or storage: our aim is to develop, manufacture and provide you with products that will facilitate your work whilst continuing to ensure that you achieve perfect results.

This catalog includes all our products, as well as all the relevant, important information. In order to facilitate things for you, we have also divided our products into application ranges.

The different application ranges, such as titration, dosing and pipetting, now include all the VITLAB products that you require for these tasks. Consequently, the chapter on volume measurement includes volumetric flasks, graduated cylinders, graduated pitchers and other plastic products that facilitate your work and help you to achieve precise results.



Our wide range of products includes labware for almost all conceivable areas of application. However, you also have the option to have plastic labware made to measure and manufactured according to your needs. For example, you have the opportunity to determine the geometry and thickness of the various bottles and beakers that you require for special tasks. In addition, you also have the option to choose your own impressions, your own graduation or a special label. Labware that bears your company name and logo is particularly effective for advertising and marketing. Further information is available in the VITLAB Promotional chapter.

On request, VITLAB also offers fluorination, which makes the plastic surfaces even more stable when they come into contact with the many different organic solvents. Our state-of-the-art production facilities also allow us to manufacture and package sterile products in a controlled environment similar to that of a clean room.

Many things are possible – do not hesitate to ask what we can do for you!





VITLAB

your partner fo

Tradition

VITLAB represents 100 years of tradition. VITRI GmbH & Co. KG was founded in Mühlthal (Germany) in 1908. In 1989, the laboratory division was established as the independent company, VITLAB. Today, VITLAB is a leading manufacturer of liquid handling instruments and performance plastic products for one-time or long-term use. We develop and manufacture these products at our own production facility.

Quality

Independent inspections and routine internal audits guarantee the effectiveness of VITLAB's quality management system throughout the company, from development to shipment. As a result, the phrase 'Made by VITLAB' has become synonymous with quality. VITLAB has been certified since January 1994 and is currently DIN EN ISO 9001:2000 certified. Environmental protection is also firmly anchored in our corporate philosophy and VITLAB has been DIN EN ISO 14001 certified since May 1999.

r reliability

Service

Thanks to its intensive partnerships with distributors almost everywhere in the world, VITLAB can offer reliable availability of its products, sound advice and seamless logistics. Our qualified product training sessions provide information and tips on using our laboratory products and liquid handling devices. Just in case, our trained repair service is on hand to keep downtimes to an absolute minimum.

Advantages

It is difficult to imagine a laboratory today which does not make use of the wide variety of plastic materials. There are many good reasons for this: High quality plastic materials show a significant level of resistance to chemical substances. Superior break resistance means that the products can be used for a long period of time. Danger of injury in the laboratory is greatly reduced. Light weight materials make handling of the equipment easier. And last, but certainly not least: Laboratory equipment made from plastic materials is less expensive.



Fluoro plastic PFA

Extremely high standards are set for the laboratory products in trace analysis. VITLAB is one of the few manufacturers that uses fluorocarbon PFA in this area of application. Laboratory products that are manufactured using this high-performance plastic guarantee a high level of long-term stability for standard solutions.



For your information

Please understand that technical specifications, catalog numbers and designs may change during the validity period of this catalog. The illustrations that are used are for informative purposes and the details may vary from the description. All measures, with the exception of exact tolerances, are understood as approximate values. Please take into consideration that the actual testing and measuring results may be influenced by a variety of factors that are beyond our control. Therefore, you should carefully check the data prior to transferring it to the particular application in question.

The packaging units (SP) correspond to the minimum order quantities. All the relevant information is also available on the Internet at www.vitlab.de.

If you require any further information, please do not hesitate to call us.

VITLAB , VITLAB®, maneus®, pipeo®, VITsafe™ are brands of VITLAB GmbH.

Customer Service page 8

Titration page 9



Dosing page 15



Pipetting page 23



Volume measurement page 33



Saving and storing page 57



Bottling and weighing page 91



Filtering and decanting page 95



Stirring and mixing page 101



Connecting and controlling page 107



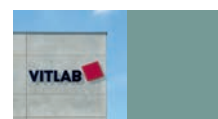
Fluoro plastic products page 113



VITLAB Promotional page 129



General and technical information page 132



VITLAB

Customer Service

Your personal point of contact

Our Customer Service staff is at your service to provide you with competent answers and advice to all your queries and questions concerning offers, orders and deliveries. Our Product Management and Sales Team are at your disposal at all times – also “on site” – with any technical information or assistance that you might require for your application.

VITLAB GmbH Customer Service

tel: +49 (0) 6026 9 77 99-0

fax: +49 (0) 6026 9 77 99-30

e-mail: info@vitlab.de

Speedy deliveries

VITLAB products can be ordered from distributors of laboratory equipment. A list of our authorized sales partners is available on the Internet at www.vitlab.de. Or simply ask us. Our state-of-the-art logistics at our plant in Grossostheim ensures high levels of availability for all the articles listed in the catalog.

Clear product statements

Our aim is to provide you with a clear and comprehensive presentation of all the product information that is relevant for you. We have used the following symbols in order to allow for quicker orientation:



product included in the VITLAB catalog for the first time



Class A volume measurement instrument in accordance with DIN ISO



KB, conformity attested product according to DIN ISO, with certificate



product suitable for foodstuffs in accordance with 2002/72/EC



product suitable for the storage of light sensitive media



product individually packaged in PE bags, labelled with article number, description and EAN code

Perfect Liquid Handling

HIGH-PRECISION TITRATION



VITLAB 
Competence in Labware

Titration with new dosage technology

Bottletop burette VITLAB continuous

Chemical volumetric analysis with minute liquid volumes requires a great deal of concentration. With VITLAB continuous, the bottletop burette, you can carry out continuous titration and comfortably attain secure results – and save a lot of time in the process. The patented¹⁾ double-piston pump holds the solution to be measured permanently and pulse-free – filling procedures are not necessary. Furthermore, this innovative technology increases security; its compact structure and low center of gravity reduce risk of spillage, especially with smaller bottles. The height and length of the discharge tube can be adjusted,

allowing you to work safely with both short and tall bottles. The patented²⁾ return dosage system from VITLAB has two advantages: it prevents the loss of valuable reagents and reduces the risk of splashing. The simple-to-use calibration function helps meet all the requirements of testing-apparatus monitoring – with minimal downtime. Margins of error are well within those specified in the German DIN EN ISO 8665-3 standard, even for partial volumes.

¹⁾ EP 801 982

²⁾ EP 542 241



By turning both thumbwheels, the titration liquid is pumped continually by the patented¹⁾ double-piston pump.



The patented²⁾ recirculation valve from VITLAB reduces reagent loss and increases safety.



The angled display clearly shows the titration volume and simplifies operation.



- 1** Long operating life from two easily-replaced micro-batteries 1.5 V
- 2** Large, easy-to-read digits
- 3** Simple, media-specific readjustment via keypad
- 4** Continual supply of titration medium with patented¹⁾ double-piston pump
- 5** Telescopic discharge tube which can be adjusted in both height and length
- 6** Continuous and precise regulation of titration speed with a large practical thumbwheel
- 7** Reduced titrant waste with patented²⁾ recirculation valve
- 8** Rotates freely 360° on bottle to align the label of the bottle with the touch panel
- 9** Adaptable to bottles of different sizes
- 10** Telescopic, extractable intake tube adapts burette to bottles of varying heights



VITLAB continuous E/RS



With recirculation valve and patented double-piston pump for permanent and pulse-free supply of the solution to be measured. Conformity certified according to DIN 12600.

Margins of error in accordance with DIN EN ISO 8655-3:

	VITLAB continuous E at 25 ml	VITLAB continuous RS at 50 ml
Accuracy:	$\leq \pm 0.2 \%$	$\leq \pm 0.2 \%$
Coefficient of variation:	$\leq 0.1 \%$	$\leq 0.1 \%$

Items supplied:

VITLAB continuous E/RS, thread adapters PP GL 32, GL 38 and S*40, telescopic intake tube, telescopic discharge tube, two micro-batteries 1.5 V (LR 03/AAA), instruction manual, quality certificate.

*Buttress thread

Type	Volume/t ml	Thread	SP	Art. No.
E	2.5	GL 45	1	1620506
RS	5.0	GL 45	1	1620507

Recommended application range for the bottle-top burette VITLAB continuous:

The VITLAB bottle-top burette continuous E/RS can be used for the following titrants up to a concentration of 2 mol/l:

Reagent	Reagent
Acetic acid	Potassium dichromate solution
Alcoholic potassium hydroxide solution	Potassium hydroxide solution
Ammonium iron (II) sulfate solution	Potassium iodate solution
Ammonium thiocyanate solution	Potassium permanganate solution
Barium chloride solution	Potassium thiocyanate solution
Bromide bromate solution	Silver nitrate solution
Cerium (IV) sulfate solution	Sodium arsenite solution
EDTA solution	Sodium carbonate solution
Hydrochloric acid	Sodium chloride solution
Iodine solution	Sodium hydroxide solution
Iron (II) sulfate solution	Sodium nitrite solution
Nitric acid	Sodium thiosulfate solution
Oxalic acid solution	Sulfuric acid
Perchloric acid	Tetra-n-butylammonium hydroxide solution
Potassium bromate solution	Zinc sulfate solution
Potassium bromate bromide solution	

The above table and recommendations have been compiled with the greatest care and reflect testing on the basis of the available information. Always follow the instructions in the operating manual of the instrument, as well as the reagent manufacturer's specifications. Should you require information on chemicals that are not listed, please do not hesitate to contact us. As of: 02/08.

Titration

Accessories for bottletop-burettes

For detailed descriptions of spare parts please see the instruction manual of the instrument or our homepage www.vitlab.de.

Description	External thread	Bottle thread	SP	Art. No.
Bottle, amber glass, coated, square, 1000 ml		GL 45	1	1671500
Bottle, amber glass, coated, round, 2500 ml		GL 45	1	1671510
Drying tube, PP, unfilled			1	1671095
NS-adapter, PP	GL 32	NS 19/26	1	1670066
NS-adapter, PP	GL 32	NS 24/29	1	1670067
NS-adapter, PP	GL 32	NS 29/32	1	1670068
Thread adapter, PTFE/ETFE	GL 32	GL 28	1	1670080
Thread adapter, PTFE/ETFE	GL 38	GL 32	1	1670095
Thread adapter, PTFE/ETFE	GL 45	GL 32	1	1670100
Thread adapter, PTFE/ETFE	GL 45	GL 38	1	1670115
Thread adapter, PTFE/ETFE	GL 45	S*40	1	1670125
Thread adapter, PP	GL 32	GL 28	1	1670155
Thread adapter, PP	GL 38	GL 32	1	1670085
Thread adapter, PP	GL 45	GL 32	1	1670180
Thread adapter, PP	GL 45	GL 38	1	1670110
Thread adapter, PP	GL 45	S*40	1	1670120
* Buttress thread				



VITLAB symbiotic, type Dr. Schilling



Plastic-coated burette made of borosilicate glass 3.3. Class B. Conformity with DIN ISO 384. With Schellbach stripes (blue/white) and easily readable black scaling. Calibrated to deliver "Ex". Automatic zeroing. The stopcock of the burette is made of high quality plastic. Its PTFE plug turns easily and allows fine titration.

Special protection against breakage if the symbiotic gets knocked over:

- The temperature-resilient plastic coating helps the entire device to resist breakage and glass fragments are confined within the sheath
- A small bumper has been attached to the upper end of the upright measuring tube. This feature reduces the change of breakage

Material: burette of borosilicate glass 3.3, filling tube PP, burette stopcock PMP/PTFE, reservoir bottle PE-LD

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Bottle ml	SP	Art. No.
25	0.05	0.05	900	1000	1	106599
50	0.10	0.10	900	1000	1	106699





Burettes



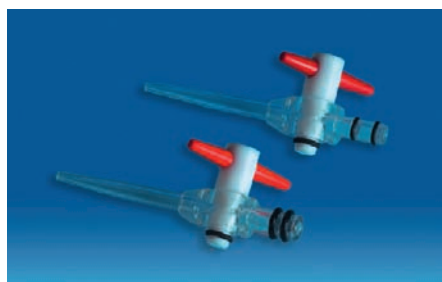
Plastic-coated burette made of borosilicate glass 3.3. Class B. Conformity with DIN ISO 384. With Schellbach stripes (blue/white) and easily readable black scaling. Calibrated to deliver "Ex".

The stopcock of the burette is made of high quality plastic. Its PTFE plug turns easily and allows fine titration.

The temperature-resilient plastic coating helps the entire device to resist breakage and glass fragments are confined within the sheath.

Material: burette of borosilicate glass 3.3, burette stopcock PMP/PTFE.

Volume ml	Tolerance ± ml	Graduation ml	Length mm	SP	Art. No.
25	0.05	0.05	800	2	105599
50	0.10	0.10	800	2	105699



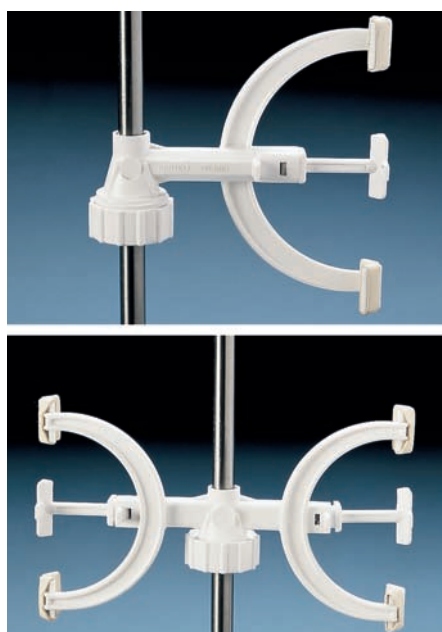
Burette stopcocks

Stopcocks made of PMP. Plugs of PTFE with polished surface turn easily but fit tightly. Insert with two seals.

Art. no. 105799: For burette tubes inner diam. 7.75 ± 0.1 mm.

Art. no. 105899: For burette tubes inner diam. 11.5 ± 0.1 mm.

For Burettes ml	Height	Inner-Ø tip	Immersion depth mm	SP	Art. No.
25	90	1.25	17	5	105799
50	90	1.25	17	5	105899



Burette clamps, PP

Fit rods with diameters of 8 to 14 mm. Clamp arms have rubber-coated tips for secure gripping of burettes.

Graduations and meniscus are visible at all times. Comes supplied with a stainless steel spring.

Type	SP	Art. No.
single	5	80139
double	5	80140

Perfect Liquid Handling

TOTALLY RELIABLE DOSING



VITLAB 
Competence in Labware

Lab routines quick, easy and safe

Bottletop-dispensers VITLAB genius and simplex

Extracting measured amounts of liquid from bottles is a routine laboratory task best carried out quickly, accurately, precisely, simply and safely, and without reagent loss.

The VITLAB genius and VITLAB simplex bottletop-dispensers are precision devices that not only accomplish these objectives, but also offer many other advantages. The direct displacement plungers, for example, use a fluoro plastic (PFA) seal that works like a windscreen wiper to prevent build-up of easily crystallizing media on the cylinder wall. The glass cylinder is also coated with a synthetic material that reduces risk of splashes if breakage should occur. The telescopic intake tube can be adjusted easily and smoothly to the height of the bottle. And, since the materials in contact with the media (PTFE, PFA, FEP, borosilicate glass and platinum-iridium) are resistant

to acids, solvents and bases, the bottletop-dispensers from VITLAB can be applied almost universally. All VITLAB dispensers are completely autoclavable at 121°C.

VITLAB genius is also equipped with our patented²⁾ recirculation valve that reduces reagent loss when ventilated. The simple-to-use calibration function of the genius helps to meet all of the requirements of testing-apparatus monitoring, with the minimum of downtime.

²⁾ EP 542 241



- 1 Media-specific readjustment by turning the adjustment setting (genius only)
- 2 Smooth handling! Direct displacement plunger with broad PFA seal prevents crystallization build-up
- 3 Volume settings are quickly and accurately adjusted with a practical screw mechanism
- 4 Reduced titrant waste with patented²⁾ recirculation valve (genius only)
- 5 Rotates freely 360° on bottle to align the label of the bottle with the touch panel
- 6 Attached tube-cap reduces the risk of drips
- 7 Adaptable to bottles of different sizes
- 8 Telescopic, extractable intake tube adapts dispenser to bottles of varying heights



VITLAB simplex



With variable volume. Conformity certified according to DIN 12600.

Margins of error in accordance with DIN EN ISO 8655-5:

Nominal volumes: 2.5 ml 5.0 to 100.0 ml

Accuracy: $\leq \pm 0.6 \%$ $\leq \pm 0.5 \%$

Coefficient of variation: $\leq 0.1 \%$ $\leq 0.1 \%$

Items supplied:

VITLAB simplex, three thread adapters of PP (see below), telescopic intake tube (200 to 350 mm), mounting key, instruction manual, quality certificate stating all test values.

Volume ml	Graduation ml	Thread	Adapter	SP	Art. No.
0.25 - 2.5	0.05	GL 32	GL 28, 45, S*40	1	1601503
0.5 - 5.0	0.10	GL 32	GL 28, 45, S*40	1	1601504
1.0 - 10.0	0.20	GL 32	GL 28, 45, S*40	1	1601505
2.5 - 25.0	0.50	GL 45	GL 32, 38, S*40	1	1601506
5.0 - 50.0	1.00	GL 45	GL 32, 38, S*40	1	1601507
10.0 - 100.0	2.00	GL 45	GL 32, 38, S*40	1	1601508

* Buttress thread

VITLAB simplex fix



With fixed volume. Conformity certified according to DIN 12600.

Margins of error in accordance with DIN EN ISO 8655-5:

Nominal volumes: 1.0 ml 5.0 to 10.0 ml

Accuracy: $\leq \pm 0.6 \%$ $\leq \pm 0.5 \%$

Coefficient of variation: $\leq 0.1 \%$ $\leq 0.1 \%$

Items supplied:

VITLAB simplex fix, three thread adapters of PP (see below), telescopic intake tube (200 to 350 mm), mounting key, instruction manual, quality certificate stating all test values.

Volume ml	Graduation ml	Thread	Adapter GL	SP	Art. No.
1.0	-	GL 32	GL 28, 45, S*40	1	1602502
5.0	-	GL 32	GL 28, 45, S*40	1	1602504
10.0	-	GL 32	GL 28, 45, S*40	1	1602505

* Buttress thread

Dosing

VITLAB genius



With variable volume, recirculation valve and media-specific recalibration. Conformity certified according to DIN 12600.

Margins of error in accordance with DIN EN ISO 8655-5:

Nominal volumes:	2.5 ml	5.0 to 100.0 ml
Accuracy:	$\leq \pm 0.6 \%$	$\leq \pm 0.5 \%$
Coefficient of variation:	$\leq 0.1 \%$	$\leq 0.1 \%$

Items supplied:
VITLAB genius, three thread adapters of PP (see below), telescopic intake tube (200 to 350 mm), mounting key, instruction manual, quality certificate stating all test values.

Volume ml	Graduation ml	Thread	Adapter	SP	Art. No.
0.25 - 2.5	0.05	GL 32	GL 28, 45, S*40	1	1605503
0.5 - 5.0	0.10	GL 32	GL 28, 45, S*40	1	1605504
1.0 - 10.0	0.20	GL 32	GL 28, 45, S*40	1	1605505
2.5 - 25.0	0.50	GL 45	GL 32, 38, S*40	1	1605506
5.0 - 50.0	1.00	GL 45	GL 32, 38, S*40	1	1605507
10.0 - 100.0	2.00	GL 45	GL 32, 38, S*40	1	1605508
* Buttress thread					



Dispenser HF



With variable volume, recirculation valve and media-specific recalibration.
For dispensing of hydrofluoric acid (HF). Parts in contact with reagent made of ceramics (cylinder, valve seats and balls) and platinum-iridium. Conformity certified according to DIN 12600.

Margins of error in accordance with DIN EN ISO 8655-5:

Nominal volume:	10.0 ml
Accuracy:	$\leq \pm 0.5 \%$
Coefficient of variation:	$\leq 0.1 \%$

Items supplied:
Dispenser HF, three thread adapters of PP (see below), telescopic intake tube (125 to 240 mm), mounting key, instruction manual, quality certificate stating all test values.

Volume ml	Gradation ml	Thread	Adapter	SP	Art. No.
1.0 - 10.0	0.20	GL 45	GL 25, 28, 32, 38, S*40	1	1606515
* Buttress thread					

Recommended application range for the VITLAB bottle-top dispensers genius und simplex:

Reagent	Reagent	Reagent
Acetaldehyde	Chromosulfuric acid	Methyl butyl ether
Acetic acid	Copper sulfate	Methyl formate
Acetone	Cresol	Methyl propyl ketone
Acetonitrile	Cumene (Isopropyl benzene)	Mineral oil (Engine oil)
Acetylacetone	Cyclohexanone	Monochloroacetic acid, 50 %
Acrylonitrile	Decane	Nitric acid, 30%
Acrylic acid	1-Decanol	Nitrobenzene
Adipic acid	Dibenzylether	Octane
Allyl alcohol	Dichlorobenzene	Oleic acid
Aluminium chloride	Dichloroethane	Oxalic acid
Amino acids	Dichloromethane	Perchloric acid
Ammonium chloride	Diethanolamine	Petroleum
Ammonium fluoride	Diethylamine	Phenol
Ammonium hydroxide	1,2 Diethylbenzene	Phenylethanol
Ammonium sulfate	Diethylene glycol	Phenylhydrazine
n-Amyl acetate	Diethyl ether	Phosphoric acid, 85%
Amyl alcohol (Pentanol)	Dimethylaniline	Phosphoric acid, 85% + Sulfuric acid 98%, 1:1
Amyl chloride (Chloropentane)	Dimethylformamide (DMF)	Piperidine
Aniline	Dimethyl sulfoxide (DMSO)	Potassium chloride
Barium chloride	1,4 Dioxane	Potassium dichromate
Benzaldehyde	Diphenyl ether	Potassium hydroxide
Benzine (Gasoline)	Ethanol	Potassium permanganate
Benzene	Ethanolamine	Propanol
Benzoyl chloride	Ethyl acetate	Propionic acid
Benzyl alcohol	Ethyl methyl ketone	Propylene glycol (Propanediol)
Biuret reagent	Formaldehyde	Propylene oxide
Benzyl amine	Formamide	Pyridine
Benzyl chloride	Formic acid	Pyruvic acid
Boric acid	Glycol (Ethylene glycol)	Salicyl acid
Bromobenzene	Glycolic acid, 50 %	Salicylaldehyde
Bromonaphthalene	Glycerol	Sodium acetate
Butanediol	Heating oil (Diesel oil)	Sodium chloride
1-Butanol	Hexane	Sodium dichromate
Butyric acid	Hexanoic acid	Sodium fluoride
n-Butyl acetate	Hexanol	Sodium hypochlorite
Butyl amine	Hydrochloric acid, 37%	Sodium hydroxide, 30%
Butyl methyl ether	Hydroiodic acid	Sulfuric acid, 98%
Calcium carbonate	Iodine-Potassium iodide solution	Silver acetate
Calcium chloride	Isoamyl alcohol	Silver nitrate
Calcium hydroxide	Isobutanol	Turpentine
Calcium hypochlorite	Isopropanol (2-Propanol)	Tetramethylammonium hydroxide
Chloroacetaldehyde	Isopropyl ether	Toluene
Chloroacetone	Lactic acid	Tartaric acid
Chlorobenzene	Magnesium chloride	Urea
Chlorbutane	Mercuric chloride	Xylene
Chloroacetic acid	Methanol	Zinc chloride
Chloro naphthalene	Methoxybenzene	Zinc sulfate
Chromic acid	Methyl benzoate	

Hydrofluoric acid (HF): Only the Dispenser HF is specifically designed to dispense hydrofluoric acid (maximum permitted concentration 52%). The VITLAB bottle-top dispensers piccolo 1 and piccolo 2 are used mainly in connection with aqueous and highly diluted agents.

The above table and recommendations have been compiled with the greatest care and reflect testing on the basis of the available information. Always follow the instructions in the operating manual of the instrument, as well as the reagent manufacturer's specifications. Should you require information on chemicals that are not listed, please do not hesitate to contact us. As of: 02/08.

VITLAB piccolo



For dosing of tiny quantity of liquids in all areas of biochemistry and medical research.

With the VITLAB piccolo you can dispense the smallest quantities directly from the bottle - a big help, particularly for serial dispensing operations. This approach can even reduce costs since disposable tips are not necessary.

The ergonomic design makes dispensing simple and uncomplicated. The VITLAB piccolo can be used with just one hand. Use the thumb (just like pipetting) to depress the volume dispensing button. The spring-loaded piston refills the micro-dispenser automatically after dispensing.

The discharge tube can be rotated 360° so the dispenser can always be used with the label visible for safety.

In order to guarantee high levels of resistance to chemicals and a broad range of applications, only high-quality materials, such as PTFE, PFA, ETFE, FEP, borosilicate glass and platinum-iridium, come in contact with the media.

Items supplied:

VITLAB piccolo 1 or 2, mounting key, instruction manual.



Type	Volume μl	Accuracy ≤±	Coefficient of variation ≤	SP	Art. No.
piccolo 1	100	3.0	0.4	1	1610501
piccolo 1	200	2.5	0.4	1	1610502
piccolo 1	250	2.0	0.4	1	1610503
piccolo 1	500	1.5	0.3	1	1610504
piccolo 1	1000	1.0	0.2	1	1610506
piccolo 2	100 / 250	2.0	0.4	1	1611503
piccolo 2	500 / 1000	1.0	0.2	1	1611506
piccolo 2	1000 / 2000	1.0	0.2	1	1611508

Other volumes are available on request.



Accessories for bottletop-dispensers

For detailed descriptions of spare parts please see the instruction manual of the instrument or our homepage www.vitlab.de.

Description	External thread	Bottle thread	SP	Art. No.
Bottle, amber glass , coated, round, 100 ml		GL 28	1	1671505
Bottle, amber glass , coated, square, 100 ml		GL 32	1	1671506
Bottle, amber glass , coated, square, 250 ml		GL 32	1	1671515
Bottle, amber glass , coated, square, 500 ml		GL 32	1	1671520
Bottle, amber glass , coated, square, 1000 ml		GL 45	1	1671500
Bottle, amber glass , coated, round, 2500 ml		GL 45	1	1671510
Drying Tube, PP, unfilled			1	1671095
NS-adapter, PP	GL 32	NS 19/26	1	1670066
NS-adapter, PP	GL 32	NS 24/29	1	1670067
NS-adapter, PP	GL 32	NS 29/32	1	1670068
Thread adapter,, PP, piccolo	GL 28	GL 32	1	1670145
Thread adapter,, PP	GL 32	GL 25	1	1670150
Thread adapter,, PP	GL 32	GL 28	1	1670155
Thread adapter,, PP	GL 32	GL 38	1	1670165
Thread adapter,, PP	GL 32	GL 45	1	1670175
Thread adapter,, PP	GL 32	S*40	1	1670170
Thread adapter,, PP	GL 38	GL 32	1	1670185
Thread adapter,, PP	GL 45	GL 32	1	1670180
Thread adapter,, PP	GL 45	GL 38	1	1670110
Thread adapter,, PP	GL 45	S*40	1	1670120
Thread adapter,, PTFE	GL 32	GL 25	1	1670072
Thread adapter,, PTFE	GL 32	GL 28	1	1670080
Thread adapter,, PTFE	GL 32	GL 45	1	1670105
Thread adapter,, PTFE	GL 32	S*40	1	1670092
Thread adapter,, PTFE	GL 45	GL 32	1	1670100
Thread adapter,, PTFE	GL 45	GL 38	1	1670115
* Buttress thread				



Perfect Liquid Handling

PIPETTING WITH EASE AND COMFORT



VITLAB 
Competence in Labware



VITLAB pipeo®



For all pipettes from 0.1 to 100 ml
With the new pipet controller VITLAB pipeo®, pipet handling is simple and comfortable. The ergonomic handle, very light weight - only about 190 grams - and excellent balance all contribute to operating ease. Freely and precisely adjust the speed of the liquid discharge with one hand using the two easily accessible buttons. A 50 ml pipet can be filled, quietly and with minimum vibration, in less than ten seconds. The VITLAB pipeo® can be set to release liquid either in gravity delivery, or in blow out mode using the battery-operated motor.

Items supplied:

VITLAB pipeo®, battery charger, battery, two battery compartment covers, two spare membrane filters 0.2 µm, instruction manual.

Type	SP	Art. No.
pipeo® with battery charger for Europe	1	1631500
pipeo® with battery charger for UK/Ireland	1	1631510
pipeo® with battery charger for Australia	1	1631520
pipeo® with battery charger for Japan	1	1631530



Pipetting

VITLAB maneus®



For all pipettes from 0.1 to 100 ml. With membrane filter 3 µm and instruction manual.

The new VITLAB maneus® pipet controller allows both left and right-handed people to work easily, tirelessly and safely with all common pipettes from 0.1 to 10 ml. Its easy handling combined with high sensitiveness also lets inexperienced users set the meniscus precisely. The VITLAB maneus® pipet controller is easy to take apart, very simple to clean and completely autoclavable.



Type	SP	Art. No.
maneus®	1	1630500





Pipette filler bulbs, NR

Pipette filler with 3 valves.

Valve A: Release air, Valve S: Filling, Valve E: Delivery

Type	SP	Art. No.
Universal model, for pipets up to 10 ml	1	104099
Universal model, for pipets up to 100 ml	1	104199



Pipette pumps

For pipetting liquids, fit all glass and plastic pipettes. Slowly rotating their actuator-wheels inducts liquid into pipettes. Pressing their relief valves automatically empties pipette pumps without returning their plungers.

For Pipettes ml	Colour	SP	Art. No.
2	blue	1	324594
10	green	1	324694
25	red	1	324794



Accessories for pipette controllers

For detailed descriptions of spare parts please see the instruction manual of the instrument or our homepage www.vitlab.de.

Description	SP	Art. No.
Membrane filter 0.2 µm, sterile, VITLAB pipeo®	1	1670647
Membrane filter 0.2 µm, non-sterile, VITLAB pipeo®	10	1670648
Membrane filter 3 µm, non-sterile, VITLAB pipeo® and VITLAB maneus®	1	1670649
Membrane filter 3 µm, non-sterile, VITLAB pipeo® and VITLAB maneus®	10	1670650

Pipetting

Measuring pipettes, PP

High clarity. Resistant to breakage. Suction tube outer Ø max. 8 mm. Calibrated to deliver ,Ex'.

Exposure to temperatures above 60 °C may effect accuracy. Recommended cleaning with mild alkaline detergents up to 60 °C.

Volume ml	Tolerance ± ml	Graduation ml	Length mm	SP	Art. No.
1	0.02	0.1	300	12	163094
2	0.02	0.1	300	12	163194
5	0.05	0.1	330	12	163294
10*	0.10	0.1	330	12	163394
10	0.10	0.1	320	12	163594

* Suction tube outer Ø10 mm



Bulb pipettes, PP

High clarity. Resistant to breakage. Calibrated to deliver ,Ex'.

Exposure to temperatures above 60 °C may affect accuracy. Recommended cleaning with mild alkaline detergents up to 60 °C.

Volume ml	Tolerance ± ml	Length mm	SP	Art. No.
1	0.02	300	12	164094
2	0.02	300	12	164194
5	0.03	300	6	164294
10	0.04	440	6	164394
25	0.05	450	6	164494
50	0.10	460	6	164594





Disposable pipettes, PS, sterile



Translucent, graduated, individual sterile packaging, free of pyrogene.

Volume ml	Graduation ml	Length mm	SP	Art. No.
1	0.01	272	25	160110
2	0.01	272	25	160210
5	0.10	320	25	160510
10	0.10	320	25	161010
25	0.20	345	1	162510



Disposable pipettes, PS, non-sterile

Translucent, graduated, non-sterile.

Volume ml	Graduation ml	Length mm	SP	Art. No.
1	0.01	272	10	160119
2	0.01	272	10	160219
5	0.10	320	10	160519
10	0.10	320	10	161019



Pasteur pipettes, PE-LD

Disposable. Very good reproducibility of the number of drops per millilitre. Ideal for aliquots. Pasteur pipettes can be filled and deep-frozen, or changed into a closed vessel by heat-sealing the tip. The integrated pipetting bulb depresses easily, minimizing fatigue from frequent pipetting. Resistant to gas or gamma radiation sterilization.

Graduation/ Subdivision ml	Withdraw volume max. ml	Outer-Ø tip mm	Length mm	Drop quantity D / ml	SP	Art. No.
-	3.0	2.8	152	25-27	5000	148893
1/0.25	3.5	3.4	151	25-30	5000	148993
3/0.5	3.5	3.2	152	21-28	5000	149093
2/0.5	2.0	3.3	152	22-26	5000	149193
-	4.0	1.0	148	52-65	5000	149293
-	1.0	1.0	105	50	3200	149393

Pipetting

Dropping pipettes, PE-LD

With integrated bellows.
For sampling and decanting of infectious or toxic liquids. Graduated.

Volume ml	Length mm	SP	Art. No.
1.5	133	100	149893
5	194	100	149993

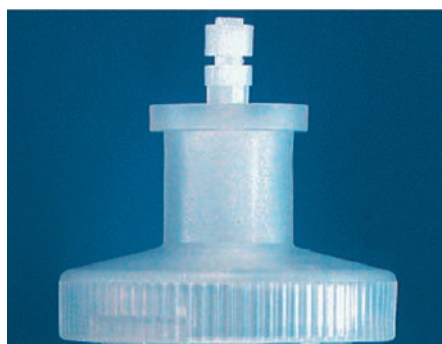


Dropping pipettes, PE-LD

With integrated bellows.
For sampling and decanting of infectious or toxic liquids.

Volume ml	Length mm	SP	Art. No.
1.8	98	250	149693





Precision Dispenser Tips, non-sterile, PS

The conformity-certified Precision Dispenser Tips comply with ISO EN ISO 8655 requirements and come with a batch certificate. CE-marked according to IVD-Directive 98/79 EG. Precision Dispenser Tips can be used also with compatible, third-party dispensing systems. The automatic size detection option is available in e. g. BRAND HandyStep® electronic Precision Dispenser Tips can be used with BRAND HandyStep® among others. Precision Dispenser Tips are made from high-quality materials: Piston: PE-HD (0.1 ml LCP), cylinder: PP, without plasticizer, lubricant or other additives. The sizes 25 ml and 50 ml come with the necessary adapter.

Volume ml	SP	Art. No.
0.1	100	146594
0.5	100	146694
1.25	100	146794
2.5	100	146894
5.0	100	146994
12.5	100	147094
25.0*	50	147194
50.0*	25	147294
Adapter, PP, non-sterile, for tips 25 and 50 ml	10	148494

* Adapter inclusive

Precision Dispenser Tips, sterile, PS



The conformity-certified Precision Dispenser Tips comply with ISO EN ISO 8655 requirements and come with a batch certificate. CE-marked according to IVD-Directive 98/79 EG. Endotoxine-free, individually wrapped. Precision Dispenser Tips can be used also with compatible, third-party dispensing systems. The automatic size detection option is available in e. g. BRAND HandyStep® electronic Precision Dispenser Tips can be used with BRAND HandyStep® among others. Precision Dispenser Tips are made from high-quality materials: Piston: PE-HD (0.1 ml LCP), cylinder: PP, without plasticizer, lubricant or other additives. The sizes 25 ml and 50 ml come with the necessary adapter.

Volume ml	SP	Art. No.
0.1	100	147594
0.5	100	147694
1.25	100	147794
2.5	100	147894
5.0	100	147994
12.5	100	148094
25.0	25	148194
50.0	25	148294
Adapter, PP, sterile, for tips 25 and 50 ml	5	148594

* Adapter included

Pipetting

Pipette tips, PP

The pipete tips are conformity-certified. CE-marked according to IVD-Directive 98/79 EG and tested for pipettes made by BRAND. They are suitable for a wide range of pipettes from different manufacturers.

Volume µl	Tip	Package	SP	Art. No.
2 - 200	yellow	1 bag of 1000	1000	145594
2 - 200	yellow	10 bags of 1000	10000	145694
50 - 1000	blue	2 bags of 500	1000	145894
50 - 1000	blue	10 bags of 500	5000	145994



Pipette rack, PP

Rotary rack, consisting of a baseplate and vertical rod accommodating a rotary unit composed of two end-plates and a spacer-tube. The upper end-plate has a total of 94 openings of various diameters, while the lower end-plate has grooves and drainage holes. Supplied flat-packed, readily assembled.

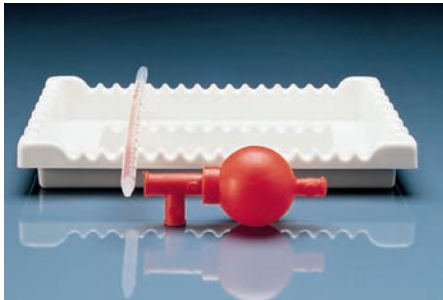
Ø mm	Height mm	SP	Art. No.
230	470	2	79194



Pipette tray, PVC

Holds pipettes from 120 mm length.

L x W x H mm	SP	Art. No.
285 x 215 x 40	1	80996





Pipette tray, PVC

For drawers. Incorporates 4 compartments.

L x W x H mm	SP	Art. No.
420 x 300 x 30	1	80252



Pipette washer, PE-HD

An automatic system ensuring rapid washing and high-quality results. Suitable for the use of pipette baskets (art.-no. 80219 and 80222).

Ø mm	Height mm	Usable length mm	SP	Art. No.
165	740	600	1	80217
165	1000	840	1	80215



Pipette jars, PE-HD

For pre-cleaning pipettes in cleaning agents.

Ø mm	Height mm	SP	Art. No.
125	250	1	80223
165	500	1	80221
165	650	1	80218



Pipette baskets, PE-HD

For dipping pipettes into the pipette jar or pipette-washer and for transferring pipettes. The pipette carrier basket art. 80219 can be prolonged from 650 mm to 870 mm with the help of the extension.

Description	Ø mm	Overall Height mm	Carrier Height mm	SP	Art. No.
Pipette Basket	130	650	300	1	80219
Pipette Basket	130	495	300	1	80222
Extension for the handle (pipette basket art.-no. 80219)				2	81219

Competence in Lab Plastics

MEASUREMENT ACCURACY TO THE HIGHEST DEGREE



VITLAB 
Competence in Labware



Highest precision volumetric measurement

Volumetric measurement is a routine operation in the laboratory. Therefore, volumetric instruments such as volumetric flasks, graduated cylinders and pipettes are standard equipment in each analytical laboratory.

The importance of the degree of measurement accuracy in your laboratory routines cannot be overstated. VITLAB has decades of experience in the development and production of laboratory products which are used to measure volumes. Based on DIN 12681 – which incidentally was established through the initiation of VITLAB – VITLAB was the first manufacturer to make Class A, conformity-certified measuring cylinders available in PMP plastic.

All Class A PMP volumetric flasks are optionally available in transparent or UV absorbing variations for light-sensitive substances.

n in ng devices

Calibration

Type 'TD, Ex': The delivered quantity of liquid corresponds exactly to the capacity indicated on the instrument (pipettes and burettes).

Type 'TC, In': The contained quantity of liquid corresponds exactly to the capacity indicated on the instrument (graduated cylinders and volumetric flasks).

VITLAB adjusts each individual volumetric flask at a room temperature of 20 °C. Due to the hydrophobic characteristics of the materials, VITLAB plastic volumetric instruments can assure that the measured liquid quantity (In) is the same as the removed quantity (Ex) for aqueous solutions.

Accuracy classes

Class A: the tolerances lie within the levels dictated by DIN and ISO.

Class B: the tolerances are twice the margins of error for Class A dictated by DIN and ISO. Detailed explanations on "accuracy in volume measurement" are available in the chapter on "General and Technical Information".

Conformity

VITLAB guarantees that the measuring devices are calibrated in accordance with the German Calibration Regulations. The special manufacturing process, developed by VITLAB, and the proven VITLAB quality management system, ensure that the tightest tolerances for the adherence to measurement standards are maintained.





Volumetric flasks, PFA, class A



High transparency, individually calibrated ring-mark.
Tolerances class A according to DIN EN ISO 1042. With lasered lot.number.
Supplied with PFA screw-caps. Screw-caps provide hermetic seals and high safety from outside contamination. Withstand high temperatures and chemical attack.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Thread GL	SP	Art. No.
10	0.04	90	18	1	107097
25	0.04	115	18	1	107197
50	0.06	150	18	1	107297
100	0.10	180	18	1	107397
250	0.15	235	25	1	107497
500	0.25	270	25	1	107597



Volumetric flasks VITLAB® opaque, PMP, class A



UV-absorbent for storage of light-sensitive substances.

High transparency, with coloured screw cap made of PP and individually calibrated ring-mark. Tolerances class A according to DIN EN ISO 1042.
With imprinted lot number and certificate.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Thread GL	SP	Art. No.
10	0.04	90	18	2	670040
25	0.04	115	18	2	671040
50	0.06	150	18	2	672040
100	0.10	180	18	2	673040
250	0.15	235	25	2	674040
500	0.25	270	25	2	675040
1000	0.40	310	32	1	676040

Volume measurement

Volumetric flasks, PMP, class A



Glass-clear, with NS stopper made of PP and individually adjusted ring-mark. Tolerances class A according to DIN EN ISO 1042.
With imprinted lot number and certificate.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Neck NS	SP	Art. No.
10	0.04	90	10/19	6	67704
25	0.04	115	10/19	6	67104
50	0.06	150	10/19	6	67204
100	0.10	180	14/23	6	67304
250	0.15	235	19/26	5	67404
500	0.25	270	19/26	4	67504
1000	0.40	310	24/29	3	67604



Volumetric flasks, PMP, class B



Glass-clear, with NS stopper made of PP and individually adjusted ring-mark. Tolerances class B according to DIN EN ISO 1042.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Neck NS	SP	Art. No.
10	0.08	90	10/19	6	67795
25	0.08	115	10/19	6	67195
50	0.12	150	10/19	6	67295
100	0.20	180	14/23	6	67395
250	0.30	235	19/26	5	67495
500	0.50	270	19/26	4	67595
1000	0.80	310	24/29	4	67695





Volumetric flasks, PMP, class B



Glass-clear, with screw cap made of PP and individually adjusted ring-mark. Tolerances class B according to DIN EN ISO 1042.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance +- ml	Height mm	Thread GL	SP	Art. No.
10	0.08	90	18	6	677895
25	0.08	115	18	6	671895
50	0.12	150	18	6	672895
100	0.20	180	18	6	673895
250	0.30	235	25	5	674895
500	0.50	270	25	4	675895
1000	0.80	310	32	3	676895



Volumetric flasks, PP, class B



High transparency, with NS stopper made of PP and individually adjusted ring-mark. Tolerances class B according to DIN EN ISO 1042.
Exposure to temperatures above 60 °C may effect accuracy. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Neck NS	SP	Art. No.
10	0.08	90	10/19	6	677941
25	0.08	115	10/19	6	671941
50	0.12	150	10/19	6	672941
100	0.20	180	14/23	6	673941
250	0.30	235	19/26	5	674941
500	0.50	270	19/26	4	675941
1000	0.80	310	24/29	3	676941

Volume measurement

Volumetric flasks, PP, class B



High transparency, with screw cap made of PP and individually adjusted ring-mark.

Tolerances class B according to DIN EN ISO 1042.

Exposure to temperatures above 60 °C may effect accuracy. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Thread GL	SP	Art. No.
10	0.08	90	18	6	677891
25	0.08	115	18	6	671891
50	0.12	150	18	6	672891
100	0.20	180	18	6	673891
250	0.30	235	25	5	674891
500	0.50	270	25	4	675891
1000	0.80	310	32	3	676891



Volumetric cylinders, PMP, class A, KB



Tall form, glass-clear, with a raised scale.

Ring marks at the primary scale points, hexagonal base, calibrated to contain 'In'.

The certificate supplied with these volumetric cylinders attests conformance to standard records. It bears the lot number and the mean value ascertained under the test conditions.

The volumetric cylinder is imprinted with the lot number and the year of manufacture.

Any deviations from the standard value fall well within the allowed tolerances of Class A according to DIN 12681 and ISO 6706.

Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	0.25	0.50	169	21	2	64704
50	0.50	1.00	199	28	2	64804
100	0.50	1.00	260	34	2	64904
250	1.00	2.00	315	47	2	65004
500	2.50	5.00	350	61	1	65104
1000	5.00	10.00	415	76	1	65204
2000	10.00	20.00	482	97	1	65304





Volumetric cylinders, PMP, class A



Tall form, glass-clear, with a raised scale.

Ring marks at the primary scale points, hexagonal base, calibrated to contain, 'In'.

Tolerances class A according to DIN 12681 / ISO 6706.

Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	0.10	0.20	140	16	12	64695
25	0.25	0.50	169	21	12	64795
50	0.50	1.00	199	28	12	64895
100	0.50	1.00	260	34	12	64995
250	1.00	2.00	315	47	6	65095
500	2.50	5.00	350	61	6	65195
1000	5.00	10.00	415	76	6	65295
2000	10.00	20.00	482	97	3	65395



Volumetric cylinders, PP, class B



Tall form, highly transparent, with a raised blue scale.

Ring marks at the primary scale points, hexagonal base, calibrated to contain, 'In'.

Tolerances class B according to DIN 12681 / ISO 6706.

Exposure to temperatures above 60 °C may effect accuracy.

Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	0.20	0.20	140	16	12	646941
25	0.50	0.50	169	21	12	647941
50	1.00	1.00	199	28	12	648941
100	1.00	1.00	260	34	12	649941
250	2.00	2.00	315	47	6	650941
500	5.00	5.00	350	61	6	651941
1000	10.00	10.00	415	76	6	652941
2000	20.00	20.00	482	97	3	653941

Volume measurement

Volumetric cylinders, PP, class B



Tall form, highly transparent, with a raised scale.
Ring marks at the primary scale points, hexagonal base, calibrated to contain ,In'.
Tolerances class B according to DIN 12681 / ISO 6706.
Exposure to temperatures above 60 °C may effect accuracy.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	0.20	0.20	140	16	12	646081
25	0.50	0.50	169	21	12	647081
50	1.00	1.00	199	28	12	648081
100	1.00	1.00	260	34	12	649081
250	2.00	2.00	315	47	6	650081
500	5.00	5.00	350	61	6	651081
1000	10.00	10.00	415	76	6	652081
2000	20.00	20.00	482	97	3	653081



Volumetric cylinders, SAN, class B



Tall form, glass-clear, with a raised scale.
Ring marks at the primary scale points, hexagonal base, calibrated to contain ,In'.
Tolerances class B according to DIN 12681 / ISO 6706.
Exposure to temperatures above 60 °C may effect accuracy.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	0.20	0.20	140	16	12	64691
25	0.50	0.50	169	21	12	64791
50	1.00	1.00	199	28	12	64891
100	1.00	1.00	260	34	12	64991
250	2.00	2.00	315	47	6	65091
500	5.00	5.00	350	61	6	65191
1000	10.00	10.00	415	76	6	65291
2000	20.00	20.00	482	97	3	65391





Volumetric cylinders, short, PP, class B



Short form, highly transparent, with a raised scale.
Ring marks at the primary scale points, hexagonal base, calibrated to contain „ln‘.
Tolerances class B according to DIN 12681 / ISO 6706.
Exposure to temperatures above 60 °C may effect accuracy.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	0.50	0.50	122	22	12	640941
50	1.00	1.00	142	27	12	641941
100	2.00	2.00	163	37	12	642941
250	5.00	5.00	192	51	6	643941
500	10.00	10.00	218	67	6	644941
1000	20.00	20.00	285	78	6	645941



Volumetric cylinders, SAN, class B



Short form, glass-clear, with a raised scale.
Ring marks at the primary scale points, hexagonal base, calibrated to contain „ln‘.
Tolerances class B according to DIN 12681 / ISO 6706.
Exposure to temperatures above 60 °C may effect accuracy.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	0.50	0.50	122	22	12	64091
50	1.00	1.00	142	27	12	64191
100	2.00	2.00	163	37	12	64291
250	5.00	5.00	192	51	6	64391
500	10.00	10.00	218	67	6	64491
1000	20.00	20.00	285	78	6	64591



Hydrometer cylinder, PP

Highly transparent, with a raised scale. With reservoir beaker and pouring lip. Ring marks at the primary scale points, hexagonal base, calibrated to contain „ln‘.
Tolerances class B according to DIN 12681 / ISO 6706.
Exposure to temperatures above 60 °C may effect accuracy.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
500	5.00	351	73	1	760941

Volume measurement

Measuring pipettes, PP

High clarity. Resistant to breakage. Suction tube outer Ø max. 8 mm. Calibrated to deliver ,Ex'.

Exposure to temperatures above 60 °C may effect accuracy. Recommended cleaning with mild alkaline detergents up to 60 °C.

Volume ml	Tolerance ± ml	Graduation ml	Length mm	SP	Art. No.
1	0.02	0.1	300	12	163094
2	0.02	0.1	300	12	163194
5	0.05	0.1	330	12	163294
10*	0.10	0.1	330	12	163394
10	0.10	0.1	320	12	163594

* Suction tube outer Ø10 mm



Bulb pipettes, PP

High clarity. Resistant to breakage. Calibrated to deliver ,Ex'.

Exposure to temperatures above 60 °C may affect accuracy. Recommended cleaning with mild alkaline detergents up to 60 °C.

Volume ml	Tolerance ± ml	Length mm	SP	Art. No.
1	0.02	300	12	164094
2	0.02	300	12	164194
5	0.03	300	6	164294
10	0.04	440	6	164394
25	0.05	450	6	164494
50	0.10	460	6	164594





Disposable pipettes, PS, sterile



Translucent, graduated, individual sterile packaging, free of pyrogene.

Volume ml	Graduation ml	Length mm	SP	Art. No.
1	0.01	272	25	160110
2	0.01	272	25	160210
5	0.10	320	25	160510
10	0.10	320	25	161010
25	0.20	345	1	162510



Disposable pipettes, PS, non-sterile

Translucent, graduated, non-sterile.

Volume ml	Graduation ml	Length mm	SP	Art. No.
1	0.01	272	10	160119
2	0.01	272	10	160219
5	0.10	320	10	160519
10	0.10	320	10	161019



Pasteur pipettes, PE-LD

Disposable. Very good reproducibility of the number of drops per millilitre. Ideal for aliquots. Pasteur pipettes can be filled and deep-frozen, or changed into a closed vessel by heat-sealing the tip. The integrated pipetting bulb depresses easily, minimizing fatigue from frequent pipetting. Resistant to gas or gamma radiation sterilization.

Graduation/ Subdivision ml	Withdraw volume max. ml	Outer-Ø tip mm	Length mm	Drop quantity D / ml	SP	Art. No.
-	3.0	2.8	152	25-27	5000	148893
1/0.25	3.5	3.4	151	25-30	5000	148993
3/0.5	3.5	3.2	152	21-28	5000	149093
2/0.5	2.0	3.3	152	22-26	5000	149193
-	4.0	1.0	148	52-65	5000	149293
-	1.0	1.0	105	50	3200	149393

Volume Measurement

Dropping pipettes, PE-LD

With integrated bellows.
For sampling and decanting of infectious or toxic liquids. Graduated.

Volume ml	Length mm	SP	Art. No.
1.5	133	100	149893
5	194	100	149993

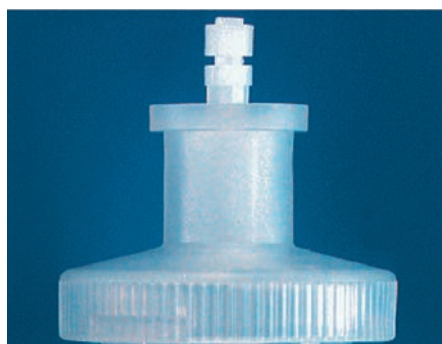


Dropping pipettes, PE-LD

With integrated bellows.
For sampling and decanting of infectious or toxic liquids.

Volume ml	Length mm	SP	Art. No.
1.8	98	250	149693





Dispenser-tips, non-sterile, PS

The conformity-certified Dispenser Tips comply with ISO EN ISO 8655 requirements and come with a batch certificate. CE-marked according to IVD-Directive 98/79 EG. Precision Dispenser Tips can be used also with compatible, third-party dispensing systems. The automatic size detection option is available in e. g. BRAND HandyStep® electronic Precision Dispenser Tips can be used with BRAND HandyStep® among others. Precision Dispenser Tips are made from high-quality materials: Piston: PE-HD (0.1 ml LCP), cylinder: PP, without plasticizer, lubricant or other additives. The sizes 25 ml and 50 ml come with the necessary adapter

Volume ml	SP	Art. No.
0.1	100	146594
0.5	100	146694
1.25	100	146794
2.5	100	146894
5.0	100	146994
12.5	100	147094
25.0*	50	147194
50.0*	25	147294
Adapter, PP, non-sterile, for tips 25 and 50 ml	10	148494

* Adapter inclusive

Dispenser-tips, sterile, PS



The conformity-certified Dispenser Tips comply with ISO EN ISO 8655 requirements and come with a batch certificate. CE-marked according to IVD-Directive 98/79 EG. Endotoxine-free, individually wrapped. Precision Dispenser Tips can be used also with compatible, third-party dispensing systems. The automatic size detection option is available in e. g. BRAND HandyStep® electronic Precision Dispenser Tips can be used with BRAND HandyStep® among others. Precision Dispenser Tips are made from high-quality materials: Piston: PE-HD (0.1 ml LCP), cylinder: PP, without plasticizer, lubricant or other additives. The sizes 25 ml and 50 ml come with the necessary adapter

Volume ml	SP	Art. No.
0.1	100	147594
0.5	100	147694
1.25	100	147794
2.5	100	147894
5.0	100	147994
12.5	100	148094
25.0	25	148194
50.0	25	148294
Adapter, PP, sterile, for tips 25 and 50 ml	5	148594

* Adapter included

Volume measurement

Pipette tips, PP

The pipete tips are conformity-certified. CE-marked according to IVD-Directive 98/79 EG and tested for pipettes made by BRAND. They are suitable for a wide range of pipettes from different manufacturers.

Volume µl	Tip	Package	SP	Art. No.
2 - 200	yellow	1 bag of 1000	1000	145594
2 - 200	yellow	10 bags of 1000	10000	145694
50 - 1000	blue	2 bags of 500	1000	145894
50 - 1000	blue	10 bags of 500	5000	145994



Pipette racks, PP

Rotary rack, consisting of a baseplate and vertical rod accommodating a rotary unit composed of two end-plates and a spacer-tube. The upper end-plate has a total of 94 openings of various diameters, while the lower end-plate has grooves and drainage holes. Supplied flat-packed, readily assembled.

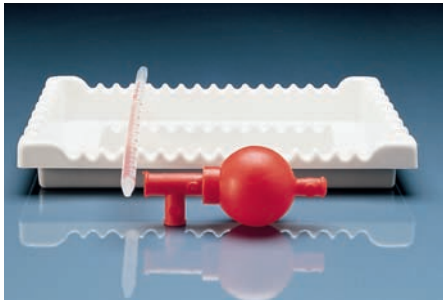
Ø mm	Height mm	SP	Art. No.
230	470	2	79194



Pipette tray, PVC

Holds pipettes from 120 mm length.

L x W x H mm	SP	Art. No.
285 x 215 x 40	1	80996





Pipette tray, PVC

For drawers. Incorporates 4 compartments.

L x W x H mm	SP	Art. No.
420 x 300 x 30	1	80252



Pipette washer, PE-HD

An automatic system ensuring rapid washing and high-quality results. Suitable for the use of pipette baskets (art.-no. 80219 and 80222).

Ø mm	Height mm	Usable length mm	SP	Art. No.
165	740	600	1	80217
165	1000	840	1	80215



Pipette jars, PE-HD

For pre-cleaning pipettes in cleaning agents.

Ø mm	Height mm	SP	Art. No.
125	250	1	80223
165	500	1	80221
165	650	1	80218



Pipette baskets, PE-HD

For dipping pipettes into the pipette jar or pipette-washer and for transferring pipettes. The pipette carrier basket art. 80219 can be prolonged from 650 mm to 870 mm with the help of the extension.

Description	Ø mm	Overall Height mm	Carrier Height mm	SP	Art. No.
Pipette Basket	130	650	300	1	80219
Pipette Basket	130	495	300	1	80222
Extension for the handle (Pipet Basket 80219)				2	81219

Volume measurement

VITLAB symbiotic, type Dr. Schilling



Plastic-coated burette made of borosilicate glass 3.3. Class B. Conformity with DIN ISO 384. With Schellbach stripes (blue/white) and easily readable black scaling. Calibrated to deliver "Ex". Automatic zeroing. The stopcock of the burette is made of high quality plastic. Its PTFE plug turns easily and allows fine titration.

Special protection against breakage if the symbiotic gets knocked over:

- The temperature-resilient plastic coating helps the entire device to resist breakage and glass fragments are confined within the sheath.
- A small bumper has been attached to the upper end of the upright measuring tube. This feature reduces the change of breakage.

Material: burette of borosilicate glass 3.3, filling tube PP, burette stopcock PMP/PTFE, reservoir bottle PE-LD.

Volume ml	Tolerance ± ml	Graduation ml	Height mm	Bottle ml	SP	Art. No.
25	0.05	0.05	900	1000	1	106599
50	0.10	0.10	900	1000	1	106699



Burettes



Plastic-coated burette made of borosilicate glass 3.3. Class B. Conformity with DIN ISO 384. With Schellbach stripes (blue/white) and easily readable black scaling. Calibrated to deliver "Ex".

The stopcock of the burette is made of high quality plastic. Its PTFE plug turns easily and allows fine titration.

The temperature-resilient plastic coating helps the entire device to resist breakage and glass fragments are confined within the sheath.

Material: burette of borosilicate glass 3.3, burette stopcock PMP/PTFE.

Volume ml	Tolerance ± ml	Graduation ml	Length mm	SP	Art. No.
25	0.05	0.05	800	2	105599
50	0.10	0.10	800	2	105699



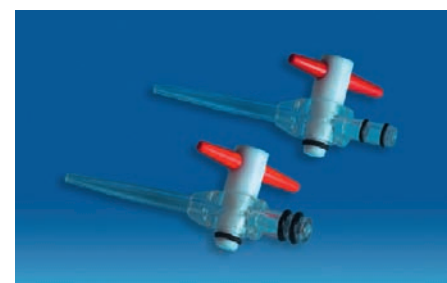
Burette stopcocks

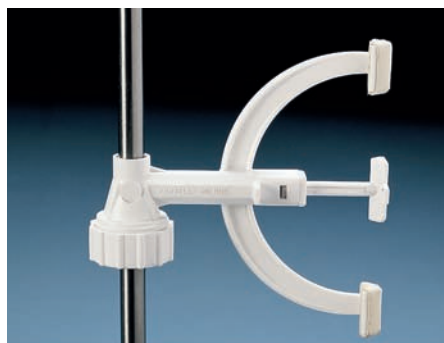
Stopcocks made of PMP. Plugs of PTFE with polished surface turn easily but fit tightly. Insert with two seals.

Art. no. 105799: For burette tubes inner diam. 7.75 ± 0.1 mm.

Art. no. 105899: For burette tubes inner diam. 11.5 ± 0.1 mm.

For Burettes ml	Height	Inner-Ø tip	Immersion depth mm	SP	Art. No.
25	90	1.25	17	5	105799
50	90	1.25	17	5	105899





Burette clamps, PP

Fits rod with diameters of 8 to 14 mm. Clamp arms have rubber-coated tips for secure gripping of burettes. Graduations and meniscus are visible at all times. Comes supplied with a stainless steel spring.

Type	SP	Art. No.
single	5	80139
double	5	80140

Volume measurement

Graduated pitchers, PP



Highly transparent with raised, blue embossed scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
50	2	70	40	24	446941
100	2	80	50	24	447941
250	5	120	70	12	440941
500	10	133	91	12	441941
1000	10	170	116	6	442941
2000	20	215	150	6	443941
3000	50	242	170	6	444941
5000	100	270	210	6	445941



Graduated pitchers, PP



Highly transparent with raised scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
50	2	70	40	24	446081
100	2	80	50	24	447081
250	5	120	70	12	440081
500	10	133	91	12	441081
1000	10	170	116	6	442081
2000	20	215	150	6	443081
3000	50	242	170	6	444081
5000	100	270	210	6	445081



Graduated pitchers, SAN



Glass-clear, with raised scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
250	5	120	70	12	44091
500	10	133	91	12	44191
1000	10	170	116	6	44291
2000	20	215	150	6	44391
3000	50	242	170	6	44491





Graduated pitchers, nesting, PP



Highly transparent with printed, blue scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
250	5	115	75	12	480941
500	10	140	100	12	481941
1000	10	167	125	12	482941
2000	20	212	148	12	483941
3000	50	242	170	12	484941



Collectors, PP or SAN



With raised scale, graduation 20 ml, with white lid made of PC.
Volume 2000 ml, Ø 150 mm, height 220 mm.

Description	SP	Art. No.
SAN, raised scale	6	97891
PP, raised scale	6	978941
PP, raised, blue embossed scale	6	978081
Accessories for collectors		
Lid, PC	6	97791



Graduated beakers, PP

Highly transparent, with raised scale, wide round base.

Volume ml	Graduation ml	Height mm	SP	Art. No.
100	2	120	12	80422
250	5	160	18	80423
500	10	180	8	80424
1000	20	270	3	80425

Volume measurement

Griffin beakers, PFA



Transparent, with raised scale. High temperature and chemical resistance.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	5	50	32	1	110205
50	10	59	39	1	110305
100	20	72	50	1	110405
250	50	96	67	1	110605
500	100	122	88	1	110905
1000	100	141	109	1	111005



Griffin beakers, ETFE



Transparent, with printed black scale. High temperature and chemical resistance.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	5	50	32	1	110204
50	10	59	39	1	110304
100	20	72	50	1	110404
250	50	96	67	1	110604
400	50	109	77	1	110704
500	100	122	88	1	110904
600	100	125	91	1	110804
1000	100	143	105	1	111004



Griffin beakers, PTFE



Opaque, virtually totally chemically inert, withstand high temperatures.

Volume ml	Thickness mm	Height mm	Ø mm	SP	Art. No.
5	2	24	22	1	112197
10	2	39	25	1	112297
25	2	47	32	1	112397
50	2	55	42	1	112497
100	3	68	55	1	112597
250	3	93	62	1	112697
500	4	126	81	1	112797
1000	4	157	102	1	112897





Griffin beakers, PMP

Glass-clear, with printed red scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	2	35	25	12	60503
25	5	47	31	12	60603
50	10	60	40	12	60703
100	20	70	49	12	60803
150	20	80	56	12	60903
250	50	94	68	6	61003
400	50	109	77	6	61103
500	100	122	88	6	61803
600	100	125	91	6	61203
800	100	136	98	6	61303
1000	100	149	102	6	61403
2000	200	183	133	6	61503
3000	200	214	174	4	61603
5000	500	248	185	4	61703



Griffin beakers, PP



Highly transparent with printed blue scale.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
10	2	35	25	12	605081
25	5	47	31	12	606081
50	10	60	40	12	607081
100	20	70	49	12	608081
150	20	80	56	12	609081
250	50	94	68	6	610081
400	50	109	77	6	611081
500	100	122	88	6	618081
600	100	125	91	6	612081
800	100	136	98	6	613081
1000	100	149	102	6	614081
2000	200	183	133	6	615081
3000	200	214	174	4	616081
5000	500	248	185	4	617081

Volume measurement

Erlenmeyer flasks, PMP



Glass-clear, wide neck, with screw cap made of PP, NS-stoppers can also be used (not included).

Volume ml	Graduation ml	Thread GL	Neck size NS	SP	Art. No.
50	10	40	34/35	6	66695
100	20	40	34/35	6	66795
250	50	52	45/40	6	66895
500	100	52	45/40	6	66995
1000	200	52	45/40	4	67095



Erlenmeyer flasks, PP



Highly transparent, wide neck, with screw cap made of PP, NS-stoppers can also be used (not included).

Volume ml	Graduation ml	Thread GL	Neck size NS	SP	Art. No.
50	10	40	34/35	6	666941
100	20	40	34/35	6	667941
250	50	52	45/40	6	668941
500	100	52	45/40	6	669941
1000	200	52	45/40	4	670941



Erlenmeyer flasks, PC



Glass-clear, wide neck, with screw cap made of PP.
Developed and designed for tissue and sterile culture applications. The screw cap with vent tube can be closed with tissue or filter material.
NS-stoppers 45/40 can also be used (not included).

Volume ml	Graduation ml	Thread GL	Type	SP	Art. No.
250	50	52	closed	6	199099
250	50	52	vent tube Ø 5 mm	6	199095
500	100	52	closed	6	199199
500	100	52	vent tube Ø 5 mm	6	199195





Sedimentation cone, SAN



Glass-clear, raised scale, low break risk, transparent. Produced according to Imhoff. With a threaded tip to allow easy cleaning.

Graduation:

0 -	2 ml	: 0.1 ml
2 -	10 ml	: 0.5 ml
10 -	40 ml	: 1.0 ml
40 -	100 ml	: 2.0 ml
100 -	1000 ml	: 50.0 ml

Volume ml	SP	Art. No.
1000	3	75991



Sedimentation rack, PMMA

Holds two sedimentation cones.

L x W x H mm	SP	Art. No.
150 x 300 x 290	1	81056



Measuring beaker, PP

Transparent, with raised scale, suitable lid made of PE.

Description	Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
Measuring beaker	30	1	42	37	100	69394
Lid, PE					100	69493

Competence in Lab Plastics

SAVING AND STORING



VITLAB 
Competence in Labware

VITsafe™ – the safety wash

Working with chemical substances, which are sometimes dangerous, requires a high level of responsibility and concentration. VITLAB provides laboratory equipment that fulfils safety requirements in the form of the VITsafe™ safety wash-bottles.

For the first time, VITsafe™ safety wash-bottles are now optionally available made from polyethylene (PE-LD) or polypropylene (PP). PP adds a significantly higher level of resistance toward many organic solvents, and wash-bottles made from PP may also be autoclaved at 121 °C for 20 minutes.

The VENT-CAP virtually prevents leaking, dripping or escaping of liquid from the dispensing tube, which sometimes can occur because of temperature changes in the laboratory.

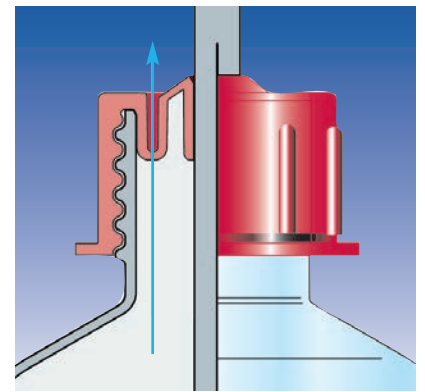
Permanent imprints for solvent labels, full hazard symbols and other individual information ensure the highest level of safety. You can choose from a variety of 18 laboratory solvents.



- bottle

VENT-CAP

The proprietary design of the metal-free VENT-CAP, red coloured, reduces excess static pressure according to the principle of gas permeability, or respectively steam permeability. Leakage or dripping is almost completely eliminated.



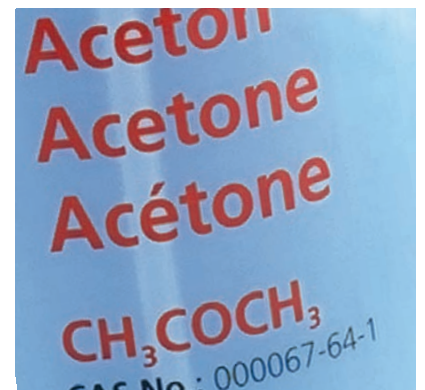
Narrow-mouth or wide-mouth

All VITsafe™ safety wash-bottles are available in two variations. To VITLAB's traditional narrow-mouth wash-bottles we have added a new line of wide-mouth wash-bottles that simplify filling, even without a funnel.



Safety imprint

All VITsafe™ safety wash-bottles have permanent imprints stating the statutory information required in accordance with the Ordinance on Hazardous Substances, as well as other important information: Chemical name in German, English and French, full hazard symbol and labelling, chemical formula, CAS number, risk and safety statements (R- / S- phrases), as well as the NFPA code.





VITsafe™ safety wash-bottles, narrow-mouth



Made of PP or PE-LD with safety imprint in accordance with the Ordinance on Hazardous Substances and VENT-CAP screw cap.

Dispensing tube with pointed end made of PP to optimize the backflow of the medium. The lack of a spray insert and the even molding of the inner-diameter make it possible to avoid almost all turbulence in the liquid.

Permanent imprints stating the statutory information required in accordance with the Ordinance on Hazardous Substances, as well as other important information:

Chemical name in German, English and French, full hazard symbol and labeling, chemical formula, CAS number, risk and safety statements (R-/S-phrases), as well as the NFPA code.

Available in 3 sizes: 250, 500 and 1000 ml

Volume ml	Thread GL	Imprint	Material	SP	Art. No.
250	25	Acetone	PP	12	1431829
500	25	Acetone	PP	12	1432829
1000	32	Acetone	PP	12	1433829
500	25	Acetonitril	PE-LD	6	1332969
250	25	Distilled Water	PE-LD	12	1331819
500	25	Distilled Water	PE-LD	12	1332819
1000	32	Distilled Water	PE-LD	12	1333819
500	25	Acetic acid conc.	PE-LD	6	1332979
250	25	Ethanol	PE-LD	12	1331869
500	25	Ethanol	PE-LD	12	1332869
1000	32	Ethanol	PE-LD	12	1333869
250	25	Ethylacetate	PE-LD	12	1331859
500	25	Ethylacetate	PE-LD	12	1332859
1000	32	Ethylacetate	PE-LD	12	1333859
250	25	Isopropanol	PE-LD	12	1331849
500	25	Isopropanol	PE-LD	12	1332849
1000	32	Isopropanol	PE-LD	12	1333849
250	25	Methanol	PE-LD	12	1331839
500	25	Methanol	PE-LD	12	1332839
1000	32	Methanol	PE-LD	12	1333839
500	25	Methylene dichloride	PE-LD	6	1332879
500	25	Methyl ethyl keton (MEK)	PP	6	1432989
500	25	n-Heptan	PP	6	1432909
500	25	n-Hexan	PP	6	1432899
500	25	N,N-Dimethylformamid	PE-LD	6	1332889
500	25	Petrolether*	PP	6	1432919
500	25	Tetrahydrofurane (THF)	PP	6	1432939
500	25	Toluene	PP	6	1432949
500	25	Xylol	PE-LD	6	1332959

* Petroleum ether (pure benin)

Please see wash bottles PE-LD/PP for height and diameter.

Further imprints on request.

Saving and storing

VITsafe™ safety wash-bottles, wide-mouth



Made of PP or PE-LD with safety imprint in accordance with the Ordinance on Hazardous Substances and VENT-CAP screw cap.

Dispensing tube with pointed end made of PP to optimize the backflow of the medium. The lack of a spray insert and the even molding of the inner-diameter make it possible to avoid almost all turbulence in the liquid.

Permanent imprints stating the statutory information required in accordance with the Ordinance on Hazardous Substances, as well as other important information:

Chemical name in German, English and French, full hazard symbol and labeling, chemical formula, CAS number, risk and safety statements (R-/S-phrases), as well as the NFPA code.

Available in 3 sizes: 250, 500 and 1000 ml

Volume ml	Thread GL	Imprint	Material	SP	Art. No.
250	45	Acetone	PP	12	1451829
500	45	Acetone	PP	12	1452829
1000	63	Acetone	PP	12	1453829
500	45	Acetonitrile	PE-LD	6	1352969
250	45	Distilled Water	PE-LD	12	1351819
500	45	Distilled Water	PE-LD	12	1352819
1000	63	Distilled Water	PE-LD	12	1353819
500	45	Acetic acid conc.	PE-LD	6	1352979
250	45	Ethanol	PE-LD	12	1351869
500	45	Ethanol	PE-LD	12	1352869
1000	63	Ethanol	PE-LD	12	1353869
250	45	Ethyl acetate	PE-LD	12	1351859
500	45	Ethyl acetate	PE-LD	12	1352859
1000	63	Ethyl acetate	PE-LD	12	1353859
250	45	Isopropanol	PE-LD	12	1351849
500	45	Isopropanol	PE-LD	12	1352849
1000	63	Isopropanol	PE-LD	12	1353849
250	45	Methanol	PE-LD	12	1351839
500	45	Methanol	PE-LD	12	1352839
1000	63	Methanol	PE-LD	12	1353839
500	45	Methylene dichloride	PE-LD	6	1352879
500	45	Methyl ethyl ketone (MEK)	PP	6	1452989
500	45	n-Heptane	PP	6	1452909
500	45	n-Hexane	PP	6	1452899
500	45	N,N-Dimethyl formamide	PE-LD	6	1352889
500	45	Tetrahydrofurane (THF)	PP	6	1452939
500	45	Toluene	PP	6	1452949
500	45	Petroleum benzine*	PP	6	1452919
500	45	Xylene	PE-LD	6	1352959

* Petroleum ether (pure benzin)

Please see wash bottles PE-LD/PP for height and diameter.

Further imprints on request.





VENT-CAP wash-bottle caps, PP

Screw cap and dispensing tube with pointed end made of PP to optimize the backflow of the medium. The lack of a spray insert and the even molding of the inner-diameter make it possible to avoid almost all turbulence in the liquid.

Thread GL	SP	Art. No.
25	12	833019
32	12	833029
45	12	833039
63	12	833049



Wash-bottles, with imprint



Narrow-/Wide-mouth wash bottles made of PP or PE-LD, transparent. Dispensing tube with pointed end made of PP to optimize the backflow of the medium. The lack of a spray insert and the even molding of the inner diameter make it possible to avoid almost all turbulence in the liquid. Imprint upon request, for non-hazardous substances in accordance with the Ordinance on Hazardous Substances.

Volume ml	Thread GL	Imprint	Material	SP	Art. No.
250	25	Dist. Water	PE-LD	12	133181
250	45	Dist. Water	PE-LD	12	135181
500	25	Dist. Water	PE-LD	12	133281
500	45	Dist. Water	PE-LD	12	135281
1000	32	Dist. Water	PE-LD	12	133381
1000	63	Dist. Water	PE-LD	12	135381

Other imprints are available on request.

Please see wash bottles PE-LD/PP for height and diameter.



Wash-bottles, PFA-economy



Narrow-mouth wash bottles, transparent, with ETFE screw-cap and dispensing tube made of FEP. Withstand high temperatures and chemical attack.

Volume ml	Thread GL	Height* mm	Ø mm	SP	Art. No.
250	25	157	61	1	108792
500	25	189	76	1	108892
1000	32	233	96	1	108992

* without wash-bottle cap

Saving and storing

Wash-bottles, PP



Narrow-/Wide-mouth bottles made of PP, transparent.
Dispensing tube with pointed end made from PP to optimize the backflow of the medium.
The lack of a spray insert and the even molding of the inner-diameter make it possible to avoid almost all turbulence in the liquid.

Volume ml	Thread GL	Height* mm	Ø mm	SP	Art. No.
250	25	135	58	12	94993
250	45	133	58	12	93793
500	25	180	74	12	95093
500	45	151	76	12	93993
1000	32	215	92	12	95193
1000	63	196	91	12	94193

* without wash-bottle cap



Wash-bottles, PE-LD

Narrow-/Wide-mouth bottles made of PE-LD, transparent.
Dispensing tube with pointed end and screw cap made from PP to optimize the backflow of the medium. The lack of a spray insert and the even molding of the inner-diameter make it possible to avoid almost all turbulence in the liquid.

Volume ml	Thread GL	Height* mm	Ø mm	SP	Art. No.
50	18	73	37	24	94588
100	18	95	43	24	94688
250	25	135	58	12	94988
250	45	133	58	12	93788
500	25	180	74	12	95088
500	45	151	76	12	93988
1000	32	215	92	12	95188
1000	63	196	91	12	94188

* without wash-bottle cap



Wash-bottles, PE-LD



Narrow-mouth bottles, transparent, with screw cap and dispensing tube made of PE-LD.

Volume ml	Thread GL	Height* mm	Ø mm	SP	Art. No.
100	18	106	45	50	134293
250	25	140	59	50	134393
500	25	180	75	50	134493
1000	28	212	94	25	134593

* without wash-bottle cap





Wash-bottle caps, PP

Screw cap and dispensing tube made of PP with drawn-out tip.

Thread GL	SP	Art. No.
18	24	83300
25	12	83301
32	12	83302
45	12	83303
63	12	83304



Wash-bottles, colour coded, PE-LD

Narrow-mouth bottles made of PE-LD, four colours.

Volume ml	Colour	SP	Art. No.
500	red	5	132703
500	green	5	132705
500	blue	5	132706
500	yellow	5	132708



Integral wash-bottles, PE-LD

Transparent, with integrally moulded tube. No need to take it off when refilling.

Volume ml	Thread GL	Height mm	SP	Art. No.
250	32	143	10	81633
500	32	181	10	81634



Dropping bottles, PE-LD/PE-HD

Narrow-mouth bottles made of PE-LD, transparent, with dropper inserts and mating screw-caps, PE-HD.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	18	117	37	24	94587
100	18	142	43	24	94687
250	25	183	58	12	94987
500	25	228	74	12	95087
1000	32	263	92	12	95187

Saving and storing

Caps with dropper inserts, PE-HD

Thread GL	SP	Art. No.
18	24	83306
25	12	83307
32	12	83308



Dropping bottles, PE-LD



Narrow-mouth bottles, transparent, with dropper inserts and locking cap made of PE-LD.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
20	14	88	31	100	132193
30	14	96	34	100	132293
50	18	115	39	100	132393
100	18	136	45	50	132493
250	25	170	59	50	132593
500	25	209	75	50	132693
1000	28	240	94	25	132793



Spray bottles, PP



Hand operated pump-spray-bottles. Spray-nozzle adjustable from a fine mist to a narrow jet reaching 3 m to 4 m.

Volume ml	Colour	SP	Art. No.
400	white	5	53510
850	white	5	53610
1000	transparent	5	95286





Narrow-mouth bottles, PFA



Transparent, supplied with screw-cap with buttress thread made of and a moulded-in sealing ring. Ideal as packaging bottle for pure chemicals. High temperature resistance from -200 °C to +250 °C.

Volume ml	Thread*	Height mm	Ø mm	SP	Art. No.
50	S 28	86	37	1	109297
100	S 28	120	45	1	109397
250	S 28	160	61	1	108297
500	S 28	190	76	1	108397
1000	S 28	240	96	1	108497

* Buttress thread



Narrow-mouth bottles, PFA-economy



Transparent, supplied with hermetically sealing screw-cap made of ETFE and a moulded-in sealing ring. Withstand high temperatures and chemical attack.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	18	90	37	1	108092
100	18	114	45	1	108192
250	25	157	61	1	108292
500	25	189	76	1	108392
1000	32	233	96	1	108492



Narrow-mouth bottles, PE-HD



Transparent, with screw-cap with moulded-in sealing ring made of PP, wide shoulder. Heavy duty.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
4	20	41	16	12	5583170
8	20	44	25	12	5583180
15	20	57	25	12	5583190
30	20	70	31	12	5583100
60	20	84	38	12	5583110
125	24	101	50	12	5583120
250	24	134	61	12	5583130
500	36	185	75	12	5583140
1000	36	206	92	6	5583150

Saving and storing

Narrow-mouth bottles, PE-HD, brown



For storage of light-sensitive substances.

With screw-cap with moulded-in sealing ring made of PP, wide shoulder. Heavy duty.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
4	20	41	16	12	5581170
8	20	44	25	12	5581180
15	20	57	25	12	5581190
30	20	70	32	12	5581200
60	20	84	40	12	5581210
125	24	101	51	12	5581220
250	24	134	62	12	5581230
500	36	185	75	12	5581240
1000	36	206	92	6	5581250



Narrow-mouth bottles, PP



Transparent, with screw-cap with moulded-in sealing ring, wide shoulder. Heavy duty.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
4	20	41	16	12	5582070
8	20	44	25	12	5582080
15	20	57	25	12	5582090
30	20	70	32	12	5582100
60	20	84	40	12	5582110
125	24	101	51	12	5582120
250	24	134	62	12	5582130
500	36	185	75	12	5582140
1000	36	206	92	6	5582150



Narrow-mouth bottles, PP



Transparent, with screw-cap with moulded-in sealing ring made of PP, high shoulder.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	18	73	37	24	94594
100	18	95	43	24	94694
250	25	135	58	12	94994
500	25	180	74	12	95094
1000	32	215	92	12	95194





Narrow-mouth bottles, PE-LD

Transparent, with screw-cap with moulded-in sealing ring made of PP, high shoulder.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
10	11	42	22	24	94389
20	11	59	24	24	94489
50	18	73	37	24	94589
100	18	95	43	24	94689
250	25	135	58	12	94989
500	25	180	74	12	95089
1000	32	215	92	12	95189



Narrow-mouth bottles, PE-LD



Transparent, with screw-cap made of PE-LD, flat shoulder.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
10	14	50	26	100	138093
20	14	58	31	100	138193
30	14	66	34	100	138293
50	18	85	39	100	138393
100	18	106	45	50	138493
250	25	140	59	50	138593
500	25	180	75	50	138693
1000	28	212	94	25	138793
2000	28	264	117	25	138893



Narrow-mouth bottles, PE-LD

Transparent, square, with screw-cap made of PP.

Volume ml	Thread GL	Height mm	Size mm	SP	Art. No.
100	18	82	41 x 41	24	91789
150	18	93	47 x 47	24	91889
250	25	110	55 x 55	24	91989
500	25	133	70 x 70	12	92089
1000	32	166	87 x 87	12	92189

Saving and storing

Wide-mouth bottles, PFA



Transparent, supplied with screw-cap with buttress thread made of PFA and a moulded-in sealing ring. Ideal as packaging bottle for pure chemicals. High temperature resistance from -200 °C to +250 °C.

Volume ml	Thread*	Height mm	Ø mm	SP	Art. No.
250	S 40	150	61	1	109497
500	S 40	179	76	1	109597
1000	S 40	217	96	1	109697
2000	S 40	245	130	1	109797
2500	S 40	290	130	1	109897
5000	S 40	320	175	1	109997

* Buttress thread



Wide-mouth bottles, PTFE



Opaque with caps made of PTFE.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
10	12	50	26	1	122597
25	19	61	33	1	122697
50	25	76	43	1	122797
100	35	88	52	1	122897



Wide-mouth bottles, PE-HD



Transparent, with screw-cap with moulded-in sealing ring made of PP. Heavy duty.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
30	28	70	32	12	5584200
60	28	84	40	12	5584210
125	38	101	51	12	5584220
250	43	134	62	12	5584230
500	53	185	75	12	5584240
1000	63	206	92	6	5584250





Wide-mouth bottles, PE-HD, brown



For storage of light-sensitive substances.
With screw-cap with moulded-in sealing ring.
Heavy duty.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
30	28	70	31	12	5581300
60	28	84	38	12	5581310
125	38	98	50	12	5581320
250	43	131	61	12	5581330
500	53	180	75	12	5581340
1000	63	200	92	6	5581350



Wide-mouth bottles, PP



Transparent, with screw-cap with moulded-in sealing ring.
Heavy duty.

Volume	Thread mm	Height mm	Ø mm	SP	Art. No.
30	28	70	31	12	5582200
60	28	84	38	12	5582210
125	38	98	50	12	5582220
250	43	131	61	12	5582230
500	56	180	75	12	5582240
1000	63	200	92	6	5582250



Wide-mouth bottles, PP



Transparent, with screw-cap with moulded-in sealing ring made of PP.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	32	87	39	24	93394
100	32	94	47	24	93494
250	45	133	58	12	93794
500	45	151	76	12	93994
1000	63	196	91	12	94194

Saving and storing

Wide-mouth bottles, PE-LD

Transparent, with screw-cap with moulded-in sealing ring made of PP.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	32	87	39	24	93389
100	32	94	47	24	93489
250	45	133	58	12	93789
500	45	151	76	12	93989
1000	63	196	91	12	94189



Wide-mouth bottles, PE-LD



Transparent, with screw-cap with moulded-in sealing ring made of PE-LD.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	32	80	38	100	139393
100	32	94	48	50	139493
250	40	126	62	50	139593
500	50	155	76	50	139693
1000	65	208	93	25	139793
2000	65	246	120	25	139893



Wide-mouth bottles, PE-LD

Transparent, square, with screw-cap made of PP.

Volume ml	Thread GL	Height mm	Size mm	SP	Art. No.
100	32	82	41 x 41	24	92489
250	45	110	55 x 55	24	92689
500	45	133	70 x 70	12	92789
1000	63	166	87 x 87	12	92889





Wide-mouth bottles, PE-LD

Transparent, with leakproof caps with seal. Improved design having eyes for attaching tags or seals.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
50	24	75	40	25	80408
100	24	90	50	25	80409
250	36	130	60	25	80410
500	36	160	75	10	80411
1000	50	200	95	10	80412
2000	50	250	115	10	80413



Screw caps, PFA

With moulded-in sealing ring.

Thread	SP	Art. No.
GL 18	12	102597
GL 25	12	102397
S*28	12	102697
S*40	12	102897
* buttress thread		



Screw caps, PP

With moulded-in sealing ring.

Thread GL	SP	Art. No.
18	24	83310
25	12	83311
32	12	83312
40	12	83315
45	12	83313
52	12	83316
56	12	83317
63	12	83314

Saving and storing

Reagent bottles, PP

Narrow-mouth.

Transparent, with screw-cap made of PP.

Size 5000 ml with 1, size 10000 ml with 2 handles.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
100	18	100	52	20	100389
250	25	132	70	20	100489
500	25	165	87	10	100589
1000	32	202	108	10	100689
2000	32	245	131	6	100789
5000	45	315	178	1	100889
10000	63	394	222	1	100989



Reagent bottles, PP

Narrow-mouth.

Transparent, with NS stopper made of PP.

Size 5000 ml with 1 handle.

Volume ml	Neck size NS	Height mm	Ø mm	SP	Art. No.
100	14/23	106	52	20	100394
250	19/26	138	70	20	100494
500	24/29	172	87	10	100594
1000	29/32	213	108	10	100694
2000	29/32	255	131	6	100794
5000	45/40	325	178	1	100894



Reagent bottles, PP

Wide-mouth.

Transparent, with screw-caps made of PP.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
100	32	96	55	20	101589
250	45	132	73	20	101689
500	45	172	87	10	101789
1000	63	204	108	10	101889
2000	63	243	131	6	101989





Reagent bottles, PP

Wide-mouth.
Transparent, with NS stopper made of PP.

Volume ml	Neck size NS	Height mm	Ø mm	SP	Art. No.
100	29/32	111	55	20	101594
250	34/35	144	73	20	101694
500	45/40	183	87	10	101794
1000	60/46	214	108	10	101894
2000	60/46	263	131	6	101994



Standard joint stoppers, PP

NS	SP	Art. No.
7/16	1	90594
10/19	1	90694
12/21	1	90794
14/23	1	90894
19/26	1	90994
24/29	1	91094
29/32	1	91194
34/35	1	91294
45/40	1	91394
60/46	1	91494



Urinals, PP and PC

Bottle made of PP or PC, raised scale, graduation 50 ml. Available with or without attached lid made of PE-LD. Bottles are autoclavable at temperatures up to 121 °C.

Type	Volume ml	SP	Art. No.
Urinal without lid, PP	1000	6	97494
Urinal with lid, PP	1000	6	00394
Urinal without lid, PC	1000	6	97496
Urinal with lid, PC	1000	6	00396
Lid, PE-LD		6	97593

Saving and storing

Storage bottles, PE-LD, with tap

Supplied with screw-caps and carrying bails, exchangeable tap with 3/4" pipe fitting.

Volume l	Thread mm	Height mm	Ø mm	SP	Art. No.
5	45	335	165	1	81660
10	55	415	210	1	81662
25	55	525	280	1	81664
50	55	605	365	1	81666



Storage bottles, PE-LD, without tap

Supplied completely with screw-caps and carrying bails.

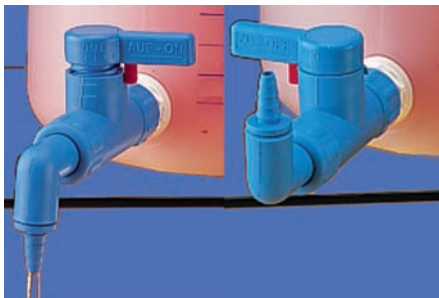
Volume l	Thread mm	Height mm	Ø mm	SP	Art. No.
5	90	315	165	1	81640
5	45	335	165	1	81644
10	120	390	210	1	81642
10	55	415	210	1	81646
25	55	525	280	1	81648
50	55	605	365	1	81650



Tap for storage bottles, PP

Description	SP	Art. No.
Tap, PP, for narrow-neck storage bottles, art. no. 81660 to 81666.	1	80375





Container, PP

Save valuable space with this compact container system. Each container is supplied with screw cap and volume scale. The unique stopcock is absolutely water-tight when not in use. By inverting the special spout, any residual dropping after closing is prevented. Supplied without stopcock.

Capacity 6 l

Measurements 65 x 335 x 335 mm

Top Ø 41 mm

Description	SP	Art. No.
Compact container	10	155094
Vented screw-cap	1	155594
Safety support for 2 containers	1	155699
Safety support for 3 containers	1	155799
Stopcock	1	156094



Sample containers, PFA



With screw cap made of PFA.

For sample collection, transport and storage of samples.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
30	40	54	38	1	130297
60	40	90	38	1	130397
90	56	62	54	1	130497
180	56	112	54	1	130597



Sample containers, PE-HD

With screw-cap made of PE-HD

For sample collection, transport and storage of samples.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
5	23	36	21	10	80910
10	23	58	21	10	80911

Saving and storing

Sample containers, PP



With screw-cap made of PP.
For sample collection, transport and storage of samples.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
30	40	54	38	10	130294
60	40	90	38	10	130394
90	56	62	54	10	130494
180	56	112	54	10	130594



Sample vials, PP



Transparent, with snap-on lid made of PE-LD.

Volume ml	Height mm	Ø mm	SP	Art. No.
5	25	20	25	68594
8	37	20	25	68694
12	37	22	25	68794
18	57	22	25	68894
28	52	30	10	68994
35	67	30	10	69094
50	97	30	10	69194
160	110	50	10	69294



Sample vials, PE-LD

Transparent, with attached snap-on lid made of PE-LD.

Volume ml	Height mm	Ø mm	SP	Art. No.
1	32	9	500	80730
2	32	14	100	80731
5	50	15	100	80737
8	56	17	100	80732
10	32	22	100	80733
25	72	24	100	80734
30	52	31	50	80736
50	74	30	50	80735





Sample vials, PFA



With or without individually calibrated ring mark at 10 ml with screw cap GL 25 made of PFA.

Type	Volume ml	Height mm	Ø mm	SP	Art. No.
With ring mark at 10ml	15	110	22	1	103897
Without ring mark	15	110	22	1	1038971



Sample vials, PFA



For sample preparation, centrifugation and for autosampler racks.

Type	Volume ml	Height mm	Ø mm	SP	Art. No.
With ring mark at 10 ml and stopper, PP	12	110	16	1	1037979
Without ring mark	12	110	16	1	103797



Microcentrifuge tubes, PP

With frosted marking area and raised graduation for volume determination. The lid membrane has a uniform thickness and is easily pierceable by an analyzer. The attached lid seals tightly, yet reopens easily. The reaction tubes possess a consistent wall thickness and a high clarity.

- Withstands up to 20 000 RCF at 20 °C for up to 20 mins
- Lid membrane Ø 8 mm, approx. 0.35 mm thick
- Outer Ø x H: 11 x 41 mm

Volume ml	Pack size pcs.	SP	Art. No.
1.5	1x500	500	145094
1.5	6x500	3000	145194

Saving and storing

Multi-purpose container, SAN

Glass-clear, with lid.

Volume ml	L x W x H mm	SP	Art. No.
4000	340 x 230 x 94	1	36491



Storage boxes, PS

With lid, for 25, 50 or 100 slides of 76 x 26 mm. Handy, stackable, break-proof and easy to clean. The seats are numbered individually. With index card.

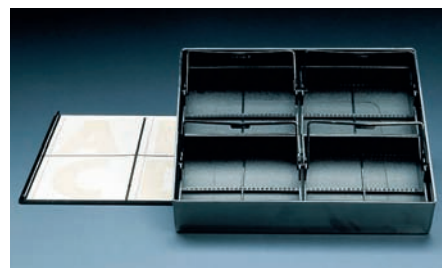
Positions	L x W x H mm	SP	Art. No.
25	122 x 96 x 34	4	80276
50	229 x 96 x 34	1	80277
100	229 x 181 x 34	1	80278



Storage boxes, nesting, PS

Storage boxes for staining racks. Optional with or without 4 staining racks available.

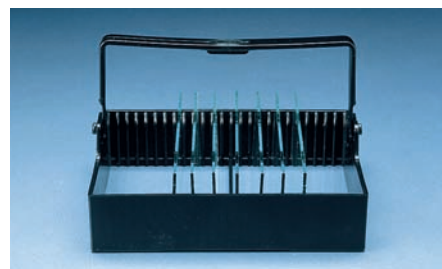
Description	L x W x H mm	SP	Art. No.
With 4 staining racks	192 x 169 x 39	3	99390
Without staining racks	192 x 169 x 39	3	99490

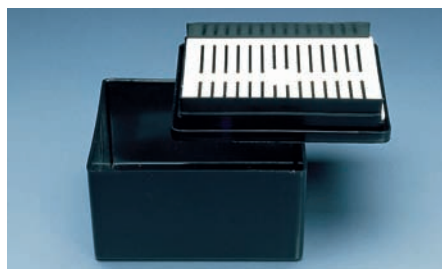


Staining rack, POM

For simultaneously staining up to 25 slides. Fits in Art. No. 99199 staining jar.

L x W x H mm	SP	Art. No.
91 x 79 x 38	10	99299

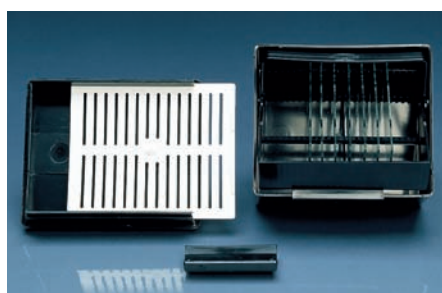




Staining jar, POM

Staining jar, handles up to 25 slides. Accommodates a single rack, art. no. 99299.

L x W x H mm	SP	Art. No.
100 x 87 x 51	5	99199



Staining cuvette, POM

Consists of staining jar and rack for 25 standard slides 76 x 26 mm.

L x W x H mm	SP	Art. No.
100 x 87 x 51	5	99099



Staining jar, PMP

Glass-clear, for use with art. no. 80354. Supplied with two lids. One for use when no staining dish is in use, precluding evaporative loss of staining liquids during storage. A second lid with an opening for the handle of the staining dish.

L x W x H mm	SP	Art. No.
103 x 82 x 70	4	80353



Staining cuvette 'Hellendahl', PMP

Glass-clear, supplied complete with lid. Holds 8 slides stacked vertically or 16 slides stacked back to back 76 x 26 mm.

L x W x H mm	SP	Art. No.
58 x 53.5 x 86	4	80355

Saving and storing

Staining dish, PP

Holds 20 slides of 76 x 26 mm. Removable snap-on handle. For the use with art. no. 80353.

L x W x H mm	SP	Art. No.
86 x 70 x 21	2	80354



Staining cuvette 'Coplin', PP

With screw cap, for simultaneously staining 10 slides of 76 x 26 mm.

Height mm	Ø mm	SP	Art. No.
114	59	10	136693





Cuvettes, PS and PMMA

Standardized disposable cuvettes are ideal for kinetic measurements and come in a clearly arranged, resealable package.

- Grouped by mold cavity number
- Flawless optical path
- Recessed windows protect against scratching
- Arrow indicates optical path orientation

Measurements:

Cuvette:	12.5 x 12.5 x 45 mm
Window: Macro Cuvette	10 x 35 mm
Window: Semi-micro cuvette	4.5 x 23 mm
Light path:	10 mm

Polystyrene cuvettes (PS)	
Typical range of application	> 340 nm
Standard deviation at 360 nm	0.005 extinction units

Polymethyl methacrylate cuvettes (PMMA)	
Typical range of application	> 300 nm
Standard deviation at 320 nm	0.004 extinction units

Description	Filling volume ml	SP	Art. No.
Macro cuvette, PS	2.5 - 4.5	1000	146190
Semi-micro cuvette, PS	1.5 - 3.0	1000	146290
Macro cuvette, PMMA	2.5 - 4.5	1000	146399
Semi-micro cuvette, PMMA	1.5 - 3.0	1000	146499



Desiccators with stopcock, PC

Glass-clear, with stopcock for evacuation. Lower sections can be filled with desiccants. A perforated disk of PP supports materials to be dried. Lids are sealed by a neoprene gasket. Ideal for use in schools, universities, and student laboratories.

Ø mm	Disc Ø mm	SP	Art. No.
171	140	1	326496
230	190	1	326596
273	230	1	326696

Saving and storing

Desiccators, PP/PC

Lower section made of PP can be filled with desiccants. A perforated disk of PP supports materials to be dried. Lids made of PC are sealed by a neoprene gasket. Ideal for use in schools, universities, and student laboratories.

Ø mm	Disc Ø mm	SP	Art. No.
171	140	1	326094
230	190	1	326194
273	230	1	326294



Desiccators with stopcock, PP/PC

Evacuatable desiccators. Base sections in PP. Hot crucibles should be put on a porcelain plate only. Cover of transparent PC. O-ring provides excellent sealing. Vacuum valve of PC with PE stopper allows for gradual admission of air in order to prevent damage to crucibles. A removable pan holds calcium chloride or other choice of desiccant. Supplied without desiccator plates.

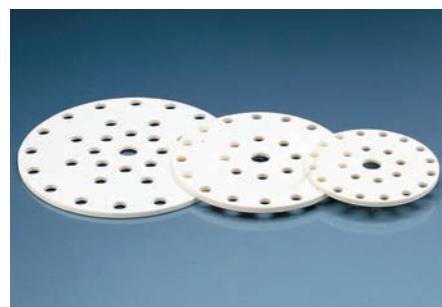
Ø mm	SP	Art. No.
150	1	80550
200	1	80230
250	1	80554

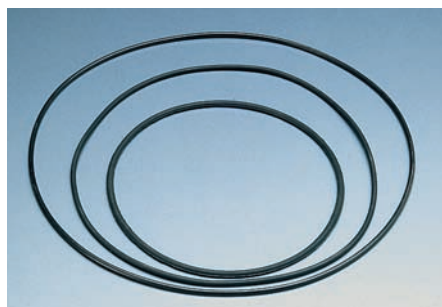


Desiccator plates, PP and porcelain

PP-Plate usable up to max. 120 °C.

Material	for Desiccator-Ø mm	Ø mm	SP	Art. No.
PP	150	141	1	80551
PP	200	190	1	80231
PP	250	239	1	80553
Porcelain	150	140	1	65965
Porcelain	200	190	1	65975
Porcelain	250	240	1	65980





Spare parts for desiccators

Spare O-rings and valves for desiccators (art. no. 80550, 80230, 80554).

Description	SP	Art. No.
O-ring for desiccator no. 80550	1	80555
O-ring for desiccator no. 80230	1	80556
O-ring for desiccator no. 80554	1	80557
Valve, PC, for desiccator no. 80550, 80230, 80554	1	80229



Seed germinating kits, PS

Kit for checking seed germination. A strip of filter paper is inserted through the slot in the annular support, a circular sheet of filter paper is placed on the support. Seeds are laid out on this sheet of filter paper. Includes a top bell equipped with an air vent. Conforms to DBGM 1671453.

Description	SP	Art. No.
Seed germinating kit, 250 ml	10	98590
Annular support for seed germinating kit art. no. 98590	10	98690
Top bell for seed germinating kit art. no. 98590	10	98790
Water jar, 250 ml for seed germinating kit art. no. 98590	10	98890



Instrument trays, MF

White. Fitting lid made of PS please order separately.

L x W x H mm	SP	Art. No.
190 x 150 x 40	5	72098
290 x 160 x 35	5	72198
290 x 160 x 60	5	72398
340 x 245 x 100	5	72498
350 x 250 x 40	5	72298

Saving and storing

Lids for instrument trays, PS

Glass-clear, with handle.

Size mm	For Container no.	SP	Art. No.
190 x 150	72098	5	79790
290 x 160	72198, 72398	5	79890
340 x 245	72498	5	79990



Instrument trays, flat, MF

White, flat.

L x W x H mm	SP	Art. No.
190 x 150 x 17	5	71598
240 x 180 x 17	5	71698
268 x 208 x 17	5	71798
355 x 240 x 17	5	71898
428 x 288 x 17	5	71998



Laboratory trays, PP

All-purpose trays, robust, high chemical resistance.

Bottom size inner mm	Rim measurement mm	Height mm	SP	Art. No.
130 x 180	180 x 230	42	1	165094
180 x 240	250 x 310	65	1	165194
240 x 300	310 x 370	75	1	165294
300 x 400	420 x 520	120	1	165394
400 x 500	534 x 634	140	1	165494
500 x 700	648 x 846	160	1	165594





Deep trays, PVC

White, universal usable.

Bottom size inner mm	Height mm	SP	Art. No.
200 x 150	50	1	80280
250 x 200	60	1	80281
320 x 260	70	1	80282
350 x 300	85	1	80283
430 x 330	95	1	80284
520 x 420	95	1	80285
675 x 540	100	1	80286
550 x 430	190	1	80288



Compartment tray, PVC

With 9 cavities, for bottles up to Ø 25 mm.

Size mm	Height mm	SP	Art. No.
355 x 300	45	1	80952



Compartment tray, PVC

With 12 cavities, for small parts.

Size mm	Height mm	SP	Art. No.
410 x 300	65	1	80953



Compartment tray, PVC

With 5 cavities of different sizes for pipettes, thermometers, connectors etc.

Size mm	Height mm	SP	Art. No.
410 x 300	70	1	80954

Saving and storing

Buckets, PE-HD

White, graduated.
Suitable tight snap-lid, transparent, made of PE-LD. (Please order separately).

Description	Volume l	Height mm	Ø mm	SP	Art. No.
Bucket	5	240	250	1	96093
Bucket	10	300	290	1	96393
Lid	for 5 l			1	96293
Lid	for 10 l			1	96593



Buckets with spout, PP



Transparent, graduated, without lid. Highly resistant to chemicals.

Volume l	Height mm	Ø mm	SP	Art. No.
12	330	310	1	96694
15	370	310	1	96794



Bowls, round, PP



White, round.

Volume l	Height mm	Ø mm	SP	Art. No.
1	70	160	5	42594
2	80	200	5	42694
3	100	240	5	42794
4	120	280	5	42894
7	130	320	3	42994
9	150	360	3	43094
13	180	400	3	43194



Mixing vessel, MF

White, with both spout and handle, non-slip.

Volume ml	Height mm	Ø mm	SP	Art. No.
3000	140	220	1	73298





Bowl, PP



White, for steel sinks.

Volume l	L x W x H mm	SP	Art. No.
14	320 x 340 x 190	5	43510



Carrying trays, PE-HD

Easy stackable.

Volume l	L x W x H mm	SP	Art. No.
20	380 x 280 x 200	1	80602
46	560 x 330 x 250	1	80603
72	660 x 400 x 300	1	80604



Multi-purpose containers, PP

With 2 carrying grips. Volume 30 l, outer-Ø 400 mm, height 450 mm.

Colour	SP	Art. No.
green	1	47705
yellow	1	47706
orange	1	47707
blue	1	47708
grey	1	47716



Microcentrifuge tube rack, PP

For test tubes 0.5 / 1.5 / 2.0 ml and cryo-tubes.

For Ø up to mm	Positions	Colour	L x W x H mm	SP	Art. No.
10 - 12	8 x 12	white	215 x 131 x 27	1	136894

Saving and storing

Microcentrifuge tube racks, coloured, PP

Sturdy construction. Stackable racks with alphanumerical positions. Operating temperature - 20 to 90 °C. Autoclavable (121 °C). Density 1.2 g/cm³. Will not float in waterbath. Racks are supplied in two-pieces (Ø 11 mm, for microcentrifuge tubes) or three-pieces (Ø 13 mm, for cryo tubes) for convenient and permanent assembly.

For Ø up to mm	Positions	Colour	L x W x H mm	SP	Art. No.
11	8 x 16	white	265 x 126 x 38	5	3197940
13	6 x 14	white	265 x 126 x 38	5	3198940
11	8 x 16	blue	265 x 126 x 38	5	3197948
13	6 x 14	blue	265 x 126 x 38	5	3198948
11	8 x 16	red	265 x 126 x 38	5	3197943
13	6 x 14	red	265 x 126 x 38	5	3198943

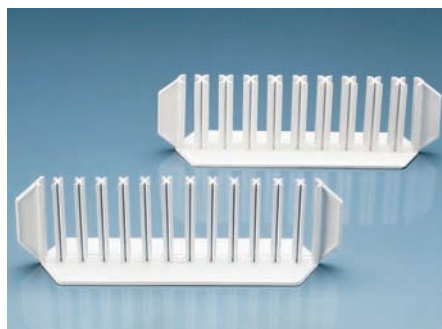


Test tube racks, coloured, PP

Sturdy construction, stackable, light, colour-coded. Ideal for use in water baths. Alphanumerical positions. For refrigerated storage of samples, and for incubations conducted in climatic chambers. Racks are supplied in two-pieces for convenient and permanent assembly. Operating temperature - 20 to 90 °C. Autoclavable at temperatures up to 121 °C. L x W: 265 x 126 mm.

For Ø up to mm	Positions	Height mm	Colour	SP	Art. No.
13	6 x 14	75	white	5	3190940
16	5 x 11	75	white	5	3191940
18	5 x 11	75	white	5	3192940
20	4 x 10	75	white	5	3193940
25	4 x 8	88	white	5	3194940
30	3 x 7	88	white	5	3195940
13	6 x 14	75	blue	5	3190948
16	5 x 11	75	blue	5	3191948
18	5 x 11	75	blue	5	3192948
20	4 x 10	75	blue	5	3193948
25	4 x 8	88	blue	5	3194948
30	3 x 7	88	blue	5	3195948
13	6 x 14	75	red	5	3190943
16	5 x 11	75	red	5	3191943
18	5 x 11	75	red	5	3192943
20	4 x 10	75	red	5	3193943
25	4 x 8	88	red	5	3194943
30	3 x 7	88	red	5	3195943

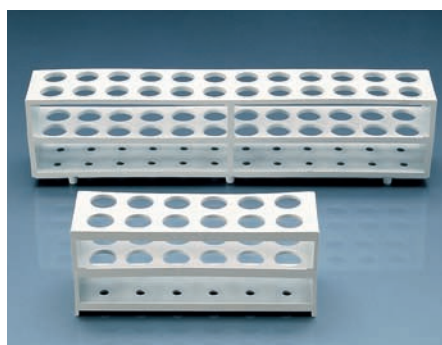




Test tube racks, PE

White, allow the control of reagents.

For Ø up to mm	Positions	L x W x H mm	SP	Art. No.
16	10	200 x 55 x 65	4	80130
18	9	200 x 55 x 65	4	80131



Test tube racks, PP

White, for test tubes Ø 21 mm

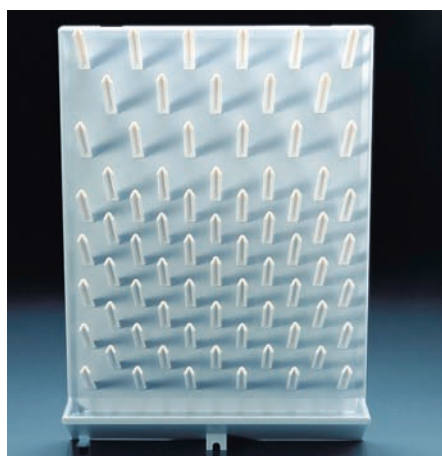
For Ø up to mm	Positions	L x W x H mm	SP	Art. No.
21	2 x 6	190 x 60 x 80	5	80560
21	2 x 12	375 x 65 x 85	5	80562



Drying rack

Polyethylene-coated steel rack on a PVC backplate and trough.

Size mm	SP	Art. No.
450 x 630	1	76299



Drying rack, PS

With draining trough and draining tubing. Rack with 72 pegs 100 x 15 mm. Pegs can be insert as required.

Description	Size mm	SP	Art. No.
Drying Rack	450 x 630	1	80213
Replacement Pegs	95 x Ø 6	11	81213

Competence in Lab Plastics

BOTTLING AND WEIGHING





Measuring scoops, PP



White, flat bottoms and tops, volume-marked.

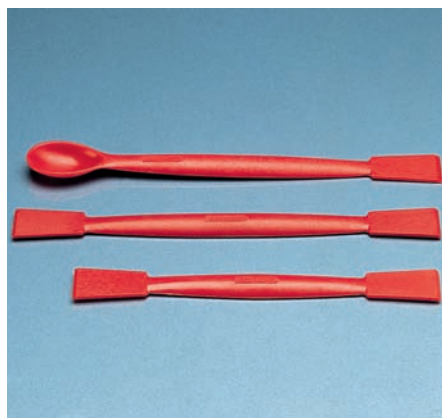
Volume ml	Length mm	SP	Art. No.
2	60	12	39194
5	82	12	39294
10	100	12	39394
25	135	12	39494
50	160	12	39594
100	200	12	39694
250	260	6	39794
500	315	6	39894
1000	385	6	39994



Measuring scoops, PE-HD

Natural colouring.

Volume ml	Length mm	SP	Art. No.
15	115	12	40093
25	135	12	40193
65	185	12	40293
110	215	12	40393
150	250	12	40493
350	310	6	40593
750	350	6	40693
1250	400	6	40793



Spatula, PA

Glass-fibre reinforced.

Description	Length mm	SP	Art. No.
Double-spatula	150	10	80594
Double-spatula	180	10	80595
Spatula-spoon	180	10	80596
Spatula-spoon	210	10	80593

Bottling and weighing

Measuring Spoon, PS

Glass-clear, without graduation.

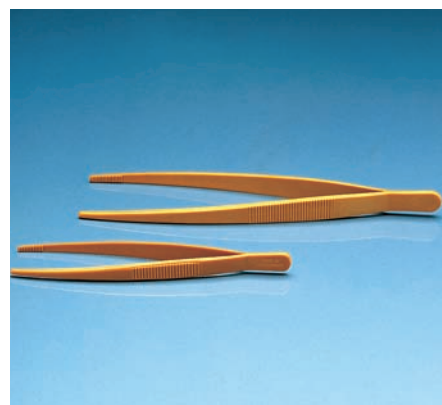
Volume ml	Length mm	SP	Art. No.
2	90	1000	69990



Forceps, POM

Yellow, flat bottoms and tops, self-sprung.

Length mm	SP	Art. No.
115	5	68099
145	5	68199
180	5	68299
250	5	68399



Forceps, PMP

White, pointed, self-sprung.

Length mm	SP	Art. No.
115	10	67895
145	10	67995



Watch glasses, PTFE

Ø mm	SP	Art. No.
50	1	113197
75	1	113297
100	1	113397
125	1	113497





Watch glasses, PP

Transparent, with base.

Ø mm	SP	Art. No.
60	10	80452
80	10	80454
100	10	80455
125	10	80456



Weighing jars, PP

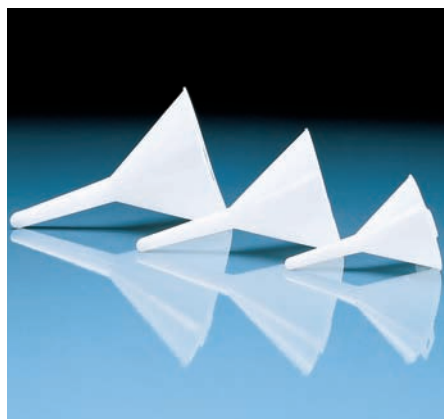
Transparent, with hermetic-seal lids.

Volume ml	Height mm	Ø mm	SP	Art. No.
25	30	40	10	80342
30	50	30	10	80340
50	30	50	10	80345
65	35	60	10	80346
65	60	40	10	80343
200	90	60	10	80347
400	120	70	10	80348

Competence in Lab Plastics

FILTERING AND DECANTING



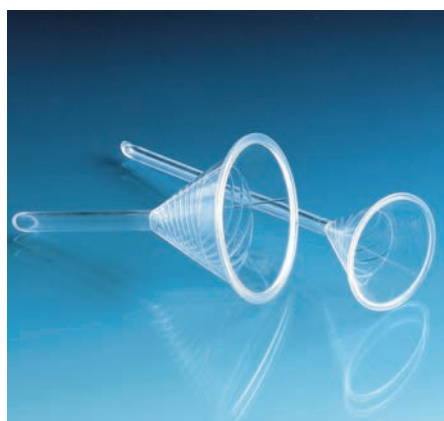


Funnels, PP



Transparent.

Ø mm	Length mm	Stem Ø mm	Stem length mm	SP	Art. No.
30	45	1.5	25	24	40894
30	47	4	25	24	41094
40	65	4	35	24	41194
50	85	7	43	24	41294
75	110	6	55	12	41394
100	155	8	77	12	41494
120	180	11	90	12	41594
150	220	15	95	12	41694



Urbanti funnels, COC

Glass-clear, spiral ribbing precludes trapping of air between filter paper and funnel, providing more rapid filtration.

Ø mm	Length mm	Stem Ø mm	Stem length mm	SP	Art. No.
51	195	3	150	6	325095
70	210	3	150	6	325195
100	198	7	108	4	325295
140	247	10	132	3	325395
196	315	20	155	2	325495



Analytical funnels, PP

Transparent.

Ø mm	Length mm	Stem Ø mm	Stem length mm	SP	Art. No.
50	194	5	150	10	80162
72	208	5	142	10	80164
91	227	5	142	10	80165

Filtering and decanting

Büchner funnels, PP

Two detachable pieces facilitate cleaning.

Filter-Ø mm	Length mm	Holes Ø mm	SP	Art. No.
45	95	1.0	1	80437
55	113	1.0	1	80438
70	145	1.5	1	80439
80	165	1.5	1	80440
90	180	1.5	1	80441
110	210	2.0	1	80442
160	280	3.0	1	80443
240	350	3.0	1	80445



Large funnels, PP or PE-HD

Transparent.
Stainless steel/aluminium mesh sieve/filter.

Ø mm	Length mm	Stem Ø mm	Material	SP	Art. No.
200	200	22	PP	6	41794
250	260	30	PP	6	41894
350	440	35	PP	1	41994
400	365	42	PE-HD	1	42294
430	420	37	PE-HD	1	42393
Brass mesh Ø 50 mm for funnels no. 41794, 41894				1	42099



Half-round funnels, PP



Transparent, special ST-funnels for use on multi-neck flasks and labware.

NS	Length mm	Stem width mm	Stem length mm	SP	Art. No.
14/23	75	40	17	10	70494
19/26	95	50	23	10	70594
29/32	135	75	30	5	70694





Powder funnels, PP



Transparent.

Ø mm	Length mm	Stem Ø mm	Stem length mm	SP	Art. No.
65	68	15	25	10	70794
80	75	21	25	10	70894
100	94	22	20	10	70994
120	110	26	20	10	71094
150	138	28	22	5	71194



Funnel holders, PP

Available to hold funnels with diameters from 50-120 mm, to connect to rods with diameters from 8-14 mm.

Positions	SP	Art. No.
1	5	80268
2	5	80269



Support for separatory funnels, PP

For separatory funnels from 125-500 ml, with clamp for rods Ø 8-14 mm.

Positions	SP	Art. No.
1	5	80970

Filtering and decanting

Filter funnel supports

PP-plates with aluminium support rod. Ø x length in mm: 12.7 x 595. To support 2 or 4 funnels with top outer-Ø of 50 to 120 mm. Adjustable funnel height.

Positions	Base plate mm	SP	Art. No.
2	250 x 140	1	78394
4	450 x 140	1	78294



Chemical waste system, PE/PP

For disposal of liquid chemical waste. The funnel of PE-HD contains an automatic valve to avoid overflow. The valve closes the container of PP and minimizes evaporation.

Volume l	Height mm	Ø mm	SP	Art. No.
10	560	222	1	151594





Water-jet vacuum pump, PP

For generation of a vacuum and to siphon off liquids and steam (Suction main or condensation trap may need to be made available.)

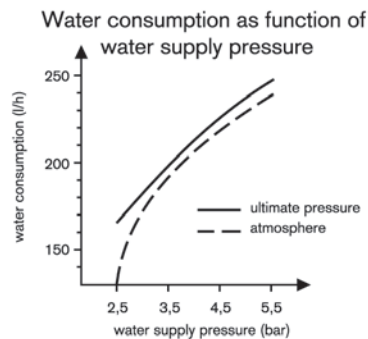
Pump fluid: water

Overall length: approx. 210 mm (R 3/4" connector fitted)

Weight: approx. 33g (R 3/4" connector fitted)

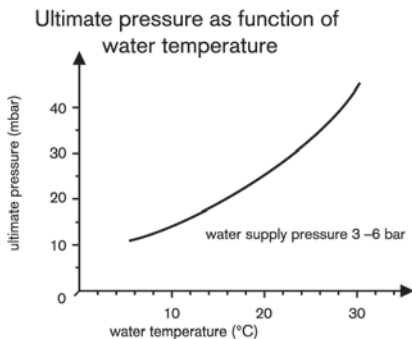
- High chemical resistance, fluid path consists of PP, FKM and PTFE.
- Operating temperature up to max. 80 °C.
- Integrated non-return valve increases safety.
- Simple operation and easy to clean.
- Detachable vacuum connection.

Variety of supplied adapters simplify connections to most water sources. Optional reducing adapters are available.



Very low water consumption:

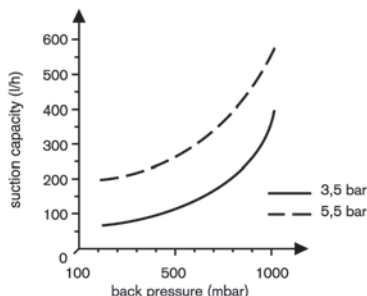
The flow configuration has been optimized, resulting in a 33% reduction of water consumption (190 liters/h at 3.5 bar water supply pressure).



Constant ultimate pressure:

The ultimate pressure of 16 mbar (water temperature: 12 °C) is reached across a wide range of water supply pressures (from 3 to 6 bar).

Pumping capacity as function of back pressure



High suction capacity:

Flow rate of approx. 400 litres/h of air (against atmospheric pressure, at a water supply pressure of 3.5 bar at 12 °C water temperature).

Water jet filter pump includes:

- Water connection sleeve nut R 3/4", reducing adapter R 1/2", and tubing connector (hose nozzle) of 10 - 12 mm outer-Ø.
- Suction line connection: Detachable hose nozzle of 6-9 mm outer-Ø, with screw cap GL 14.

Description

	SP	Art. No.
Water-Jet Pump	1	77094
Adapter R3/4 inch to R3/8 inch	1	159665
Adapter R3/4 inch to M 22x1, faucet thread	1	159670

Competence in Lab Plastics

STIRRING AND MIXING





Magnetic stirring-bars polygon, PTFE

With permanent-magnet cores.

Ø mm	Length mm	SP	Art. No.
2	5	5	300497
2	7	5	300597
3	8	5	300897
3	10	5	301097
3	13	5	301197
4	12	10	301597
6	10	10	301697
6	15	10	301797
7	20	10	301897
7	25	10	301997
7	30	10	302097
7	40	10	302197
7	50	10	302297
7	60	10	302397
10	70	5	302497
10	80	5	302597
27	57	1	303097
27	108	1	303197
27	159	1	303297



Magnetic stirring-bars octagon, PTFE

With center-rings and permanent-magnet cores.

Ø mm	Length mm	SP	Art. No.
8	13	3	307697
8	16	3	307797
8	22	3	307897
8	25	3	307997
8	28	3	308097
8	38	3	308197
8	41	3	308297
8	51	3	308397
8	64	3	308497
10	13	3	308597
10	15	3	308697
10	22	3	308797
10	25	3	308897
10	35	3	308997
10	38	3	309097
10	48	3	309197
10	51	3	309297
10	64	3	309397
13	38	1	309497
13	75	1	309597

Stirring and mixing

Magnetic stirring-bars oval, PTFE

With permanent-magnet cores for use in round bottom flasks.

Ø mm	Length mm	SP	Art. No.
5	10	3	311097
6	15	3	311197
10	20	3	311297
12	25	3	311397
16	30	3	311497
16	35	3	311597
20	40	1	311697
20	50	1	311797
20	64	1	311897
20	70	1	311997



Magnetic stirring-bars double-spinfin, PTFE



With permanent-magnet cores.

Ø mm	Height mm	SP	Art. No.
14	10	1	314097
17	13	1	314197
22	15	1	314297



Magnetic stirring-bars spinplus, PTFE



With permanent-magnet cores.

Size mm	SP	Art. No.
10 x 10	1	316097
20 x 20	1	316197
25 x 25	1	316297
30 x 30	1	316397
38 x 38	1	316497

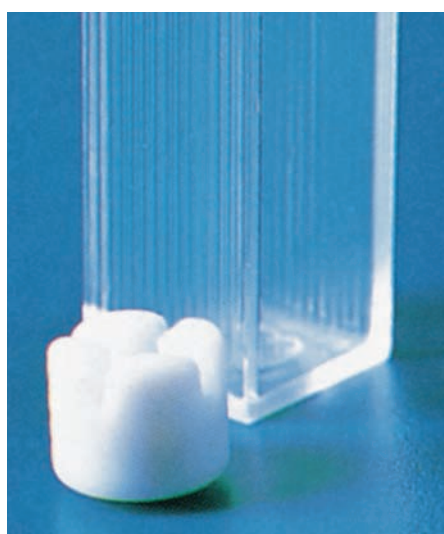




Magnetic stirring-bars triangular, PTFE

With permanent-magnet cores.

Sides mm	Length mm	SP	Art. No.
6	12	3	310197
8	25	3	310297
14	40	3	310397
12	50	3	310497



Magnetic stirring-bars spin, PTFE



With permanent-magnet cores. For use in sample cells and reagent tubes.

Ø mm	Height mm	SP	Art. No.
9	6	1	317297



Magnetic stirring-bars circulus, PTFE

With permanent-magnet cores. 20-mm circle Ø, 8-mm shaft Ø.

Length mm	SP	Art. No.
32	3	3125970
52	3	3126970

Stirring and mixing

Magnetic stirrer retrievers, PE

With permanent magnet on one end and hang-up ring.

Length mm	SP	Art. No.
300	3	318293
450	3	318393



Magnetic stirrer retrievers, flexible, PTFE



With a powerful permanent-magnet at one end. For retrieving stirring bars from beakers, flasks, and similar. Flexible.

Length mm	SP	Art. No.
330	1	318597

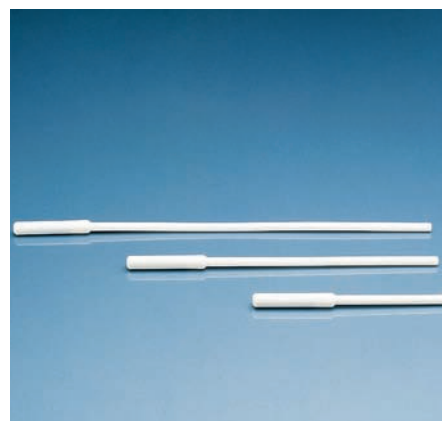


Magnetic stirrer retrievers, PTFE



PTFE encapsulated magnetic core.

Length mm	SP	Art. No.
150	1	122097
250	1	122197
350	1	122297





Mortars, MF

White, with spout

Volume ml	Height mm	Ø mm	SP	Art. No.
300	75	125	5	72898
500	90	150	5	72998



Pestles, MF

White, heavy, strong.

Length mm	Top Ø mm	Weight g	SP	Art. No.
125	30	55	5	73498
145	35	85	5	73598
160	40	120	5	73698
215	42	175	1	73898



Mixing vessel, MF

White, with both spout and handle, non-slip.

Volume ml	Height mm	Ø mm	SP	Art. No.
3000	140	220	1	73298



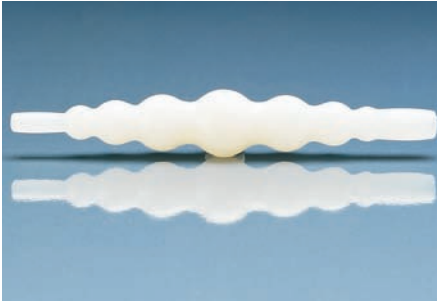
Stirring rod, PP

Length mm	SP	Art. No.
245	10	80828

Competence in Lab Plastics

CONNECTING AND CONTROLLING





Connector universal, PP

Transparent.

For tubing with inner Ø mm	SP	Art. No.
5 - 15	20	78794



Connectors T-form, PP

For tubing with inner Ø mm	SP	Art. No.
3	20	80459
4 - 5	20	80460
6 - 7	20	80461
8 - 9	20	80462
10 - 11	20	80463
12 - 13	20	80520
14 - 15	20	80521



Connectors Y-form, PP

For tubing with inner Ø mm	SP	Art. No.
3	20	80464
4 - 5	20	80465
6 - 7	20	80466
8 - 9	20	80467
10 - 11	20	80468
12 - 13	20	80525
14 - 15	20	80526

Connecting and controlling

Connectors straight, PP

For tubing with inner Ø mm	SP	Art. No.
3 - 5	20	80510
5 - 7	20	80511
7 - 10	20	80512
9 - 12	20	80513
11 - 14	20	80514
13 - 16	20	80515



Connectors straight, PP

Tube adaptors for various diameters.

For tubing with inner Ø mm	SP	Art. No.
4 - 8 / 8 - 12	20	80877
4 - 8 / 12 - 16	20	80878
8 - 12 / 12 - 16	20	80879



Connectors 90°, PP

For connecting items of tubing.

For tubing with inner Ø mm	SP	Art. No.
3 - 4	20	81250
4 - 5	20	81251
6 - 7	20	81252
8 - 9	20	81253
10 - 11	20	81254
12 - 13	20	81255
14 - 15	20	81256

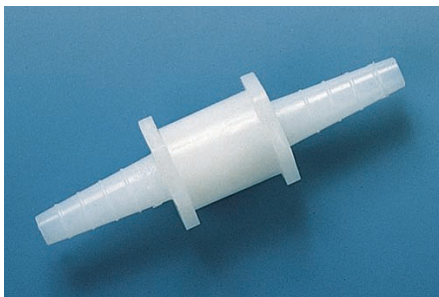




Connectors 2-parts, PE-HD

These quick disconnectors are useful for joining tubing of glass, rubber or plastic. Connectors fit tightly together. Replace expensive adaptors. Not suitable for pressure applications.

For tubing with inner Ø mm	SP	Art. No.
3 - 5	20	80434
5 - 7	20	80435
7 - 9	20	80436
9 - 12	20	80535
11 - 14	20	80536
13 - 16	20	80537



Non-return valve, PE-HD

With valve discs of FKM. Max. working pressure 2 bar.

For tubing with inner Ø mm	SP	Art. No.
6 - 9	10	78593



Non-return valves, PP

With valve discs of nitril-rubber (NBR).

For tubing with inner Ø mm	SP	Art. No.
8 - 10	10	80418
10 - 15	10	80419

Connecting and controlling

Stopcocks, PE

With ribbed handles and large tubing fittings. Not suitable for pressure applications.

For tubing with inner Ø inch / mm	SP	Art. No.
1/2 / 12	10	75093
3/8 / 9	10	75193



Valves, 2/3-Way, PE/PP

Fittings to connect tubing. Provide flow shutoff and choice of 2-way, or 3-way flow direction. Max. working pressure 1 bar.

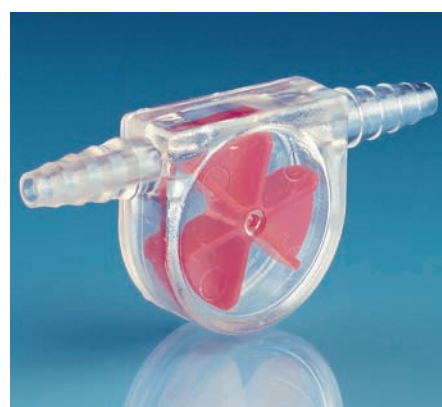
For tubing with inner Ø mm	SP	Art. No.
Valves 2-way		
5	1	137094
7	1	137294
9	1	137494
Valves 3-way		
5	1	137194
7	1	137394
9	1	137594

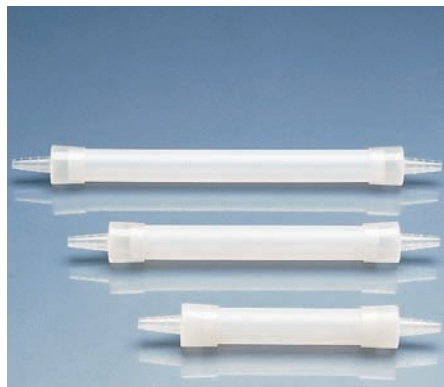


Flow monitor, SAN

Glass-clear. Provides a visual indication of flow of liquids or gases through tubing. Vane rotates to indicate fluid flow at flow rates as low as 150 ml/min. in either direction. Compact dimensions (just 88 mm overall length, including tubing fittings, and only 40 mm wide and 15 mm deep) allow internal installation in laboratory equipment and other apparatus.

For tubing with inner Ø mm	SP	Art. No.
6.5 - 11	10	138591





Drying tubes, PE-HD

Calcium-chloride drying tubes, ideal for drying gases. Tapered fittings on each end accept tubing having internal diameters of 8 mm to 10 mm.

Ø mm	Length mm	SP	Art. No.
20	100	5	80446
20	150	5	80447
20	200	5	80448

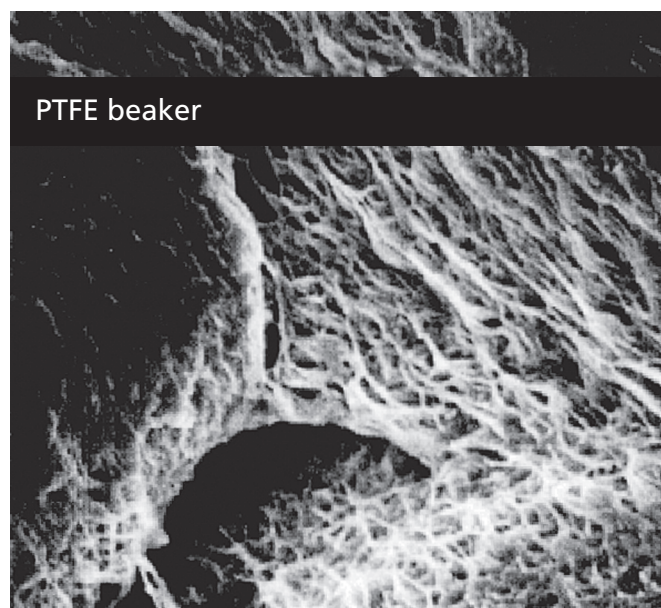
Fluorocarbon PFA

INDISPENSABLE IN TRACE ANALYSIS



Fluorocarbon PFA labware

In addition to the polyolefines (e.g. PP, HDPE and LDPE), fluoropolymers, especially PFA and PTFE, have found their firm place in modern laboratories, since they possess an extremely high resistance to chemicals and an unusual temperature resistance of $-200\text{ }^{\circ}\text{C}$ to $+250\text{ }^{\circ}\text{C}$ (PFA). The use of PFA in combination with injection moulding and extrusion blow moulding makes it possible to manufacture transparent products with extremely smooth and sealed surfaces.



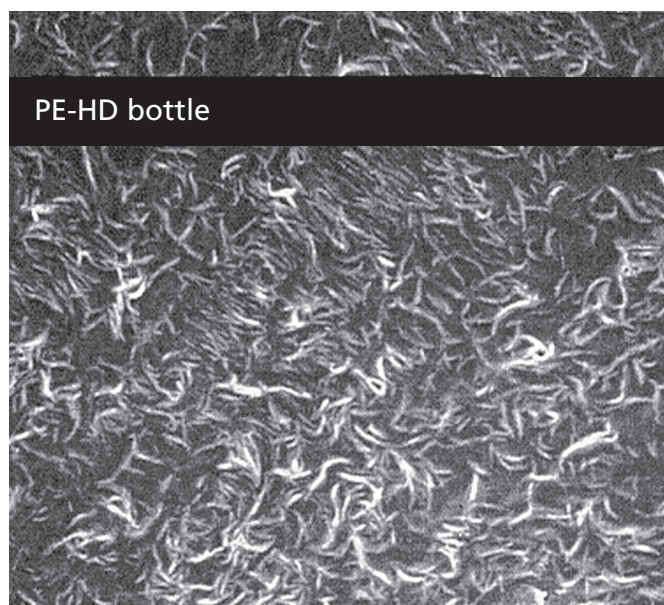
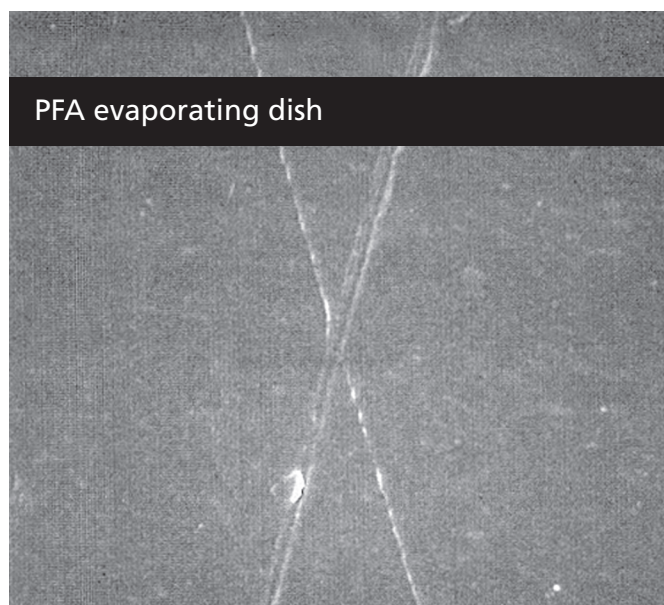
PTFE beaker

The pictures were taken in a scanning electron microscope, 8000-times magnified.

The ever-increasing need to lower the detection limit of elemental trace analysis necessitates the use of appropriate container materials. Today, trace analysis works with concentrations in the range of ng/g (ppb) and pg/g (ppt). Other materials, which have not been specially pretreated, may cause a change of concentration due to an interaction of the container wall with the sample and thus adulterate the result of the analysis. Studies have shown that a low concentration of element standards can be maintained for a longer time if containers used are made from PFA.

The selection of containers made of high-purity PFA is not only safer regarding the analysis, it is also economical due to the rationalization of laboratory processes.

For all PFA products, VITLAB uses high-purity PFA only, which is particularly well-suited for trace analysis. For less critical uses, e.g. if the main requirement is a high chemical resistance, VITLAB offers bottles of "PFA-economy" grade, which are partly made of recycled PFA. These bottles are very reasonably priced and environmentally sound.



PFA – Fluorocar for secure result

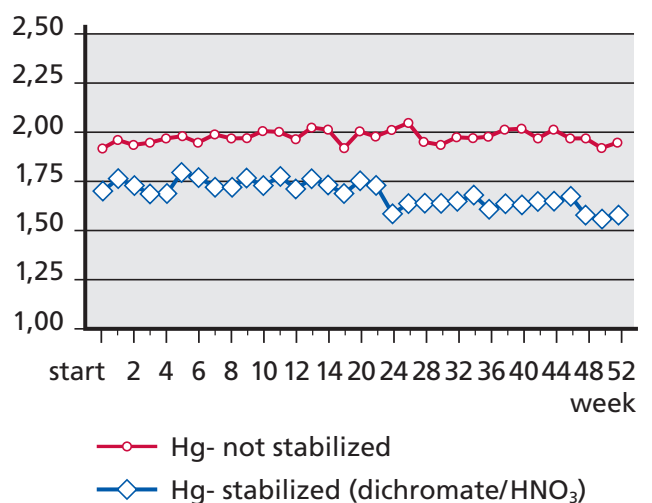
Use within the scope of trace analysis

The easy-to-clean surfaces without any memory effects complement the valuable attributes of PFA laboratory equipment for sampling, preparation and analysis in the field of elemental trace analysis.

Use within trace analysis

Storage of an Hg standard in high-purity PFA containers (concentration 2 ppb (ng/g) each)).

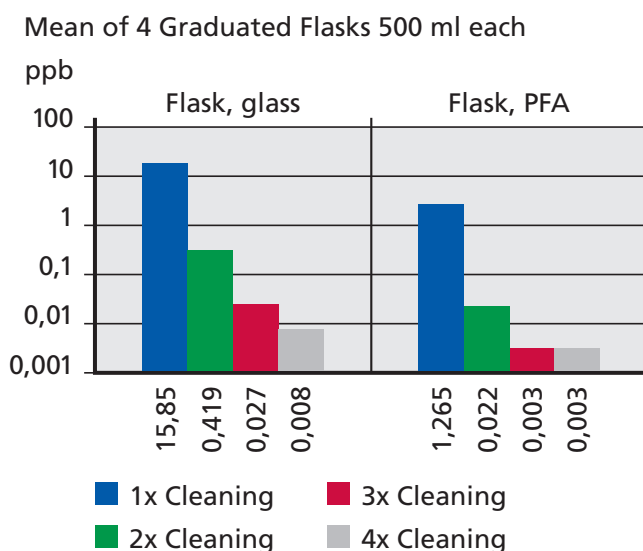
Concentration 2 ppb (ng/g) each



Source: GIT Labor-Fachzeitschrift 1/95

Cleaning after contamination

The cleaning of glass and PFA graduated flasks after contamination, for example with a Pb solution in the concentration of 1000 ppb (ng/g), occurs by rinsing them out with a 65% HNO₃ *Suprapur® (Pb < 0.005 ppm) solution at room temperature. The marginal concentration of 0.003 ppb is already reached after rinsing the PFA graduated flasks three times. Thus, the time-consuming boiling process can be eliminated.



The most important PFA characteristics

- High thermal stability from -200 °C to +250 °C
- Chemical inertness against almost all chemicals
- Extremely hydrophobic and antiadhesive
- Good clarity and form stability, suitable for volume measurement devices
- Long maintenance of reference material with low concentrations in PFA containers
- Extremely smooth surfaces – easy to clean (see graphic)
- No memory effects
- High purity of the basic material
- Very suitable for use within elemental trace analysis

Source: Kali-Forschungsinstitut, K. Mangold

*Suprapur® is a brand name of Merck KGaA.



Volumetric flasks, PFA, class A



High transparency, individually calibrated ring-mark.
Tolerances class A according to DIN EN ISO 1042. With lasered lot.number.
Supplied with PFA screw-caps. Screw-caps provide hermetic seals and high safety from outside contamination. Withstand high temperatures and chemical attack.
Exposure to temperatures up to 121 °C (autoclaving) will not cause permanent exceeding of tolerance limits. Cleaning up to max. 60 °C is recommended to preserve marks and inscriptions.

Volume ml	Tolerance ± ml	Height mm	Thread GL	SP	Art. No.
10	0.04	90	18	1	107097
25	0.04	115	18	1	107197
50	0.06	150	18	1	107297
100	0.10	180	18	1	107397
250	0.15	235	25	1	107497
500	0.25	270	25	1	107597



Griffin beakers, PFA



Transparent, with raised scale. High temperature and chemical resistance.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	5	50	32	1	110205
50	10	59	39	1	110305
100	20	72	50	1	110405
250	50	96	67	1	110605
500	100	122	88	1	110905
1000	100	141	109	1	111005



Griffin beakers, ETFE



Transparent, with printed black scale. High temperature and chemical resistance.

Volume ml	Graduation ml	Height mm	Ø mm	SP	Art. No.
25	5	50	32	1	110204
50	10	59	39	1	110304
100	20	72	50	1	110404
250	50	96	67	1	110604
400	50	109	77	1	110704
500	100	122	88	1	110904
600	100	125	91	1	110804
1000	100	143	105	1	111004

Fluoro plastic products

Griffin beakers, PTFE



Opaque, virtually totally chemically inert, withstand high temperatures.

Volume ml	Thickness mm	Height mm	Ø mm	SP	Art. No.
5	2	24	22	1	112197
10	2	39	25	1	112297
25	2	47	32	1	112397
50	2	55	42	1	112497
100	3	68	55	1	112597
250	3	93	62	1	112697
500	4	126	81	1	112797
1000	4	157	102	1	112897



Wash-bottles, PFA-economy



Narrow-mouth wash bottles, transparent, with ETFE screw-cap and dispensing tube made of FEP. Withstand high temperatures and chemical attack.

Volume ml	Thread GL	Height* mm	Ø mm	SP	Art. No.
250	25	157	61	1	108792
500	25	189	76	1	108892
1000	32	233	96	1	108992

* without wash-bottle cap



Narrow-mouth bottles, PFA



Transparent, supplied with screw-cap with buttress thread made of and a moulded-in sealing ring. Ideal as packaging bottle for pure chemicals. High temperature resistance from -200 °C to +250 °C.

Volume ml	Thread*	Height mm	Ø mm	SP	Art. No.
50	S 28	86	37	1	109297
100	S 28	120	45	1	109397
250	S 28	160	61	1	108297
500	S 28	190	76	1	108397
1000	S 28	240	96	1	108497

* Buttress thread





Narrow-mouth bottles, PFA-economy



Transparent, supplied with hermetically sealing screw-cap made of ETFE and a moulded-in sealing ring. Withstand high temperatures and chemical attack.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
50	18	90	37	1	108092
100	18	114	45	1	108192
250	25	157	61	1	108292
500	25	189	76	1	108392
1000	32	233	96	1	108492



Wide-mouth bottles, PFA



Transparent, supplied with screw-cap with buttress thread made of PFA and a moulded-in sealing ring. Ideal as packaging bottle for pure chemicals. High temperature resistance from -200 °C to +250 °C.

Volume ml	Thread*	Height mm	Ø mm	SP	Art. No.
250	S 40	150	61	1	109497
500	S 40	179	76	1	109597
1000	S 40	217	96	1	109697
2000	S 40	245	130	1	109797
2500	S 40	290	130	1	109897
5000	S 40	320	175	1	109997

* Buttress thread



Screw caps, PFA

With moulded-in sealing ring.

Thread	SP	Art. No.
GL 18	12	102597
GL 25	12	102397
S*28	12	102697
S*40	12	102897

* buttress thread

Fluoro plastic products

Wide-mouth bottles, PTFE



Opaque with caps made of PTFE.

Volume ml	Thread mm	Height mm	Ø mm	SP	Art. No.
10	12	50	26	1	122597
25	19	61	33	1	122697
50	25	76	43	1	122797
100	35	88	52	1	122897



Gas-wash bottles, PFA



Provided with a head-piece with buttress thread S 40. Frit, PTFE. The pores of the frit having a size of approx. 50 µm for an excellent gasification into the liquid. A wide field of application is possible thanks to the high quality fluoropolymer employed for these bottles.

Volume ml	Height mm	Ø mm	Tube Connection I-Ø/O-Ø mm	SP	Art. No.
250	160	61	4 / 6	1	159497
500	190	76	4 / 6	1	159597
1000	240	96	5 / 8	1	159697



Sample containers, PFA



With screw cap made of PFA.
For sample collection, transport and storage of samples.

Volume ml	Thread GL	Height mm	Ø mm	SP	Art. No.
30	40	54	38	1	130297
60	40	90	38	1	130397
90	56	62	54	1	130497
180	56	112	54	1	130597





Sample vials, PFA



With or without individually calibrated ring mark at 10 ml with screw cap GL 25 made of PFA.

Type	Volume ml	Height mm	Ø mm	SP	Art. No.
With ring mark at 10ml	15	110	22	1	103897
Without ring mark	15	110	22	1	1038971



Sample vials, PFA



For sample preparation, centrifugation and for autosampler racks.

Type	Volume ml	Height mm	Ø mm	SP	Art. No.
With ring mark at 10 ml and stopper, PP	12	110	16	1	1037979
Without ring mark	12	110	16	1	103797



Evaporating dishes, PFA



With snap-on lid, PE. For contamination free sample preparation and efficient transportation.

Due to a conical depression in the middle of the base very small amounts of a solvent are adequate to absorb the evaporated samples.

Volume ml	Height mm	Ø mm	SP	Art. No.
25	25	50	1	103297
50	54	50	1	103397

Fluoro plastic products

Microwave digestion liner, PFA



'Inliner' for CEM-Microwave Digestion Apparatus.

Volume ml	Height mm	Ø mm	SP	Art. No.
110	110	41	1	103997



Round-bottom flasks, PFA



Transparent, with standard ground socket NS 29/32. For Rotary Evaporators and distillation of high pure chemicals.

Withstand high temperatures and chemical attack.

Volume ml	Height mm	Ø mm	SP	Art. No.
100	117	65	1	107797
250	147	88	1	107897
500	177	107	1	107997



Round-bottom flask support, PP

White, for round-bottom flasks, enhancing laboratory safety, durable for temperatures up to 121 °C.

Ø mm	SP	Art. No.
160	5	80271



Watch glasses, PTFE

Ø mm	SP	Art. No.
50	1	113197
75	1	113297
100	1	113397
125	1	113497





Magnetic stirring-bars polygon, PTFE

With permanent-magnet cores.

Ø mm	Length mm	SP	Art. No.
2	5	5	300497
2	7	5	300597
3	8	5	300897
3	10	5	301097
3	13	5	301197
4	12	10	301597
6	10	10	301697
6	15	10	301797
7	20	10	301897
7	25	10	301997
7	30	10	302097
7	40	10	302197
7	50	10	302297
7	60	10	302397
10	70	5	302497
10	80	5	302597
27	57	1	303097
27	108	1	303197
27	159	1	303297



Magnetic stirring-bars octagon, PTFE

With center-rings and permanent-magnet cores.

Ø mm	Length mm	SP	Art. No.
8	13	3	307697
8	16	3	307797
8	22	3	307897
8	25	3	307997
8	28	3	308097
8	38	3	308197
8	41	3	308297
8	51	3	308397
8	64	3	308497
10	13	3	308597
10	15	3	308697
10	22	3	308797
10	25	3	308897
10	35	3	308997
10	38	3	309097
10	48	3	309197
10	51	3	309297
10	64	3	309397
13	38	1	309497
13	75	1	309597

Fluoro plastic products

Magnetic stirring-bars oval, PTFE

With permanent-magnet cores for use in round bottom flasks.

Ø mm	Length mm	SP	Art. No.
5	10	3	311097
6	15	3	311197
10	20	3	311297
12	25	3	311397
16	30	3	311497
16	35	3	311597
20	40	1	311697
20	50	1	311797
20	64	1	311897
20	70	1	311997



Magnetic stirring-bars double-spinfin, PTFE



With permanent-magnet cores.

Ø mm	Height mm	SP	Art. No.
14	10	1	314097
17	13	1	314197
22	15	1	314297



Magnetic stirring-bars spinplus, PTFE



With permanent-magnet cores.

Size mm	SP	Art. No.
10 x 10	1	316097
20 x 20	1	316197
25 x 25	1	316297
30 x 30	1	316397
38 x 38	1	316497

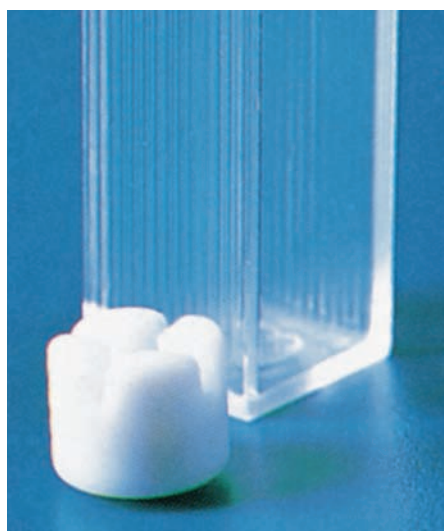




Magnetic stirring-bars triangular, PTFE

With permanent-magnet cores.

Sides mm	Length mm	SP	Art. No.
6	12	3	310197
8	25	3	310297
14	40	3	310397
12	50	3	310497



Magnetic stirring-bars spin, PTFE



With permanent-magnet cores. For use in sample cells and reagent tubes.

Ø mm	Height mm	SP	Art. No.
9	6	1	317297



Magnetic stirring-bars circulus, PTFE

With permanent-magnet cores. 20-mm circle Ø, 8-mm shaft Ø.

Length mm	SP	Art. No.
32	3	3125970
52	3	3126970

Fluoro plastic products

Magnetic stirrer retrievers, PE

With permanent magnet on one end and hang-up ring.

Length mm	SP	Art. No.
300	3	318293
450	3	318393



Magnetic stirrer retrievers, flexible, PTFE



With a powerful permanent-magnet at one end. For retrieving stirring bars from beakers, flasks, and similar. Flexible.

Length mm	SP	Art. No.
330	1	318597

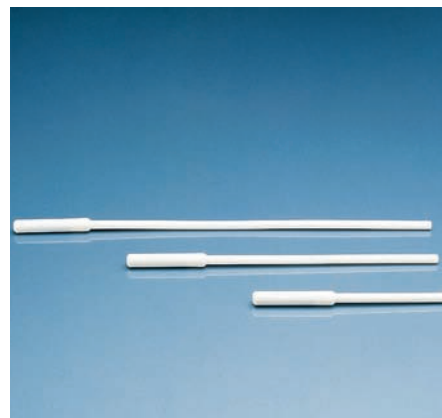


Magnetic stirrer retrievers, PTFE



PTFE encapsulated magnetic core.

Length mm	SP	Art. No.
150	1	122097
250	1	122197
350	1	122297





PTFE-tape

Ultra thin (just 0.10 mm thick), flexible, non-adhering tape. Readily conforms to threads and irregularities. Use to improve sealing of threads, or to increase diameters of mating components for better sealing. Withstands temperatures up to 250 °C.

Length m	Width mm	SP	Art. No.
12	12	10	131097

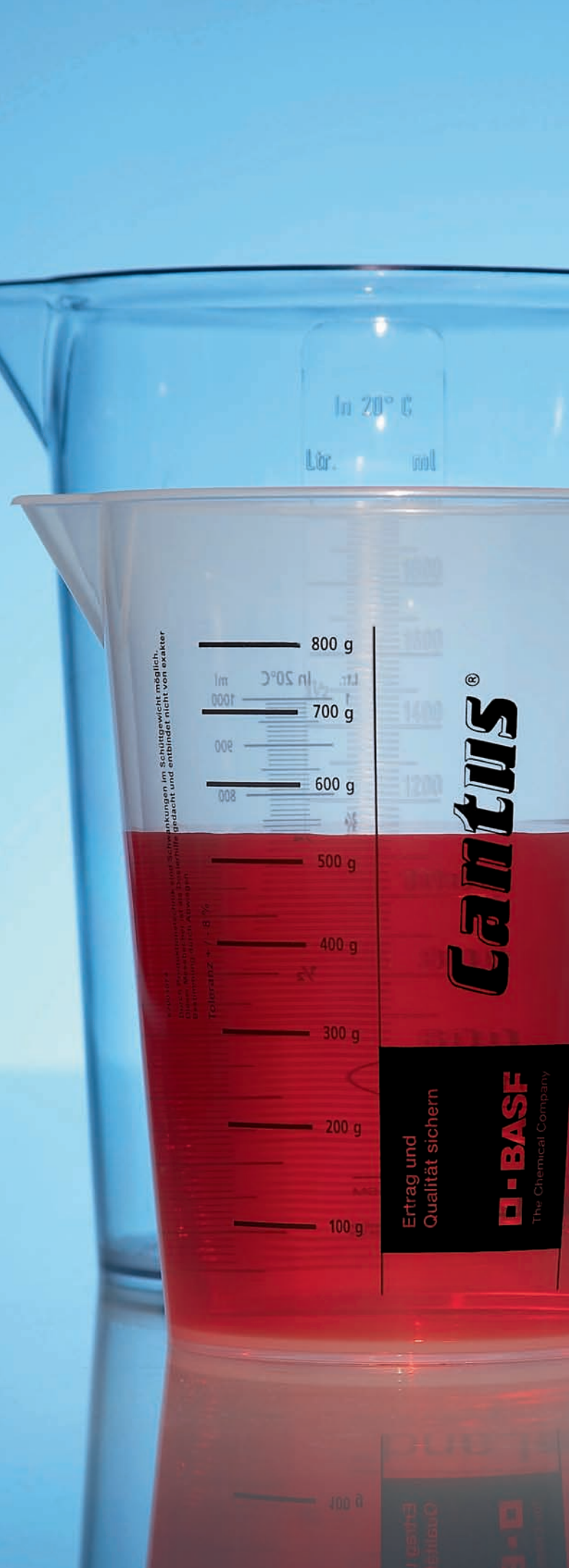
VITLAB Promotional

ADVERTISE WITH YOUR GOOD NAME



VITLAB Promoti advertise with y

By printing your name and logo on plastic labware, you have the opportunity to reach your customers directly. VITLAB plastic labware assures you of the very best production quality with the highest functionality and consequently with high levels of acceptance. Whether graduated beakers, cylinders, scoops, bottles or buckets, we produce our quality products with your good name printed on them.



onal our good name

Promotional made to measure

VITLAB offers you a special service with its volumetric containers: the volumetric scale can be individually designed according to your needs. However, it is also possible to print other things on our products, for example logos. So they can be used as sales material articles or as giveaways when your products are purchased. VITLAB provides advertising materials of the very highest quality with round, conical or flat printing, using screen or pad printing systems and with particularly durable and luminescent colours according to the Pantone and HKS colour table. Various marking techniques, such as laser printing and heat embossing, provide you with an unmistakable design.

Please do not hesitate to contact us for further information on the available selection, designs and colours of the plastic labware products. A personal contact will ensure that you receive competent advice from the very first conversation to the delivery of your order.



General and technical information

Plastics and their properties

- Classification and type description
- Physical properties
- Chemical resistance
- Cleaning and sterilisation

Accuracy of volume measuring instruments

Suitability for foodstuffs

Products in sterile packaging

Classification and type description of plastics

In general, plastics can be divided into the three groups. Abbreviations of the described plastics according to DIN 7728.

Thermoplastics

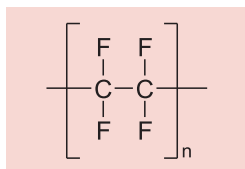
Polymers with a linear molecular structure with or without side branches are transformed into objects during molding operations without changing their thermoplastic properties. Thermoplastics are the materials commonly used in plastic labware production. Hence we provide here a brief description of some individual plastics explaining their structural, mechanical, chemical and physical properties. The most popular thermoplastics are polyolefins like polyethylene and polypropylene.

Thermosets

Polymers with tightly cross-linked molecules are very hard and brittle at room temperature; heating causes irreversible curing. These plastics are rarely used for plastic labware. The best known thermosets are the melamine resins. Melamine resin is produced by polycondensation of melamine with formaldehyde.

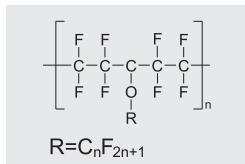
Elastomers

Polymers with loosely cross-linked molecules, exhibiting rubber-like elasticity at room temperature. Heating causes irreversible curing (vulcanization). The most popular Elastomers are natural rubber and silicone rubber.



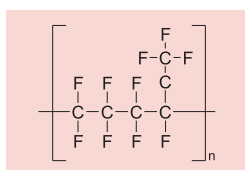
PTFE Polytetrafluoroethylene

PTFE is a fluorinated carbon with a high-molecular, partly crystalline structure. PTFE is resistant to virtually all chemicals. It offers the widest working temperature range, from -200 °C to +260 °C. Its surface is adhesion resistant. The slip properties and electrical insulation capacity of the material are better than those of FEP and PFA. The only disadvantage is that it can only be molded by sintering processes. PTFE is opaque. It is suitable for use in microwave ovens.



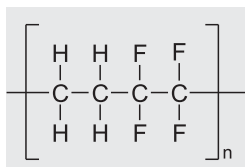
PFA Perfluoroalkoxy copolymer

This is a fluorinated carbon with a high-molecular, partly crystalline structure. Its surface is adhesion-resistant. Mechanical properties and chemical inertness are comparable with those of PTFE. Temperature use is restricted to range -200 °C to +250 °C. PFA is translucent. PFA is manufactured without the addition of catalysts or plasticizers, and can be molded to produce an extremely smooth, readily cleanable surface, and is therefore particularly well suited for trace analysis.



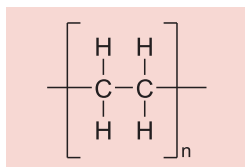
FEP Perfluoroethylene-propylene copolymer

This is a fluorinated carbon with a high-molecular, partly crystalline structure. Its surface is adhesion-resistant. Mechanical properties and chemical inertness are comparable with those of PTFE. Temperature use is restricted to range -100 °C to +205 °C. The water absorption of FEP is extremely low. FEP is translucent.



ETFE Ethylene-Tetrafluoroethylene-copolymer

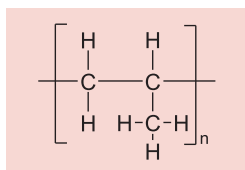
These are ethylene copolymers of chlor-trifluoroethylene and tetrafluoroethylene respectively. Both are plastics of high chemical inertness, but lower temperature resistance than PTFE (max. 150 °C).



PE-LD Low Density Polyethylene / PE-HD High Density Polyethylene

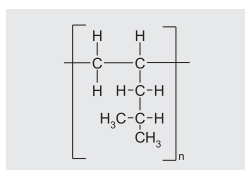
The polymerization of ethylene under high-pressure results in a certain number of branches in the chain. PE-LD exhibits a less compact molecular structure than PE-HD, with very good flexibility and good chemical resistance, but less chemical resistance to organic solvents than PE-HD. Use is limited to temperatures below 80 °C. If the polymerization of ethylene is controlled by a catalytic process (PE-HD), a very small number of branches in the chain are obtained. The result is a more rigid and compact structure with enhanced chemical resistance and usability up to 105 °C.

Classification and type description of plastics



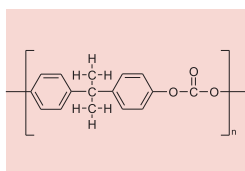
PP Polypropylene

PP has a similar structure to Polyethylene, but with methyl groups at every second carbon atom of the chain. The major advantage, compared with PE, is its higher temperature resistance. It can be repeatedly autoclaved at 121 °C. Like the above mentioned polyolefins, PP has good mechanical properties and good chemical resistance but is slightly more susceptible to be attacked by strong oxidizing agents than PE-HD.



PMP Polymethylpentene

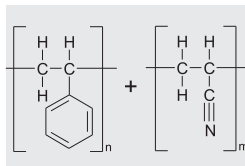
PMP is similar to PP but has isobutyl groups instead of the methyl groups. Chemical resistance is comparable to PP but tends to suffer from tension cracks when exposed to ketones or chlorinated solvents. The most important qualities of PMP are its excellent transparency and good mechanical properties at temperatures up to 150 °C.



PC Polycarbonate

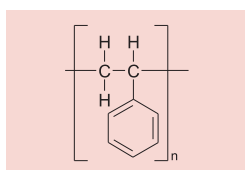
These are thermoplastic linear carboxylic acid polyesters combining many of the properties of metals, glass and plastics. The materials are transparent and have good thermal properties between -130 °C to +125 °C.

Note: PC may be weakened by autoclaving or exposure to alkaline detergents.



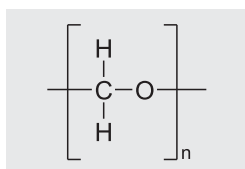
SAN Styrene-acrylonitrile copolymer

This is a glass-clear material with good resistance to stress-cracking. It has slightly better chemical resistance than PS.



PS Polystyrene

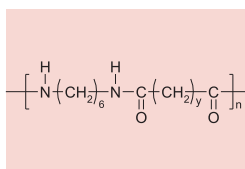
Polystyrene is glass-clear, hard, brittle, and dimensionally stable due to its amorphous structure. PS has good chemical resistance to aqueous solutions but limited resistance to solvents. Disadvantages include low thermal stability and its tendency to suffer from stress-cracks.



POM Polyoxymethylene

POM has superior properties with regard to hardness, rigidity, strength, durability, chemical resistance and favorable slip and abrasion characteristics. POM can replace metals in many applications.

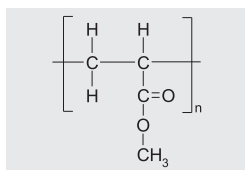
POM can withstand temperatures up to 130 °C.



PA Polyamide

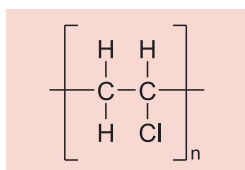
Polyamides are linear polymers with repeating amide chain linkages. With their favorable strength characteristics and high durability, polyamides can often be used as structural materials and for surface coating metals. They have good chemical resistance against organic solvents, but are easily attacked by acids and oxidizing agents.

Classification and type description of plastics



PMMA Polymethylmethacrylate

Rigid, glass-clear ("organic glass"). Resistant to atmospheric agents. Replaces glass in many applications where temperatures are below 90 °C and low chemical resistance is required. PMMA has excellent UV radiation stability.



PVC Vinyl chloride polymers

The vinyl chloride polymers are mainly amorphous thermoplastics with very good chemical resistance. Their combination with plasticizers opens up many useful applications, ranging from artificial leather to injection molding components. PVC has good chemical resistance, especially with oils.

Physical properties of plastics

Plastics	Max. Operating Temperature °C	Brittle-Temperature °C	Micro wave suitability*	Density g/cm ³
PS	70	-20	no	1,05
SAN	70	-40	no	1,03
PC	125	-130	yes	1,20
POM	130	-40	no	1,42
PMP	150	0	yes	0,83
PE-LD	80 to 90	-50	yes	0,92
PE-HD	105	-50	yes	0,95
PP	125	0	yes	0,90
ETFE	150	-100	yes	1,70
PFA	250	-200	yes	2,17
PTFE	260	-200	yes	2,17
FEP	205	-100	yes	2,15
PVC	80	-20	no	1,35
NR	80	-40	no	1,20
PMMA	65 to 95	-50	no	1,18
MF	120	-80	yes	1,50

* Observe chemical and temperature resistance

Chemical resistance

With regard to chemical resistance, plastics are classified as follows:



Excellent chemical resistance

Continuous exposure to the substance does not cause damage within 30 days. The plastic may remain resistant for years.



Good to limited resistance

Continuous exposure to the substance causes minor damages, some of which is reversible, within 7-30 days (e.g. swelling, softening, decrease of mechanical strength, discoloration).



Poor chemical resistance

Not suitable for continuous medium exposure to the substance. Immediate damage may occur (loss of mechanical strength, deformation, discolouration, cracking, dissolution).

Chemical resistance

Medium	PS		SAN		PC		POM		PMP		PE-LD		PE-HD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Acetaldehyde	-	-	-	-	0	-	+	+	0	-	+	-	+	0
Acetic acid (glacial), 100%	-	-	-	-	-	-	-	-	+	0	+	0	+	+
Acetic acid, 96%	0	0	+	0	+	0	0	-	+	+	+	+	+	+
Acetic anhydride	-	-	-	-	-	-	-	-	+	0	-	-	0	0
Acetone	-	-	-	-	-	-	+	+	+	+	+	0	+	+
Acetonitrile	-	-	-	-	-	-	+	-	0	-	+	0	+	0
Acetophenone	-	-	-	-	-	-	+	-	0	-	-	-	0	0
Acetylacetone	-	-	-	-	-	-	+	-	+	-	+	-	+	-
Acetylchloride	-	-	-	-	-	-	-	-	-	-	+	-	+	-
Acrylic acid	-	-	-	-	-	-	-	-	+	-	+	-	+	-
Acrylonitrile	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Adipic acid	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Allyl alcohol	+	0	-	-	+	0	+	+	+	0	+	+	+	+
Aluminium chloride	+	+	+	+	-	-	+	0	+	+	+	+	+	+
Aluminium hydroxide	0	0	0	0	0	-	+	+	+	0	+	+	+	+
Amino acids	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ammonium chloride	+	+	+	+	0	0	+	+	+	+	+	+	+	+
Ammonium fluoride	+	+	+	+	0	0	+	+	+	+	+	+	+	+
Ammonium hydroxide, 30% (Ammonia)	0	-	+	0	-	-	0	0	+	+	+	+	+	+
Ammonium sulfate	+	+	+	+	+	+	+	+	+	+	+	+	+	+
n-Amyl acetate	-	-	-	-	-	-	+	+	+	0	0	-	+	0
Amyl alcohol (Pentanol)	0	0	+	+	+	+	+	+	+	+	+	+	+	+
Amyl chloride (Chloropentane)	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Aniline	-	-	-	-	0	-	0	0	+	0	+	0	+	+
Barium chloride	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Benzaldehyde	-	-	-	-	0	-	+	+	+	+	+	+	+	+
Benzene (Benzol)	-	-	-	-	-	-	+	0	0	0	0	-	+	+
Benzine (Gasoline)	-	-	-	-	0	-	+	+	0	0	0	-	+	+
Benzoyl chloride	-	-	-	-	-	-	+	0	0	0	0	-	+	+
Benzyl alcohol	-	-	-	-	0	0	+	+	0	-	0	-	0	-

Chemical resistance of plastics to classes of substances

Classes of substances at 20°C	PS	SAN	PC	POM	PMP	PE-LD	PE-HD	PP	ETFE	PFA	PTFE	FEP	PVC	NR	PMMA	MF
Alcohols, aliphatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
Ether	-	-	-	+	-	0	0	0	+	+	+	+	-	-	-	-
Aldehydes	-	-	0	0	0	0	+	+	+	+	+	+	-	0	0	+
Ester	-	-	-	-	0	0	0	0	+	+	+	+	-	0	0	+
Hydrocarbons, aliphatic	-	-	0	+	0	0	+	+	+	+	+	+	+	-	+	+
Hydrocarbons, aromatic	-	-	-	+	-	0	+	0	+	+	+	+	-	-	-	+
Hydrocarbons, halogenated	-	-	-	+	-	0	0	0	+	+	+	+	-	-	-	+
Ketones	-	-	-	+	0	0	0	0	0	+	+	+	-	-	-	+
Alkalis	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-
Acids, strong or concentrated	0	-	-	-	+	+	+	+	+	+	+	+	+	-	-	-
Acids, weak or diluted	0	0	0	-	+	+	+	+	+	+	+	+	+	0	-	0
Oxidizing acids, oxidizing agents	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-

The recommendations listed here are based on technical literature and information provided by the manufacturers of raw materials. They were prepared carefully and are intended to inform and advise. However, they cannot replace suitability testing performed by the user under actual working conditions.

Chemical resistance

PP		ECTFE/ETFE		PFA/FEP		PTFE		FKM		PVC		NR		SI		MF
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C
+	-	+	0	+	+	+	+	-	-	-	-	0	0			
+	0	+	+	+	+	+	+	-	-			0		-	-	0
+	+	+	+	+	+	+	+	-	-	+	0	0	0	-	-	+
0	0	+	+	+	+	+	+	-	-	-	-	0		0	-	
+	+	+	0	+	+	+	+	-	-	-	-	0	0	0	0	+
+	0	+	+	+	+	+	+	-		-	-	-	-	-	-	
0	0	+	+	+	+	+	+	-	-	-	-	-	-			+
+		+	+	+	+	+	+	-	-	-	-	-	-			
+		+	+	+	+	+	+	+		-	-	-	-			
+		+	+	+	+	+	+	-	-	-	-	-	-	-	-	
0	-	+	+	+	+	+	+	-	-	-	-	-	-	-	-	
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	
+	+	+	+	+	+	+	+	+		0	-	+	+	+	+	
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	+
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
+	+	+	+	+	+	+	+	0	+	+	0			+	+	
+	+	+	+	+	+	+	+	-	-	+	0	-	-	+	+	+
+	+					+	+	-	-	+	+	0		0		
0	-	+	+	+	+	+	+	-	-	-	-	+	0	-	-	
+	+	+	+	+	+	+	+	0		0	0	+	+	-	-	
-	-	+	+	+	+	+	+	+		-	-	-	-	-	-	
+	+	+	0	+	+	+	+	-	-	-	-	-	-	+	0	
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
+	+	+	0	+	0	+	+	-	-	-	-	-	-	-	-	
+	0	+	+	+	+	+	+	0	-	-	-	-	-	-	-	+
0	0	+	+	+	+	+	+	+	0	0	-	-	-	-	-	+
+	0	+	+			+	+	+		-	-	-	-	-	-	
0	-	+	+	+	+	+	+	+		0	0	+	+	+	+	

Chemical resistance

Medium	PS		SAN		PC		POM		PMP		PE-LD		PE-HD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Benzylamine	-	-	-	-	-	-	+		0		0	-	0	
Benzylchloride	-	-					+							
Boric acid, 10%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Bromine	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	-	-	-	-	-	-			-	-	-	-	-	-
Bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromonaphthalene	-	-	-	-										
Butanediol	-	-	-	-			+	+	+	+	+	+	+	+
1-Butanol	0	-	+	0	0	0	+	+	+	0	+	+	+	+
n-Butyl acetate	-	-	-	-	-	-	+	0	+	0	0	0	+	+
Butyl methyl ether	-	-	-	-	-	-	+	+	+	-	0	-	0	-
Butylamine	-	-	-	-			+	+						
Butyric acid	-	-	-	-	0	-					-	-	0	-
Calcium carbonate	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Calcium chloride	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Calcium hydroxide	+	0	+	+	-	-	+	+	+	+	+	+	+	+
Calcium hypochlorite	+	+	+	0	0	-	+	+	+	0	+	+	+	+
Calomel	+	0	+	+	+	+	0	0	+	+	+	+	+	+
Carbon disulfide	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Carbon tetrachloride	-	-	-	-	-	-	0	0	-	-	-	-	0	-
Chloro naphthalene							-	-						
Chloroacetaldehyde, 45%	-	-	-	-										
Chloroacetic acid	-	-	-	-	0	-	-	-	+	+	+	+	+	+
Chloroacetone	-	-	-	-										
Chlorobenzene	-	-	-	-	-	-			-	-	-	-	-	-
Chlorobutane	-	-	-	-			-	-	0	-	0	-	0	-
Chloroform	-	-	-	-	-	-	-	-	0	-	-	-	+	0
Chlorosulfonic acid							-	-						
Chromic acid, 10%	-	-	-	-	+	0	0	0	+	+	+	+	+	+
Chromic acid, 50%	-	-	0	0	0	-	-	-	0	0	+	0	+	0
Chromosulfuric acid	0	0	0	0	-	-	-	-	0	-	-	-	-	-
Copper sulfate	+	+	+	0	+	+	+	+	+	+	+	+	+	+
Cresol	-	-			-	-			-	-	-	-	0	-
Cumene (Isopropyl benzene)	-	-	-	-	-	-	+	-	-	-	0	-	+	0
Cyclohexane	-	-			+	0	+	+	-	-	0	-	0	-
Cyclohexanone	-	-			-	-			0	0	-	-	0	-
Cyclopentane	-	-			-	-			0	-	-	-	0	-
Decane					0		+		0				0	-
1-Decanol	0		0		0		+		+				+	
Dibenzylether	-	-	-	-			+		0				+	
Dibromoethane														
Dibutyl phthalate	-	-	-	-	-	-	+	+	+	0	0	-	0	-
Dichloroacetic acid	0	-			0	-			+	+	0	-	0	0
Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	0	-	0	-
Dichloroethane							-	-	0	-	0	-	0	-
Dichloromethane	-	-			-	-			0	-	0	-	0	-
Diesel oil (Heating oil)	-	-	-	-	-	-	+	+	0	-	0	-	+	0
Diethanolamine	-	-	-	-	-	-							0	
Diethyl ether	-	-	-	-	-	-	+	+	-	-	-	-	0	-
Diethylamine	0	0			-	-			0	0	-	-	0	-
1,2 Diethylbenzene	-	-			0	-			-	-	-	-	0	-
Diethylene glycol	0	-	+	+	0	0	+	+	+	+	+	+	+	+
Dimethyl sulfoxide (DMSO)	-	-	-	-	-	-			+	+	+	+	+	+
Dimethylaniline	-	-	-	-	-	-								

Technical information

Chemical resistance

PP		ECTFE/ETFE		PFA/FEP		PTFE		FKM		PVC		NR		SI		MF
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C
0		+	+	+	+	+	+	+		-	-	-	-	0		
		+	+			+	+	+				-	-	-	-	
+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
-	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
-	-	0	-	+	+	+	+	+		-	-	-	-	-	-	
-	-	+	+	+	+	+	+			-	-	-	-	-	-	
		+	+	+	+	+	+									
+	+	+	+	+	+	+	+	-	-			0		-	-	
+	+	+	+	+	+	+	+	+		0	0	+	+	+	+	
0	0	+	+	+	+	+	+	-	-	-	-	0	-	-	-	
+	0	+	0	+	+	+	+	-	-	-	-	-	-	-	-	
		+	+			+	+	-	-			-	-			
-	-	+	+	+	+	+	+	0				-	-			
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
+	+	+	+	+	+	+	+	+		0	-	+	+	0	0	
+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
+	+	+	+	+	+	+	+	+	+	0	-	+	+	+	0	
+	+	+	+	+	+	+	+	+		-	-	+	+			
-	-	+	0	+	+	+	+	+		-	-	-	-	+	+	
-	-	+	+	+	+	+	+	+		-	-	-	-	-	-	+
		+	+			+	+	+				-	-			
		+	+			+	+									
+	+	+	+	+	+	+	+	0		+	0	-	-	-	-	
		+	+			+	+	-	-			0				
0	-	+	0	+	+	+	+	0	-	-	-	-	-	-	-	
0	-	+	+	+	+	+	+	0	-			-	-	-	-	
-	-	+	0	+	0	+	+	0		-	-	-	-	-	-	+
		0	-	+	+	+	+	-	-			-	-	-	-	
+	+	+	+	+	+	+	+	+		+	0	-	-	0	-	
0	0	+	+	+	+	+	+	+		+	-	-	-	-	-	
-	-	+	+	+	+	+	+	+		+	0	-	-	-	-	
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	
0	0	+	0	+	+	+	+	+		-	-	-	-			
0	-	+	+	+	+	+	+	+		-	-	-	-	-	-	
0	-	+	0	+	+	+	+	+	-	-	-	-	-	-	-	+
0	-	+	+	+	+	+	+	-	-	-	-	-	-			
0	-	+	+	+	+	+	+	+		-	-	-	-	-	-	
0		+	+	+	+	+	+	+		0		-	-	-	-	
+		+	+	+	+	+	+	+		+		0		0		
+		+	+	+	+	+	+	-	-			-	-			
		0		+		+	+									
+	0	+	+	+	+	+	+	0		-	-	-	-	0	-	
0	-	+	0	+	+	+	+	-	-	0	-	-	-	-	-	
0	-	+	0	+	+	+	+	+		-	-	-	-	-	-	
0	-	+	+	+	+	+	+	0				-	-	-	-	
0	-	0	0	+	+	+	+	0		-	-	-	-	-	-	
+	0	+	+	+	+	+	+	+		0	-	-	-	-	-	
0						+	+									
0	-	+	+	+	+	+	+	-	-	-	-	-	-	-	-	
0	-	+	0	+	+	+	+	-	-	-	-	0		0		
-	-	+	0	+	+	+	+	+		-	-	-	-	-	-	
+	+	+	+	+	+	+	+	+		-	-	+	+	+	+	
+	+	+	+	+	+	+	+			-	-			+	+	
		+	+	+	+	+	+	0				-	-	0		

Chemical resistance

Medium	PS		SAN		PC		POM		PMP		PE-LD		PE-HD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Dimethylformamide (DMF)	-	-	-	-	-	-	+	+	+	+	+	+	+	+
1.4 Dioxane	-	-	-	-	0	0	0	0	0	0	+	0	+	+
Diphenyl ether	-	-	-	-			0							
Ethanol	-	-	0	-	+	0	+	+	+	0	+	+	+	+
Ethanolamine														
Ethyl acetate	-	-			-	-			0	-	+	+	+	+
Ethyl methyl ketone	-	-	-	-	-	-	-	-	-	-	0	-	0	-
Ethylbenzene	-	-	-	-	-	-			-	-	-	-	-	-
Ethylene glycol (glycol)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ethylene oxide	-	-	-	-	0	-	+	+	0	-	0	0	0	0
Fluoroacetic acid	-	-	-	-	-	-	-	-						
Formaldehyde, 40%	-	-	+	+	+	0	+	+	+	+	+	+	+	+
Formamide							-	-	+	+	+	+	+	+
Formic acid, 100%	+	0	0	0	+	0	-	-	+	0	+	+	+	+
Glycerol	+	+	+	+	+	+	0	0	+	+	+	+	+	+
Glycolic acid, 50%									+	+	+	+	+	+
Heating oil (Diesel oil)	-	-	-	-	-	-	+	+	0	-	0	-	+	0
Heptane	-	-			+	0			0	0	0	-	0	0
Hexane	0	-	+	+	-	-	+	+	0	-	0	-	+	0
Hexanoic acid														
Hexanol									+	+	+	+	+	+
Hydriodic acid									+	+	+	+	+	+
Hydrobromic acid	0	-			+	+	-	-	+	+	+	+	+	+
Hydrochloric acid, 10%	+	+	0	-	-	-	-	-	+	+	+	+	+	+
Hydrochloric acid, 20%	+	+	0	-	0	0	-	-	+	+	+	+	+	+
Hydrochloric acid, 20-37 %	0	0	0	-	-	-	-	-	+	+	+	+	+	+
Hydrofluoric acid, 40%	+	+	+	0	-	-	-	-	+	+	+	+	+	+
Hydrofluoric acid, 70%	-	-	-	-	-	-	-	-	+	0	+	-	+	0
Hydrogen peroxide, 35%	+	+	+	+	+	+	+	-	+	+	+	+	+	+
Isoamyl alcohol							+	+	+	+	+	+	+	+
Isobutanol	0	0	0	-	+	+	+	+	+	+	+	+	+	+
Isooctane	0	-	0	-	0									
Isopropanol (2-Propanol)	0	0	+	-	+	+	+	+	+	+	+	+	+	+
Isopropyl ether	-	-			-	-			-	-	-	-	-	-
Lactic acid	+	+	+	+	+	+	+	-	+	+	+	+	+	+
Lugol's solution (iodine-potassium iodide solution)	0	-	0	-	0	-	0	0	+	0	-	-	-	-
Mercury	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Methanol	0	-	0	-	+	0	+	+	+	+	+	0	+	+
Methoxybenzene	-	-	-	-	-	-	0							
Methyl formate	-	-	-	-	-	-	+							
Methyl propyl ketone	-	-	-	-	-	-	+	+	0	0	+	0	+	+
Methylene chloride	-	-	-	-	-	-	-	-	-	-	0	-	0	-
Mineral oil (Engine oil)	+		+		+		+	+	+	+	+	0	+	+
Monochloroacetic acid	-	-	-	-	0	-	-	-	+	+	+	+	+	+
Nitric acid, 10%	-	-	+	0	+	0	-	-	+	+	+	+	+	+
Nitric acid, 30%	-	-	0	-	+	0	-	-	0	-	0	0	0	-
Nitric acid, 70%	-	-	-	-	-	-	-	-	0	-	-	-	-	-
Nitrobenzene	-	-	-	-	-	-	0	-	-	-	-	-	0	-
Nitrohydrochloric acid	0	-	0	-	-	-	-	-	0	0	-	-	-	-
Oleic acid	-	-	-	-										
Oxalic acid	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ozone	0	0	0	0	-	-	-	-	+	+	0	-	0	-
n-Pentane														
Peracetic acid					-	-	-	-						

Chemical resistance

PP		ECTFE/ETFE		PFA/FEP		PTFE		FKM		PVC		NR		SI		MF
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C
+	+	+	+	+	+	+	+	-	-	0	-	-	-	+	+	
+	0	+	0	+	+	+	+			-	-	-	-	-	-	
						+	+	0				-	-	-	-	
+	+	+	+	+	+	+	+	0		+	0	+	+	+	+	+
+		+	+	+	+	+	+									
+	0	+	+	+	+	+	+	-	-	-	-	-	-			+
+	0	0	0	+	+	+	+	-	-	-	-	-	-			
-	-	0	0	+	+	+	+			-	-	-	-	-	-	
+	+	+	+	+	+	+	+	0		+	+	+	+	+	+	+
0	-	+	+	+	+	+	+			0	-	-	-	-	-	
						+		-	-	-	-	-	-	-	-	
+	+	+	+	+	+	+	+	0		0	-	+	+			
+	+	+	+	+	+	+	+	0				+				
+	+	+	+	+	+	+	+	-	-	-	-	0	0	+	+	+
+	+	+	+	+	+	+	+	0		+	+	+	+	+	+	+
+	+	+	+	+	+	+	+	0				+		+		
+	0	+	+	+	+	+	+	+		0	-	-	-	-	-	
0	0	+	+	+	+	+	+	+		-	-	-	-			
+	0	+	+	+	+	+	+	+		0	-	-	-	-	-	
						+	+									
+	+	+	+	+	+	+	+	+				0		0		
+	+	+	+	+	+	+	+	+								
+	+	+	+	+	+	+	+	+				0				
+	+	+	+	+	+	+	+	+	+	+		0		0	-	-
+	+	+	+	+	+	+	+	+	0	0		0		-	-	-
+	+	+	+	+	+	+	+	0	-	0	-	0	-	-	-	-
+	+	+	+	+	+	+	+			0	-	0	0	-	-	-
+	0	+	+	+	+	+	0			-	-	-	-	-	-	-
+	+	+	+	+	+	+	+			+	0	-	-	0	0	0
+	+	+	+	+	+	+	+	+				0		0		
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	
		+	+	+	+	+	+	+				-	-	-	-	
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	
-	-	+	0	+	+	+	+	-	-	-	-	-	-			
+	+	+	+	+	+	+	+	+		0	0	0	0	0	0	
+	+	+	+	+	+	+	+	+		-	-	-	-			
+	+	+	+	+	+	+	+	+		+	+	+	+			
+	+	+	+	+	+	+	+	-	-	+	0	+	+	+	+	
		+	+	+	+	+	+	-	-			-	-			
		+	+	+	+	+	+					-	-	0	-	
+	0	+	+	+	+	+	+			-	-	-	-	0	-	
0	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
+	+	+	+	+	+	+	+	+		+	+	-	-	+	0	
+	+	+	+	+	+	+	+	0		+	0	-	-	-	-	
+	+	+	+	+	+	+	+	0	-	+	0	-	-	-	-	-
0	-	+	+	+	+	+	+	0	-	0	-	-	-	-	-	-
-	-	+	+	+	+	+	+	0	-	-	-	-	-	-	-	-
-	-	+	+	+	+	+	+	-	-	-	-	-	-	-	-	
0	-	+	+	+	+	+	+	-	-	0	0	-	-	-	-	-
		+	+	+	+	+	+	0				-	-	-	-	
+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
0	-	+	+	+	+	+	+	0		+	0	-	-	0	0	
		+	+	+	+	+	+	+				-	-	-	-	
		+	+	+	+	+	+							-	-	

Chemical resistance

Medium	PS		SAN		PC		POM		PMP		PE-LD		PE-HD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Perchloric acid	-	-	-	-	-	-	-	-	0	-	+	-	+	-
Perchloroethylene	-	-	0	0	-	-	+	0	-	-	-	-	-	-
Petroleum	-	-			0	0	+	+	0	0	0	-	0	-
Petroleum ether	-	-					+	+			0			
Phenol	-	-	-	-	-	-	-	-	0	0	+	0	+	+
Phenylethanol													0	
Phenylhydrazine													0	
Phosphoric acid, 85%	+	0	+	+	+	+	+	-	+	+	+	+	+	+
Piperidine													+	
Potassium chloride	0	0	0	0	+	+	+	+	+	+	+	+	+	+
Potassium dichromate														
Potassium hydroxide	0	0	0	0	-	-	+	+	+	+	+	+	+	+
Potassium permanganate	+	+	+	0	+	+	0	0	+	+	+	+	+	+
Propanol	0		+	+	0		+	+	+	+	+	+	+	+
Propionic acid	0	-			-	-	-	-	+	0	0	-	+	0
Propylene glycol (Propanediol)	+	+	-	-	+	0	+	+	+	+	+	+	+	+
Pyridine	-	-	-	-	-	-	+	0	+	0	+	0	+	0
Salicylaldehyde	-	-	-	-	0	0			+	+	+	+	+	+
Salicylic acid	+	+	+	+			-	-	+	+	+	+	+	+
Silver acetate	0	0	0	0	+	+	0	0	+	+	+	+	+	+
Silver nitrate	0	0	+	+	+	+	0	0	+	+	+	+	+	+
Sodium acetate	+	+	+	+	+	+	+	0	+	+	+	+	+	+
Sodium chloride	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sodium dichromate	+	0	+	0	+	-	+	+	+	+	+	+	+	+
Sodium fluoride	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sodium hydroxide, 30%	+	+	+	+	-	-	+	+	+	+	+	+	+	+
Sulfuric acid, 60%	-	-	+	0	0	0	-	-	+	+	+	+	+	+
Sulfuric acid, 98%	-	-	-	-	-	-	-	-	+	+	0	-	0	-
Tartaric acid	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tetrachloroethylene														
Tetrahydrofuran (THF)	-	-	-	-	-	-	0	0	0	-	0	-	0	-
Tetramethylammonium hydroxide					-	-	-	-						
Toluene	-	-	-	-	-	-	+	+	0	-	0	-	0	0
Trichloroacetic acid	0	-			0	-			+	+	0	-	0	0
Trichlorobenzene	-	-			-	-			0	0	-	-	-	-
Trichloroethane	-	-	-	-	-	-	0	-	-	-	-	-	0	-
Trichloroethylene	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Trichlorotrifluoro ethane	-	-	-	-										
Triethanolamine	-	-	-	-										
Triethylene glycol	+	0	+	+	+	0	+	0	+	+	+	+	+	+
Trifluoro ethane	-	-	-	-										
Trifluoroacetic acid (TFA)	-	-	-	-			-	-						
Tripropylene glycol	+	+	+	+	+	0	+	0	+	+	+	+	+	+
Turpentine	-	-	0	0	-	-	+	+	0	0	0	-	0	-
Urea	+	+	+	+	-	-	+	+	+	+	+	+	+	+
Xylene	-	-	-	-	-	-	+	+	0	-	0	-	0	-
Zinc chloride, 10%	+	+	+	+	+	+	+	0	+	+	+	+	+	+
Zinc sulfate, 10%	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Chemical resistance

PP		ECTFE/ETFE		PFA/FEP		PTFE		FKM		PVC		NR		SI		MF
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C
+	-	+	+	+	0	+	+	+		0	-	0	-	0	-	
-	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
0	-	+	+	+	+	+	+	+		+	-	-	-	0		
		+	+	+	+	+	+	+		0	-	-	-	0		
+	+	+	+	+	+	+	+	0		-	-	-	-	-	-	
0		+	+	+	+	+	+									
0		+	+	+	+	+	+	0				0				
+	+	+	+	+	+	+	+	+		+	0	-	-	0	0	-
+		+	+	+	+	+	+	-	-			-	-			
+	+	+	+	+	+	+	+			+	0	+	+	+	+	
						+	+	0				0				
+	+	+	+	+	+	+	+	-	-	0	0	+	+	-	-	-
+	+	+	+	+	+	+	+	+		+	+	+	0			
+	+	+	+	+	+	+	+	+		+	+	+		0		
+	0	+	0	+	+	+	+	+		0	-	-	-			
+	+	+	+	+	+	+	+	+	+	0	-	+				
0	0	-	-	+	+	+	+	-	-	0	-	-	-	-	-	
+	+	+	-	+	+	+	+			-	-					
+	+	+	+	+	+	+	+	+	+	0	-	+	+	+	+	
+	+	+	+	+	+	+	+	+	+	0	0	+	+	+	+	
+	+	+	+	+	+	+	+	-	-	0	0	+	+	+	0	
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
+	+	+	+	+	+	+	+	+		+	+	+	+	0		
+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	
+	+	+	+	+	+	+	+	0		+	+	+	+	0	0	-
+	+	+	+	+	+	+	+	+		0	-	-	-	-	-	
-	-	+	+	+	+	+	+	+		-	-	-	-	-	-	
+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	-
		0		+		+	+	0				-	-			
0	-	+	0	0	0	+	+	-		-	-	-	-	-	-	+
		+	+	+	+	+	+	-								
0	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
0	-	+	0	+	+	+	+	-	-	0	-	0				
-	-	+	0	+	+	+	+			-	-					
-	-	+	+	+	+	+	+	+		-	-	-	-	-	-	
-	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
		0	-	+	+	+	+									
				+	+	+	+	-	-			-	-	-	-	
+	+	+	+	+	+	+	+	+	+	0	-	+	+	+	+	
				+	0	+	+	+				-	-	-	-	
				+	-	+	0	-	-							
+	+	+	+	+	+	+	+			0	-	+	+	+	+	
-	-	+	+	+	+	+	+	+		+	+	-	-	-	-	
+	+	+	+	+	+	+	+	+		0	-	+	+	+	+	+
-	-	+	+	+	+	+	+	0		-	-	-	-	-	-	
+	+	+	+	+	+	+	+	+		+	0	+	+	+	+	
+	+	+	+	+	+	+	+	+		0	-	+	+	+	+	

Cleaning and sterilization* of plastics

Plastics	Autoclavable at 121 °C, t _e 20 min per DIN	Hot air at 160 °C (dry)	Gas (Ethylen oxide)	Chemical (Formalin, Ethanol)	β-/γ-radiation 25 kGy
PS	no	no	no	yes	yes
SAN	no	no	yes	yes	no
PC	yes ¹⁾	no	yes	yes	yes
POM	yes ¹⁾	no	yes	yes	yes (restricted)
PMP	yes	no	yes	yes	yes
PE-LD	no	no	yes	yes	yes
PE-HD	no	no	yes	yes	yes
PP	yes	no	yes	yes	yes (restricted)
ETFE	yes	no	yes	yes	no
PFA	yes	yes	yes	yes	no
PTFE	yes	yes	yes	yes	no
FEP	yes	yes	yes	yes	no
PVC	no	no	yes	yes	no
NR	no	no	yes	yes	no
PMMA	no	no	no	yes	yes
MF	no	no	yes	no	no

* Before sterilization labware must be carefully cleaned and rinsed with distilled water. Always remove covers from containers!

¹⁾ Frequent autoclaving may reduce mechanical stability!

Cleaning and sterilization of plastics laboratory equipment

All polyolefines, such as PE-LD, PE-HD, PP and PMP, as well as the fluoropolymers PTFE, PFA, FEP, ETFE and ECTFE have water-repellent surfaces that are very durable and easy to clean. Scrubbing agents or scouring pads should not be used for laboratory equipment made of plastics, but you may use generic alkaline cleaning agents. Equipment made from the materials mentioned above can be cleaned and dried in a lab washer, with other containers. Machine cleaning with a laboratory washing machine is more gentle to labware than cleaning in an immersion bath. The labware is only exposed to the cleaning solution for the relatively short flushing periods when sprayed by the jet or injector nozzles. Due to their low weight we recommend securing them with washing nets to avoid tumbling them in the water jet. Labware is protected against scratching when the wire baskets in the washing machine are plastic coated. Polycarbonate (PC) equipment should not be cleaned with alkaline cleaning agents (> pH 7).

Cleaning in trace analysis

To avoid contamination with cations and anions, you should leave plastics laboratory equipment with a 1N HCl or HNO₃ for a maximum of 6 hours at room temperature, and rinse it afterwards with purified distilled water. If trace analysis is conducted in the range of ng/g (ppb) or pg/g (ppt), containers made of PFA are particularly suitable, because they have a smooth surface, are easy to clean without memory effects and interaction with the container material.

Sterilization of laboratory equipment made of plastics

Autoclaving (steam sterilization) is defined as the destruction or irreversible inactivation of all reproducible microorganisms under exposure to "saturated steam at 120 °C Minimum." (DIN 58946-1, 1987). The following minimum exposure time (destruction time + safety span) is specified by DIN EN 285: Sterilizing temperature 121 °C – exposure time t_e = 20 minutes. For correct sterilization procedure, including biological security (DIN EN 285), please contact your sterilization officer. Prior to sterilization you have to ensure that there are no residual contaminations on the equipment. Otherwise, residue will bake on during sterilization. This could lead to the plastic's destruction during the autoclaving process (121 °C), or microorganisms may not be effectively destroyed if they are protected by the residue. For autoclaving, please note that containers with a screw-on lid or stopper have to be opened to ensure pressure equalization. Autoclaving of closed containers leads to a deformation or destruction of the container. To prevent pressure build-up, containers or vessels must always be open. Not all plastics are resistant to steam sterilization. Polycarbonate, e.g., will lose its strength. Polycarbonate centrifuge tubes cannot be steam sterilized.

Precision

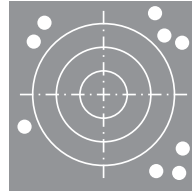
What do "tolerance, accuracy, coefficient of variation and precision" mean in volumetric measuring?

An illustration of precision and accuracy

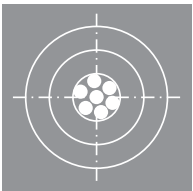
The dart board simulates the volume range around the centered specified value, the white dots simulate the different measured values of a specified volume.



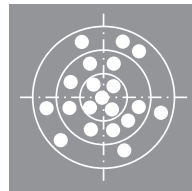
Poor accuracy: Although all hits are close together, the center (true volume) is still missed.
Good reproducibility: All hits are close together.
Result: Improperly controlled production, with systematic variation. Instruments exceeding the permissible limit should be removed from service.



Poor accuracy: Hits far off center.
Poor reproducibility: Hits widely scattered.
Result: These volumetric instruments are of inferior quality.



Good accuracy: All hits are near the center, i.e., the specified value.
Good reproducibility: All hits are close together.
Result: The volumetric instruments have minute systematic errors, narrow scatter; the permissible limit is not exhausted. These instruments should remain in service.



Good accuracy: On average, hits are evenly distributed around center
Poor reproducibility: No gross errors, but hits widely scattered.
Result: All deviations are "equally probable". Instruments exceeding the permissible limit should be removed from service.

The precision of glass volumetric instruments is commonly defined by "Tolerance Limits" whereas for liquid handling instruments the statistical terms "Accuracy [%]" and "Coefficient of Variation [%]" have been established.

Tolerance

$$\text{Tol.} \geq |V_{\text{measured}} - V_{\text{spec.}}|$$

The term "tolerance" (tol.) in the corresponding standards defines the maximum permissible deviation from the specified value.

Accuracy

$$A[\%] = \frac{\bar{V} - V_{\text{spec.}}}{V_{\text{spec.}}} \cdot 100$$

Accuracy (A) indicates the closeness of measured mean volume to the specified value, i.e., systematic measurement variation. Accuracy is defined as the difference between the measured mean volume ($\bar{V}$) and the specified value ($V_{\text{spec.}}$), related to the specified value in percent.

Coefficient of Variation

$$CV[\%] = \frac{s \cdot 100}{\bar{V}}$$

Coefficient of variation (CV) indicates the closeness of values of repeated measurements, i.e., random measurement variation. Coefficient of variation is defined as standard deviation in percent, related to the mean volume.

Partial volumes

$$A_{\text{part.}}[\%] = \frac{V_{\text{nominal}}}{V_{\text{part.}}} \cdot A_{\text{nominal}}\%$$

(analog $CV_{\text{part.}}\%$)

Generally A and CV are related to the nominal volume (V_{nominal}). These values are in % and have to be converted for partial volumes ($V_{\text{part.}}$). In contrast, there is no conversion for partial volumes, if A and CV are stated in volume units (e.g., ml).

Tolerance of A and CV

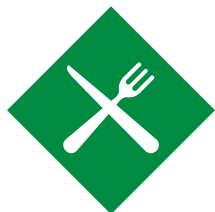
$$\text{Tol.} \geq \frac{|A\%| + 2CV\%}{100\%} \cdot V_{\text{nominal}}$$

A good estimate for the tolerance at nominal volume (V_{nominal}) can be calculated using the values for accuracy and coefficient of variation.

Precision (reproducibility)

It describes the closeness in volume units between the different values in a set of measurements.

Suitability for foodstuffs



Marked PP products are suitable for contact with all foodstuff categories in so far as a contact period of 24 hours and a contact temperature of 40 °C are not exceeded. Marked SAN products are suitable for contact with all aqueous, alcoholic and fatty foods, in so far as a contact period of 24 hours and a contact temperature of 40 °C are not exceeded.

Unfortunately we are unable to provide any information with regard to contact period in excess of 24 hours and contact temperatures in excess of 40 °C, as these did not constitute part of the testing.

Consequently, under the specified testing conditions, the marked products are in accordance with the requirements of Commission Directive 2002/72/EC (up to and including amending Directive 2007/19/EC) and Regulation (EC) No. 1935/2004. The marked products are also in accordance with the requirements of the Commodities Regulation (Bedarfsgegenstände-VO as of: 20.12.2006) and the German Food and Feed Code (Lebensmittel- und Futtermittelgesetzbuches, LFGB).

All source materials used in the manufacturing of the products are listed in the Commodities Regulation (Bedarfsgegenstände-VO as of: 20.12.2006), or respectively, Commission Directive 2002/72/EC (up to and including amending Directive 2007/19/EC), in accordance with the present attestation. Therefore, they represent permissible source materials in accordance with food law and may be used in the production of food commodities in accordance with the specified restrictions concerning migration threshold values and permissible residual content in the end product.

In addition to the testing of the adherence to the threshold values for the global migration (or respectively, the specific migration threshold values), a sensory testing for possible olfactory and flavour-related impairment of test foods was also implemented. All testing and analysis was performed by an independent, accredited institute.

Products in sterile packaging

The use of sterile, individually packaged VITLAB plastic labware, for example volumetric instruments or measuring scoops, means that time-consuming cleaning and autoclaving processes are no longer necessary. As a result you save time and money.

Sterile, individually packaged VITLAB plastic labware reduces the risk of contamination. This makes your processes more secure.

Sterility requirements exist in many industrial sectors, such as the medical, pharmaceuticals or microelectronics sectors. A sterile product must not contain any viable microorganisms that are capable of reproduction. The manufacturing of a product, including its packaging, under the very best hygienic conditions does not automatically result in a sterile condition. The product must be sterilised after its production and packaging.

The packaging is necessary in order to ensure that the sterile condition achieved after the radiation sterilisation remains for a long period. The irradiation inactivates the microorganisms. The inactivation occurs according to an exponential law. Depending on the product requirements, different end conditions can be achieved with regard to the microbial exposure after the irradiation.

Radiation sterilisation has established itself since several decades as an effective method of killing bacteria and germs. As the inactivation of the microorganisms by physical or chemical means occurs according to exponential laws, this absolute condition is not achieved. It remains possible that a microorganism survives. The residual risk is defined as 10^{-6} in the EN 556 for medical products that have been sterilised in their end packaging. This means that of one million parts of a product that have been sterilised in the end packaging, a maximum of one may be found that contains a microorganism capable of reproduction.

At the request of the customer, we also offer a bioburden analysis or certificate of sterility, or respectively pyrogen test, in addition to individual packaging.

All testing and analysis was performed by an independent, accredited institute.

Number index

00394	74	53610	65	67195	37	73698	106	80347	94
00396	74	60503	54	67204	37	73898	106	80348	94
36491	79	60603	54	67295	37	75093	111	80353	80
39194	92	60703	54	67304	37	75193	111	80354	81
39294	92	60803	54	67395	37	75991	56	80355	80
39394	92	60903	54	67404	37	76299	90	80375	75
39494	92	61003	54	67495	37	77094	100	80408	72
39594	92	61103	54	67504	37	78294	99	80409	72
39694	92	61203	54	67595	37	78394	99	80410	72
39794	92	61303	54	67604	37	78593	110	80411	72
39894	92	61403	54	67695	37	78794	108	80412	72
39994	92	61503	54	67704	37	79194	31, 47	80413	72
40093	92	61603	54	67795	37	79790	85	80418	110
40193	92	61703	54	67895	93	79890	85	80419	110
40293	92	61803	54	67995	93	79990	85	80422	52
40393	92	64091	42	68099	93	80130	90	80423	52
40493	92	64191	42	68199	93	80131	90	80424	52
40593	92	64291	42	68299	93	80139	14, 50	80425	52
40693	92	64391	42	68399	93	80140	14, 50	80434	110
40793	92	64491	42	68594	77	80162	96	80435	110
40894	96	64591	42	68694	77	80164	96	80436	110
41094	96	64691	41	68794	77	80165	96	80437	97
41194	96	64695	40	68894	77	80213	90	80438	97
41294	96	64704	39	68994	77	80215	32, 48	80439	97
41394	96	64791	41	69094	77	80217	32, 48	80440	97
41494	96	64795	40	69194	77	80218	32, 48	80441	97
41594	96	64804	39	69294	77	80219	32, 48	80442	97
41694	96	64891	41	69394	56	80221	32, 48	80443	97
41794	97	64895	40	69493	56	80222	32, 48	80445	97
41894	97	64904	39	69990	93	80223	32, 48	80446	112
41994	97	64991	41	70494	97	80229	84	80447	112
42099	97	64995	40	70594	97	80230	83	80448	112
42294	97	65004	39	70694	97	80231	83	80452	94
42393	97	65091	41	70794	98	80252	32, 48	80454	94
42594	87	65095	40	70894	98	80268	98	80455	94
42694	87	65104	39	70994	98	80269	98	80456	94
42794	87	65191	41	71094	98	80271	123	80459	108
42894	87	65195	40	71194	98	80276	79	80460	108
42994	87	65204	39	71598	85	80277	79	80461	108
43094	87	65291	41	71698	85	80278	79	80462	108
43194	87	65295	40	71798	85	80280	86	80463	108
43510	88	65304	39	71898	85	80281	86	80464	108
44091	51	65391	41	71998	85	80282	86	80465	108
44191	51	65395	40	72098	84	80283	86	80466	108
44291	51	65965	83	72198	84	80284	86	80467	108
44391	51	65975	83	72298	84	80285	86	80468	108
44491	51	65980	83	72398	84	80286	86	80510	109
47705	88	66695	55	72498	84	80288	86	80511	109
47706	88	66795	55	72898	106	80340	94	80512	109
47707	88	66895	55	72998	106	80342	94	80513	109
47708	88	66995	55	73298	87, 106	80343	94	80514	109
47716	88	67095	55	73498	106	80345	94	80515	109
53510	65	67104	37	73598	106	80346	94	80520	108

80521	108	81640	75	93988	63	99490	79	108297	66, 119
80525	108	81642	75	93989	71	100389	73	108392	66, 120
80526	108	81644	75	93993	63	100394	73	108397	66, 119
80535	110	81646	75	93994	70	100489	73	108492	66, 120
80536	110	81648	75	94188	63	100494	73	108497	66, 119
80537	110	81650	75	94189	71	100589	73	108792	62, 119
80550	83	81660	75	94193	63	100594	73	108892	62, 119
80551	83	81662	75	94194	70	100689	73	108992	62, 119
80553	83	81664	75	94389	68	100694	73	109297	66, 119
80554	83	81666	75	94489	68	100789	73	109397	66, 119
80555	84	83300	64	94587	64	100794	73	109497	69, 120
80556	84	83301	64	94588	63	100889	73	109597	69, 120
80557	84	83302	64	94589	68	100894	73	109697	69, 120
80560	90	83303	64	94594	67	100989	73	109797	69, 120
80562	90	83304	64	94687	64	101589	73	109897	69, 120
80593	92	83306	65	94688	63	101594	74	109997	69, 120
80594	92	83307	65	94689	68	101689	73	110204	53, 118
80595	92	83308	65	94694	67	101694	74	110205	53, 118
80596	92	83310	72	94987	64	101789	73	110304	53, 118
80602	88	83311	72	94988	63	101794	74	110305	53, 118
80603	88	83312	72	94989	68	101889	73	110404	53, 118
80604	88	83313	72	94993	63	101894	74	110405	53, 118
80730	77	83314	72	94994	67	101989	73	110604	53, 118
80731	77	83315	72	95087	64	101994	74	110605	53, 118
80732	77	83316	72	95088	63	102397	72, 120	110704	53, 118
80733	77	83317	72	95089	68	102597	72, 120	110804	53, 118
80734	77	90594	74	95093	63	102697	72, 120	110904	53, 118
80735	77	90694	74	95094	67	102897	72, 120	110905	53, 118
80736	77	90794	74	95187	64	103297	122	111004	53, 118
80737	77	90894	74	95188	63	103397	122	111005	53, 118
80828	106	90994	74	95189	68	103797	78, 122	112197	53, 119
80877	109	91094	74	95193	63	103897	78, 122	112297	53, 119
80878	109	91194	74	95194	67	103997	123	112397	53, 119
80879	109	91294	74	95286	65	104099	26	112497	53, 119
80910	76	91394	74	96093	87	104199	26	112597	53, 119
80911	76	91494	74	96293	87	105599	14, 49	112697	53, 119
80952	86	91789	68	96393	87	105699	14, 49	112797	53, 119
80953	86	91889	68	96593	87	105799	14, 49	112897	53, 119
80954	86	91989	68	96694	87	105899	14, 49	113197	93, 123
80970	98	92089	68	96794	87	106599	13, 49	113297	93, 123
80996	31, 47	92189	68	97494	74	106699	13, 49	113397	93, 123
81056	56	92489	71	97496	74	107097	36, 118	113497	93, 123
81213	90	92689	71	97593	74	107197	36, 118	122097	105, 127
81219	32, 48	92789	71	97791	52	107297	36, 118	122197	105, 127
81250	109	92889	71	97891	52	107397	36, 118	122297	105, 127
81251	109	93389	71	98590	84	107497	36, 118	122597	69, 121
81252	109	93394	70	98690	84	107597	36, 118	122697	69, 121
81253	109	93489	71	98790	84	107797	123	122797	69, 121
81254	109	93494	70	98890	84	107897	123	122897	69, 121
81255	109	93788	63	99099	80	107997	123	130294	77
81256	109	93789	71	99199	80	108092	66, 120	130297	76, 121
81633	64	93793	63	99299	79	108192	66, 120	130394	77
81634	64	93794	70	99390	79	108292	66, 120	130397	76, 121

Number index

130494	77	145694	31, 47	162510	28, 44	308897	102, 124	442941	51
130497	76, 121	145894	31, 47	163094	27, 43	308997	102, 124	443081	51
130594	77	145994	31, 47	163194	27, 43	309097	102, 124	443941	51
130597	76, 121	146190	82	163294	27, 43	309197	102, 124	444081	51
131097	128	146290	82	163394	27, 43	309297	102, 124	444941	51
132193	65	146399	82	163594	27, 43	309397	102, 124	445081	51
132293	65	146499	82	164094	27, 43	309497	102, 124	445941	51
132393	65	146594	30, 46	164194	27, 43	309597	102, 124	446081	51
132493	65	146694	30, 46	164294	27, 43	310197	104, 126	446941	51
132593	65	146794	30, 46	164394	27, 43	310297	104, 126	447081	51
132693	65	146894	30, 46	164494	27, 43	310397	104, 126	447941	51
132703	64	146994	30, 46	164594	27, 43	310497	104, 126	480941	52
132705	64	147094	30, 46	165094	85	311097	103, 125	481941	52
132706	64	147194	30, 46	165194	85	311197	103, 125	482941	52
132708	64	147294	30, 46	165294	85	311297	103, 125	483941	52
132793	65	147594	30, 46	165394	85	311397	103, 125	484941	52
133181	62	147694	30, 46	165494	85	311497	103, 125	605081	54
133281	62	147794	30, 46	165594	85	311597	103, 125	606081	54
133381	62	147894	30, 46	199095	55	311697	103, 125	607081	54
134293	63	147994	30, 46	199099	55	311797	103, 125	608081	54
134393	63	148094	30, 46	199195	55	311897	103, 125	609081	54
134493	63	148194	30, 46	199199	55	311997	103, 125	610081	54
134593	63	148294	30, 46	300497	102, 124	314097	103, 125	611081	54
135181	62	148494	30, 46	300597	102, 124	314197	103, 125	612081	54
135281	62	148594	30, 46	300897	102, 124	314297	103, 125	613081	54
135381	62	148893	28, 44	301097	102, 124	316097	103, 125	614081	54
136693	81	148993	28, 44	301197	102, 124	316197	103, 125	615081	54
136894	88	149093	28, 44	301597	102, 124	316297	103, 125	616081	54
137094	111	149193	28, 44	301697	102, 124	316397	103, 125	617081	54
137194	111	149293	28, 44	301797	102, 124	316497	103, 125	618081	54
137294	111	149393	28, 44	301897	102, 124	317297	104, 126	640941	42
137394	111	149693	29, 45	301997	102, 124	318293	105, 127	641941	42
137494	111	149893	29, 45	302097	102, 124	318393	105, 127	642941	42
137594	111	149993	29, 45	302197	102, 124	318597	105, 127	643941	42
138093	68	151594	99	302297	102, 124	324594	26	644941	42
138193	68	155094	76	302397	102, 124	324694	26	645941	42
138293	68	155594	76	302497	102, 124	324794	26	646081	41
138393	68	155699	76	302597	102, 124	325095	96	646941	40
138493	68	155799	76	303097	102, 124	325195	96	647081	41
138591	111	156094	76	303197	102, 124	325295	96	647941	40
138593	68	159497	121	303297	102, 124	325395	96	648081	41
138693	68	159597	121	307697	102, 124	325495	96	648941	40
138793	68	159665	100	307797	102, 124	326094	83	649081	41
138893	68	159670	100	307897	102, 124	326194	83	649941	40
139393	71	159697	121	307997	102, 124	326294	83	650081	41
139493	71	160110	28, 44	308097	102, 124	326496	82	650941	40
139593	71	160119	28, 44	308197	102, 124	326596	82	651081	41
139693	71	160210	28, 44	308297	102, 124	326696	82	651941	40
139793	71	160219	28, 44	308397	102, 124	440081	51	652081	41
139893	71	160510	28, 44	308497	102, 124	440941	51	652941	40
145094	78	160519	28, 44	308597	102, 124	441081	51	653081	41
145194	78	161010	28, 44	308697	102, 124	441941	51	653941	40
145594	31, 47	161019	28, 44	308797	102, 124	442081	51	666941	55

667941	55	1332959	60	1602504	18	1671506	22	5582150	67
668941	55	1332969	60	1602505	18	1671510	13, 22	5582200	70
669941	55	1332979	60	1605503	19	1671515	22	5582210	70
670040	36	1333819	60	1605504	19	1671520	22	5582220	70
670941	55	1333839	60	1605505	19	3125970	104, 126	5582230	70
671040	36	1333849	60	1605506	19	3126970	104, 126	5582240	70
671891	39	1333859	60	1605507	19	3190940	89	5582250	70
671895	38	1333869	60	1605508	19	3190943	89	5583100	66
671941	38	1351819	61	1606515	19	3190948	89	5583110	66
672040	36	1351839	61	1610501	21	3191940	89	5583120	66
672891	39	1351849	61	1610502	21	3191943	89	5583130	66
672895	38	1351859	61	1610503	21	3191948	89	5583140	66
672941	38	1351869	61	1610504	21	3192940	89	5583150	66
673040	36	1352819	61	1610506	21	3192943	89	5583170	66
673891	39	1352839	61	1611503	21	3192948	89	5583180	66
673895	38	1352849	61	1611506	21	3193940	89	5583190	66
673941	38	1352859	61	1611508	21	3193943	89	5584200	69
674040	36	1352869	61	1620506	12	3193948	89	5584210	69
674891	39	1352879	61	1620507	12	3194940	89	5584220	69
674895	38	1352889	61	1630500	25	3194943	89	5584230	69
674941	38	1352959	61	1631500	24	3194948	89	5584240	69
675040	36	1352969	61	1631510	24	3195940	89	5584250	69
675891	39	1352979	61	1631520	24	3195943	89		
675895	38	1353819	61	1631530	24	3195948	89		
675941	38	1353839	61	1670066	13, 22	3197940	89		
676040	36	1353849	61	1670067	13, 22	3197943	89		
676891	39	1353859	61	1670068	13, 22	3197948	89		
676895	38	1353869	61	1670072	22	3198940	89		
676941	38	1431829	60	1670080	13, 22	3198943	89		
677891	39	1432829	60	1670085	13	3198948	89		
677895	38	1432899	60	1670092	22	5581170	67		
677941	38	1432909	60	1670095	13	5581180	67		
760941	42	1432919	60	1670100	13, 22	5581190	67		
833019	62	1432939	60	1670105	22	5581200	67		
833029	62	1432949	60	1670110	13, 22	5581210	67		
833039	62	1432989	60	1670115	13, 22	5581220	67		
833049	62	1433829	60	1670120	13, 22	5581230	67		
978081	52	1451829	61	1670125	13	5581240	67		
978941	52	1452829	61	1670145	22	5581250	67		
1037979	78, 122	1452899	61	1670150	22	5581300	70		
1038971	78, 122	1452909	61	1670155	13, 22	5581310	70		
1331819	60	1452919	61	1670165	22	5581320	70		
1331839	60	1452939	61	1670170	22	5581330	70		
1331849	60	1452949	61	1670175	22	5581340	70		
1331859	60	1452989	61	1670180	13, 22	5581350	70		
1331869	60	1453829	61	1670185	22	5582070	67		
1332819	60	1601503	18	1670647	26	5582080	67		
1332839	60	1601504	18	1670648	26	5582090	67		
1332849	60	1601505	18	1670649	26	5582100	67		
1332859	60	1601506	18	1670650	26	5582110	67		
1332869	60	1601507	18	1671095	13, 22	5582120	67		
1332879	60	1601508	18	1671500	13, 22	5582130	67		
1332889	60	1602502	18	1671505	22	5582140	67		

Alphabetical index

A

Accessories for bottletop-burettes	13
Accessories for bottletop-dispensers	22
Accessories for pipette controllers	26
Analytical funnels, PP	96

B

Bowl, PP	88
Bowls, round, PP	87
Buckets with spout, PP	87
Buckets, PE-HD	87
Büchner funnels, PP	97
Bulb pipettes, PP	27, 43
Burette clamps, PP	14, 50
Burette stopcocks	14, 49
Burettes	14, 49

C

Caps with dropper inserts, PE-HD	65
Carrying trays, PE-HD	88
Chemical waste system, PE/PP	99
Collectors, PP or SAN	52
Compartment tray, PVC	86
Connector universal, PP	108
Connectors 2-parts, PE-HD	110
Connectors 90°, PP	109
Connectors straight, PP	109
Connectors T-form, PP	108
Connectors Y-form, PP	108
Container, PP	76
Cuvettes, PS and PMMA	82

D

Deep trays, PVC	86
Desiccator plates, PP and porcelain	83
Desiccators with stopcock, PC	82
Desiccators with stopcock, PP/PC	83
Desiccators, PP/PC	83
Dispenser HF	19
Disposable pipettes, PS, non-sterile	28, 44
Disposable pipettes, PS, sterile	28, 44
Dropping bottles, PE-LD	65
Dropping bottles, PE-LD/PE-HD	64
Dropping pipettes, PE-LD	29, 45
Drying rack	90
Drying rack, PS	90
Drying tubes, PE-HD	112

E

Erlenmeyer flasks, PC	55
Erlenmeyer flasks, PMP	55
Erlenmeyer flasks, PP	55
Evaporating dishes, PFA	122

F

Filter Funnel Supports	99
Flow monitor, SAN	111
Forceps, PMP	93
Forceps, POM	93
Funnel Holders, PP	98

Funnels, PP	96
-------------	----

G

Gas-wash bottles, PFA	121
Graduated beakers, PP	52
Graduated pitchers, nesting, PP	52
Graduated pitchers, PP	51
Graduated pitchers, SAN	51
Griffin beakers, ETFE	53, 118
Griffin beakers, PFA	53, 118
Griffin beakers, PMP	54
Griffin beakers, PP	54
Griffin beakers, PTFE	53, 119

H

Half-round funnels, PP	97
Hydrometer cylinder, PP	42

I

Instrument trays, flat, MF	85
Instrument trays, MF	84
Integral wash-bottles, PE-LD	64

L

Laboratory trays, PP	85
Large funnels, PP/PE-HD	97
Lids for instrument trays, PS	85

M

Magnetic stirrer retrievers, flexible, PTFE	105, 127
Magnetic stirrer retrievers, PE	105, 127
Magnetic stirrer retrievers, PTFE	105, 127
Magnetic stirring-bars circulus, PTFE	104, 126
Magnetic stirring-bars double-spinfin, PTFE	103, 125
Magnetic stirring-bars octagon, PTFE	102, 124
Magnetic stirring-bars oval, PTFE	103, 125
Magnetic stirring-bars polygon, PTFE	102, 124
Magnetic stirring-bars spin, PTFE	104, 126
Magnetic stirring-bars spinplus, PTFE	103, 125
Magnetic stirring-bars triangular, PTFE	104, 126
Measuring beakers, PP	56
Measuring pipettes, PP	27, 43
Measuring scoops, PE-HD	92
Measuring scoops, PP	92
Measuring Spoon, PS	93
Microcentrifuge tube rack, PP	88
Microcentrifuge tube racks, coloured, PP	89
Microcentrifuge tubes, PP	78
Microwave digestion inliner, PFA	123
Mixing vessel, MF	87, 106
Mortars, MF	106
Multi-purpose container, SAN	79
Multi-purpose containers, PP	88

N

Narrow-mouth bottles, PE-HD	66
Narrow-mouth bottles, PE-HD, brown	67
Narrow-mouth bottles, PE-LD	68
Narrow-mouth bottles, PFA	66, 119
Narrow-mouth bottles, PFA-economy	66, 120
Narrow-mouth bottles, PP	67

Non-return valve, PE-HD	110
Non-return valves, PP	110

P

Pasteur pipettes, PE-LD	28, 44
Pestles, MF	106
Pipette baskets, PE-HD	32, 48
Pipette filler bulbs, NR	26
Pipette jars, PE-HD	32, 48
Pipette pumps	26
Pipette racks, PP	31, 47
Pipette tips, PP	31, 47
Pipette trays, PVC	31, 32, 47, 48
Pipette washer, PE-HD	32, 48
Powder funnels, PP	98
Precision-dispenser-tips, non-sterile, PS	30, 46
Precision-dispenser-tips, sterile, PS	30, 46
PTFE-Tape	128

R

Reagent bottles, PP	73, 74
Round-bottom flask support, PP	123
Round-bottom flasks, PFA	123

S

Sample containers, PE-HD	76
Sample containers, PFA	76, 121
Sample containers, PP	77
Sample vials, PE-LD	77
Sample vials, PFA	78, 122
Sample vials, PP	77
Screw caps, PFA	72, 120
Screw caps, PP	72
Sedimentation cone, SAN	56
Sedimentation rack, PMMA	56
Seed germinating kids, PS	84
Spare parts for desiccators	84
Spatula, PA	92
Spray bottles, PP	65
Staining cuvette 'Coplin', PP	81
Staining cuvette 'Hellendahl', PMP	80
Staining cuvette, POM	80
Staining dish, PP	81
Staining jar, PMP	80
Staining jar, POM	80
Staining rack, POM	79
Standard joint stoppers, PP	74
Stirring rod, PP	106
Stopcocks, PE	111
Storage bottles, PE-LD, with tap	75
Storage bottles, PE-LD, without tap	75
Storage boxes, nesting, PS	79
Storage boxes, PS	79
Support for separatory funnels, PP	98

T

Tap for storage bottles, PP	75
Test tube racks, coloured, PP	89
Test tube racks, PE	90
Test tube racks, PP	90

U

Urbanti funnels, COC	96
Urinals, PP and PC	74

V

Valves, 2/3-Way, PE/PP	111
VENT-CAP wash-bottle caps, PP	62
VITLAB continuous E/RS	12
VITLAB genius	19
VITLAB maneus®	25
VITLAB piccolo	21
VITLAB pipeo®	24
VITLAB simplex	18
VITLAB simplex fix	18
VITLAB symbiotic, type Dr. Schilling	13, 49
VITsafe™ safety wash-bottles, narrow-mouth	60
VITsafe™ safety wash-bottles, wide-mouth	61
Volumetric cylinders, PMP, class A	40
Volumetric cylinders, PMP, class A, KB	39
Volumetric cylinders, PP, class B	40, 41, 42
Volumetric cylinders, SAN, class B	41, 42
Volumetric flasks opaque, PMP, class A	36
Volumetric flasks, PFA, class A	36, 118
Volumetric flasks, PMP, class A	37
Volumetric flasks, PMP, class B	37, 38
Volumetric flasks, PP, class B	38, 39

W

Wash-bottle caps, PP	64
Wash-bottles, colour coded, PE-LD	64
Wash-bottles, PE-LD	63
Wash-bottles, PE-LD/PP	63
Wash-bottles, PFA-economy	62, 119
Wash-bottles, PP	63
Wash-bottles, with imprint	62
Watch glasses, PP	94
Watch glasses, PTFE	93, 123
Water-jet vacuum pump, PP	100
Weighing jars, PP	94
Wide-mouth bottles, PE-HD	69
Wide-mouth bottles, PE-HD, brown	70
Wide-mouth bottles, PE-LD	71, 72
Wide-mouth bottles, PFA	69, 120
Wide-mouth bottles, PP	70
Wide-mouth bottles, PTFE	69, 121

General Terms and Conditions of VITLAB GmbH

1 General

- 1.1 (Conflicting business conditions, written form, additional agreements and contract language) These General Terms and Conditions shall apply to all contracts, including all future contracts with the Customer. Other conditions shall not become a part of the contract even if we do not expressly object to such conditions. The Customer may only claim validity of additional agreements before or upon the conclusion of the contract only if they provide immediate written confirmation. Renunciation of the written form is only possible in writing. The language of the contract shall be German or English.
- 1.2 (Offers, right to make changes) Our offers are subject to confirmation. We reserve the right to make technical improvements to our products.
- 1.3 (Recording of data) We may store and process relevant contract data in our EDP systems.
- 1.4 (Setting off and retention) The setting off or the retention by the Customer is not permitted except in cases of undisputed or indefeasible counter claims.
- 1.5 (Rush orders/small orders) Orders with a value of the goods of less than 100 euros are subject to a low quantity surcharge of 20 euros. Delivery is normally in packing units according to the valid price list. For deliveries within five working days or for order values up to 500 euros, we reserve the right to ship and invoice immediately without separate order confirmation.
- 1.6 (Place of jurisdiction) The place of jurisdiction shall be the court responsible for our domicile in Aschaffenburg, Germany. We are also entitled to call upon the court responsible for our customer's domicile. Furthermore, we as Plaintiffs have the right to call the arbitral tribunal at the Chamber of Industry and Commerce in Frankfurt am Main. In this case, the arbitral tribunal conclusively decides the legal dispute in accordance with the ICC Rules of Arbitration excluding the due legal process. The preamble of the legal summary proceeding for order to pay debts from us does not denote the exertion of our voting right. It is in no way admissible.
- 1.7 German law is applicable, to the exclusion of the 'UN Convention on Contracts for the International Sale of Goods', CISG.

2 Delivery

- 2.1 Place of performance shall be our factory in Grossostheim, Germany. The risk shall be transferred to the Customer when the delivery leaves the ramp in our factory. This shall apply also to partial deliveries and where we have undertaken additional services such as freight forwarding; costs of transporting, packing or insurance; exportation; and installation. This also applies in the case of delivery to a consignment warehouse.
- 2.2 Where we have accepted Orders on Call, Standing or Blanket Orders, the Customer must call up the entire order quantity within 6 months.
- 2.3 If there be any delay in the Customer's acceptance of a shipment, we may, at our own discretion, have the products stored at the Customer's expense or, after providing a warning and setting a deadline, sell the products for account of the customer.

3 Delivery period, Delay

- 3.1 Indicated delivery periods are ex works. Delivery deadline shall commence upon the Customer's receipt of our order confirmation; however, only after settlement of the technical questions that are still open at the conclusion of the contract and after we have received from the customer all documents, such as diagrams, permits or releases required from the Customer and definitely not before any advance payments that have been agreed upon. The delivery deadline is considered to have been observed if the readiness for shipment has been declared prior to the expiration of this period. Correct and punctual delivery remains a requirement.
- 3.2 Force Majeure, strikes, lockouts, operating breakdowns, shortages of raw materials or means of production for which we are not responsible, including delayed deliveries or failure to deliver by upstream suppliers, shall extend the delivery deadline accordingly and shall release us from our obligation to deliver if delivery becomes impossible as a result. We are considered not to be responsible for the aforementioned circumstances, even where they occur during an existing delay. The same applies in the case of additional or amended services requested by the customer.
- 3.3 Our default in delivery shall not exist unless the Customer has provided us with a warning and an indicated reasonable additional period of time has lapsed.
- 3.4 In the case of delay damages, we shall limit our liability for damage compensation to 10% of the value of our delayed delivery/service. The limitation does not apply in the case of wilful intent, gross negligence and/or damage to life, body or health. The Customer shall be obligated to promptly notify us in writing of any consequences of delay.

4 Prices, Terms of Payment

- 4.1 Prices quoted shall be ex works and do not include VAT, if applicable. Charges for packaging, freight and insurance shall be at the Customer's expense. The prices are understood to be exclusive of costs for the return and recycling/disposal of old equipment.
- 4.2 Invoices shall be paid in full, without deductions, and must be credited to our account in EURO (€) immediately or by the due date indicated on the invoice. Receipt of payment is applicable. We shall accept bills of exchange or checks only with a view to performance and at the Customer's expense.
- 4.3 In the case of customers, with whom we are working for the first time or with whom we do not regularly work, after delays in payment or in the case of reasonable doubt of the creditworthiness of the client, we retain the right to make any individual shipment dependent on payment in advance or a security deposit to the value of the invoice amount.
- 4.4 If the period between conclusion of the contract and the agreed delivery is longer than four months, we reserve the right to demand an extra charge, which corresponds to our cost increase until delivery, at our own discretion. For deliveries on call our then valid price shall apply.
- 4.5 In the case of an agreed return of faultless products, the customer will be charged a checking and processing fee to the value of 15% of the invoice amount (10 euros minimum).
- 4.6 If the Customer is in default of payment, then all of our debt claims against him shall be due immediately and we shall not be obligated to make any further deliveries based on current delivery contracts.
- 4.7 If default of payment occurs, we shall charge, notwithstanding further damage compensation claims, default interest to the amount legally allowed.
- 4.8 We may offset amounts payable to the Customer, such as a credit notes, against our claims against the Customer, if necessary.

5 Retention of Title and Assignment of Future Claims

- 5.1 Goods delivered shall remain our property until the complete and unlimited payment of all of our debt claims against the Customer. If we still have further claims against the customer, we reserve our property rights until the payment of this.
- 5.2 The Customer may neither use conditional goods nor merge nor combine them with other objects, to which a third party may have rights. If, however, conditional goods become a component of a new object, then we shall be a direct proportional co-owner of this object even if it constitutes a new legal entity. Our proportion of co-ownership shall be based on the relation of the invoice value of the conditional goods to the value of the new object at the time of the connection.
- 5.3 The Customer may resell the conditional goods in his normal course of business as long as his claims from the resale have not been assigned, pledged or otherwise encumbered.
- 5.4 The Customer shall assign to us in advance as collateral any claims against his customers from the resale of the conditional goods (see clause 5.3) and/or newly formed objects (see clause 5.2) to the value of our invoice for the conditional goods. If the Customer is not in default of payment for the conditional goods, he may collect the assigned claims in his normal course of business. However, he may only use the proportional proceeds for the payment to us for the conditional goods.
- 5.5 Upon the customer's request, we shall release collateral at our discretion, if and to the degree that the nominal value of the collateral exceeds 120 % of the nominal value of our open debt claims against the Customer.
- 5.6 The Customer is required to immediately inform us of any attachments, confiscation or any other right to disposal of a third party with regard to the conditional goods or the goods co-owned by us.

- 5.7 In the case of failure to pay in exchanges or checks, or if debit requests or direct debit authorizations are not carried out or are retroactively cancelled, or if the Customer or the end user become insolvent or suspend payments, the Customer shall lose all rights as per clause 5.3. The Customer must immediately notify any subsequent purchaser of our extended retention of property rights. He may only use the proportional proceeds, which are based on the assignment, for the payment of the goods delivered.
- 5.8 If default of payment occurs or in those cases covered in clause 5.7, we shall be authorized to withdraw from the contract, and/or to demand the return of any conditional goods, even without withdrawal, in the possession of the Customer and/or to collect the assigned debt claims directly. In order to determine our rights, we shall have the right to have the Customer's documents and books concerning our reserved rights examined by a person who is subject to the professional duty of confidentiality.

6 Defects and claims for damages

- 6.1 We shall be liable for insuring that our products, including any agreed installation, are free of defects at the time of the transfer of risk (clause 2.1). The required composition, shelf life and use of our products are based solely on the written agreed specification, product description and/or operating instructions. Any information beyond this and in particular in preliminary discussions, advertisement and/or referenced industrial standards shall only become a part of the contract if they are expressly referenced in writing.
- 6.2 If the Customer requires the delivered goods for purposes other than those agreed, he must check before use if the products are specially suitable for such purposes – including all aspects pertaining to product safety – and Customer is required to ensure that products comply with all relevant technical, legal and official regulations and requirements. We shall not be responsible for the fulfillment of any application not expressly confirmed by us in writing. We are not liable for material or design guidelines of the Customer, concerning the suitability or permissibility of the desired materials or designs and thus have no particular testing obligation.
The observation of safety-related and occupational health regulations depends on the place and conditions of the use, of which we have no knowledge. Measures of the observation of these regulations are, therefore, the responsibility of the user.
- 6.3 We shall not be liable for the consequences of improper handling, use, servicing or operation of the products or the consequences of normal wear and tear of wearing parts such as pistons, seals, valves and the breakage of glass, plastic or ceramic parts, for the consequences of chemical, electrochemical or electrical influences or the failure to follow the instructions in the operating instructions.
- 6.4 In the case of justified deficiency claims we shall only initially be required to provide subsequent performance (i.e. free replacement or repair at our sole discretion). Any additional warranty claims shall only exist due to rejection, impossibility or failure of said subsequent performance. Additional expenses, resulting from the fact that the goods have been relocated from the initial place of delivery, shall be borne by the Customer.
- 6.5 The Customer shall be obliged to promptly and carefully check incoming products – also for product safety – and to notify us of any apparent deficiencies in writing, any hidden defects as soon as they are found. The Customer must notify the carrier immediately of any transport damage. Non-observation of the obligation to check and give notice of defects will void any and all warranty claims for those deficiencies.
- 6.6 Our liability for slight negligence is limited to claims owing to injury to life, the body or the health, to claims from product liability as well as claims from the culpable breach of essential contractual duties, through which the contract is endangered. Incidentally, our liability for slightly negligent breach of essential contractual duties is limited to the typically incurring damages which we could have foreseen when the contract was concluded.
- 6.7 If the customer uses the delivered goods with materials that are harmful to the environment, poisonous, radioactive or dangerous in any other way, he shall be obliged to clean them prior to any return shipment. We can put any necessary costs of decontamination/cleaning and disposal in the client's invoice.

7 Limitation of actions

- Claims for defects against us shall be limited to one year from delivery of the goods to the customer. The same shall apply to claims for damages no matter for what legal grounds. The period of limitations of § 438, paragraph 1, no. 1 and 2 of the German Civil Code, and § 479, paragraph 1 and 634a, paragraph 1, no. 2 remain unaffected.
- The restriction of the statute of limitations shall not apply to claims owing to malicious non-disclosure of a defect, for claims according to product liability and for damages from injury to life, the body or the health and for other damages, which are due to wilful intent or gross negligence.

8 Software use

- 8.1 Insofar as software is contained in the delivery, the Purchaser will be granted the non-exclusive right to use the software delivered including its paperwork. It shall also be available for use on the specific delivery item. Use of the software on more than one system is prohibited.
- 8.2 The Purchaser may only copy, transfer or translate the software in a legally acceptable scope (§§ 69 a ff of Copyright Law (UrhG)) or convert from the object code into the source code. The Purchaser is obliged to not remove manufacturer's instructions, especially copyright entries, or to change them without prior permission from the Supplier.
- 8.3 All remaining rights to the software and the documentation thereof, including copies, remain with the Supplier and/or Software Supplier. The allocation of sublicenses is not permissible.

9 Installation

- 9.1 Installation costs can be invoiced monthly. Fixed installation prices shall only apply to the work, which has been agreed upon. In other cases, our price list for installation and service costs shall apply.
- 9.2 The Customer shall be responsible for providing the following if required at his own expense: lighting, motive power: compressed air, water, electrical power for welding, heating including any required connections, electrical installations for the connection of the products delivered by us, the required devices (e.g., hoisting equipment), a room, which can be closed, for storing material, tools and clothing during the installation.

10 Spare Parts, Maintenance/Repair and Calibration

- 10.1 For spare parts, maintenance, repair and calibration services the valid repair and replacement price list shall apply.
- 10.2 If we have an obligation to maintain/deliver spare parts, then this shall be limited to a period of five years from the date of delivery of the original product. If the spare parts are not manufactured by us or are no longer available on the market, e.g. electrical components, or if the raw materials required for their production are no longer available, then our obligation to supply spare parts shall lapse.
- 10.3 For calibration and servicing, normally disposables from our production lines shall be used.
- 10.4 Any servicing and/or calibration service may only be performed after the Customer has declared the absence of health hazards with regard to the devices sent.
- 10.5 For service values of up to 50 euros, we reserve the right to service / repair without providing a separate cost estimate.

11 Legal reservation, industrial proprietary rights, secrecy

- 11.1 We reserve ownership in any of the moulds, tools or other appliances, samples, diagrams, commercial or technical documents produced or provided by us as well as all copyrights, proprietary and intellectual property rights in any such item. This applies also if the Customer has wholly or partly borne the costs of this. The use of any such item by the Customer is subject to our prior written approval. The Customer is neither entitled to manufacture the subjects of this agreement nor to have them manufactured on his behalf, without our approval in writing.
- 11.2 If we deliver goods according to designs or other requirements specified by the customer (models, samples etc.), he is liable by default for ensuring that through the production and delivery of these products industrial property rights or other rights of third parties are not infringed. He shall be obligated by default to provide compensation for all damages resulting from such legal infringements.
- 11.3 All information acquired through the business relationship with us which is not deemed to be public knowledge shall be deemed proprietary and may not be disclosed by the customer to any third party.
Status as of: October 2007

VITLAB GmbH

Linus-Pauling-Str. 1
63762 Grossostheim
Germany
tel: +49 (0) 6026 9 77 99-0
fax: +49 (0) 6026 9 77 99-30
e-mail: info@vitlab.de
www.vitlab.de

USt.-IdNr. / VATREG NO

DE 1116669 59

WEEE-Reg.-Nr. DE 30031601

Banking details

Sparkasse Aschaffenburg
Postbank Frankfurt
Dresdner Bank AG
Deutsche Bank AG

Account numbers

31 5	BLZ 795 500 00
40 00 16 06	BLZ 500 100 60
30 99 40 40 0	BLZ 790 800 52
01 05 61 9	BLZ 508 700 05

IBAN

DE91 7955 0000 0000 0003 15
DE71 5001 0060 0040 0016 06
DE63 7908 0052 0309 9404 00
DE49 5087 0005 0010 5619 00

SWIFT-BIC

BYLA DE M1 ASA
PBNK DE FF
DRES DE FF 790
DEUT DE FF 508