



Materials

According to the high requirements of chemical analyses, especially with regard to reproducibility combined with high detection sensitivity, the container material for the respective samples is of great importance. In general, for this purpose vials made from glass are used. The hydrolytic resistance of the glass can be taken as a measure for its chemical inertness. Determination of the hydrolytic resistance and the resulting classification of a glass grade are governed by the German and international industrial standard DIN 12111 / ISO 719. Glass grades are classified in hydrolytic classes. We supply vials from the following classes:

1st hydrolytic class

Glass grades made from borosilicate, such as Duran®, Pyrex®, Fiolax® and others belong to this group. Glass of this class, which is often called neutral glass, has a very good chemical resistance towards acid and neutral solutions. The relatively low alkali content permits good values for the resistance towards alkaline solutions, too. If nothing else is stated, the vials of our programme are made from glass of the 1st hydrolytic class (manufactured in accordance with Eu.Ph. III Ed., U.S.P. XXIV Ed., DAB-10, Ph. Jap. 13).

3rd hydrolytic class, AR glass

Glass of this class, also called soft glass or lime soda glass, has a medium hydrolytic resistance. For long-time storage of aqueous and especially alkaline-aqueous samples (for example to use them repeatedly) it is not recommended. Nevertheless, it can be used for many analytical applications.

Physical properties of glass grades

Parameter	1 st hydrolytic class	3 rd hydrolytic class
density	2.64	2.5
thermal coefficient of linear expansion (K ⁻¹)	$60 \cdot 10^{-7}$	$85 \cdot 10^{-7}$
quenching stability (ΔT in K) according to DIN 52321	60	42
internal pressure resistance (bar) according to DIN 52320	at least 6	at least 6

We supply the following types of sample bottles:

- ✦ vials with crimp top and corresponding caps (page 65)
- ✦ special vials with special caps (page 75)
- ✦ screw thread vials and screw caps (page 76)
- ✦ sealing disks for individual combinations of cap and seal

Except for a few frequently used combi packs, vials and caps can be ordered separately, thus allowing a wide range of possible combinations.

Advantages of the DIN crimp top:

Crimp top vials are available with 3 different rim heights: 3 mm, DIN crimp top with 3.6 mm and 4 mm. When using only one crimper, tedious adjustments for the different heights are necessary. The standardized DIN crimp top avoids this problem. The rim height acc. to DIN 58366 should be 3.6 ± 0.2 mm. We supply vials with DIN crimp top for volumes above 5 ml.

Temperature stability of sealing disks and plastic caps

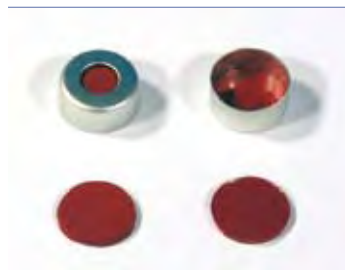
shaped butyl rubber disks, centre coated with PTFE	120 °C (–40 °C)
butyl rubber	190 °C (–30 °C)
silicone rubber	200 °C (–60 °C)
PTFE	250 °C
PE (polyethylene)	80 °C
PP (polypropylene)	120 – 130 °C
Allowable variation for the thickness of sealing disks is ± 0.25 mm.	

Except where explicitly mentioned, caps with sealing disks are supplied assembled, i.e. ready-to-use. Seals below the caps are shown for illustration purposes only, and they are pictured upside down.

All drawings in this chapter are scale 1:2.



Crimp top vials N 11-1



Crimp caps N 11



Screw thread vials N 8-1



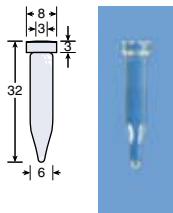
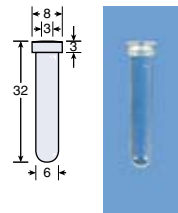
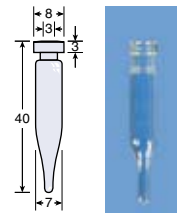
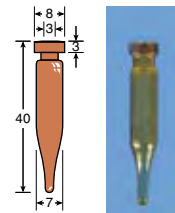
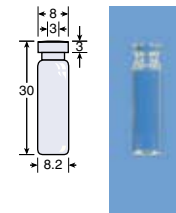
Screw caps N 8 with sealing disks



Crimp top vials and caps

- **Vials with crimp top** are injection bottles with rim diameters of 8, 11, 13 or 20 mm which can be closed with crimp caps or PE caps (PE caps only for 11 and 20 mm rim diameter).
- **Vials with snap ring design** with 11 mm rim diameter may be closed with PE snap-on caps or crimp caps.
- **Conic vials** are vials with tapered inner shape for small sample volumes, which can be closed with crimp caps or PE caps.
- **Micro inserts** are used to reduce the volume of standard sample vials for application with very small sample volumes. Vials are closed as usual. As an alternative for small volumes you may use the sample vials with conic inner shape (conic vials).
- **Crimp caps** can be used for crimp top vials or vials with snap ring design. They are available with or without sealing disks, with centre hole, tear-off middle seal and as tear-off caps. Caps with centre hole are made from aluminium, aluminium with steel insert or steel. The two latter are magnetic.
- **PE caps** are also used for crimp top vials, while **snap-on caps** are used for vials with snap ring design.
- Additionally we offer a versatile range of **sealing disks** for crimp caps, PE caps and snap-on caps.

Ordering information

Designation	Dimensions (all drawings scale 1:2)				Pack of	Cat. No.
Vials N 8 with crimp top						
	net volume	rim diameter	height	OD x height		
N 8-02, conic, clear	0.3 ml	8 mm	3 mm	6 x 32 mm	100	70286
N 8-03, clear, round bottom	0.3 ml	8 mm	3 mm	6 x 32 mm	100	70282
N 8-07, conic, clear	0.7 ml	8 mm	3 mm	7 x 40 mm	100	70212
N 8-07, conic, amber	0.7 ml	8 mm	3 mm	7 x 40 mm	100	70212.1
N 8-08, clear	0.8 ml	8 mm	3 mm	8.2 x 30 mm	100	70251
 N 8-02 70286  N 8-03 70282  N 8-07 70212  N 8-07 70212.1  N 8-08 70251						
Aluminium crimp caps N 8 with centre hole, with or without sealing disks						
	hole diameter	material	sealing disk	thickness	hardness	
N 8 TB/oA-4 aluminium coloured	4 mm	butyl rubber red / PTFE colourless		0.9 mm	45 shore	100 70252.1
N 8 TS/oA aluminium coloured	4 mm	silicone rubber white / PTFE red		1.3 mm	45 shore	100 70289
N 8 T/oA aluminium coloured	4 mm	PTFE white		0.25 mm	53 shore	100 70283
N 8 aluminium coloured	4 mm	without sealing disk		-	-	100 702800
 70252.1  70289  70283  702800						
Sealing disks N 8						
material	drawing	OD	thickness	hardness		
N 8 butyl rubber red / PTFE colourless		8 mm	1.3 mm	60 shore	100	70246
N 8 butyl rubber beige / PTFE grey		8 mm	1.3 mm	55 shore	100	70247
N 8 silicone rubber white / PTFE red		8 mm	1.3 mm	35 shore	100	70248
N 8 silicone rubber white / PTFE blue, slotted		8 mm	1.0 mm	55 shore	100	702481
N 8 PTFE white		8 mm	0.25 mm	53 shore	100	70261



Crimp top vials and caps N 11

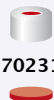
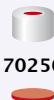
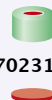
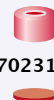
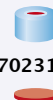
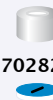
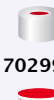
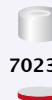
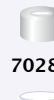
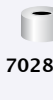
Designation	Dimensions (all drawings scale 1:2)			Pack of	Cat. No.
Vials N 11 with crimp top					
for nearly all autosamplers, for detailed compatibility see pages 80 – 83					
	net volume	rim diameter	height	OD x height	
N 11-01, integrated micro insert and label area and scale	0.2 ml	11 mm	3 mm	11.5 x 32.5 mm	1 702891
N 11-15, integrated micro insert 15 µl / 1 ml, wide opening	0.015 / 1 ml	11 mm	3 mm	11.5 x 32.5 mm	100 702888
N 11-03 PP with integrated micro insert, polypropylene	0.3 ml	11 mm	3 mm	11.5 x 32.3 mm	100 702809
N 11-03 conic, clear, reaction vial	0.15 ml	11 mm	3.5 mm	11.8 x 31.7 mm	1 702250
N 11-1 C, conic, clear	1 ml	11 mm	3 mm	11.5 x 32.5 mm	100 702141
N 11-1, clear	1.5 ml	11 mm	3 mm	11.5 x 32.5 mm	100 70201
N 11-1, amber	1.5 ml	11 mm	3 mm	11.5 x 32.5 mm	100 70214
N 11-1 CG, clear	1.5 ml	11 mm	3 mm	11.5 x 32.5 mm	100 70201 CG
N 11-1 CG, amber	1.5 ml	11 mm	3 mm	11.5 x 32.5 mm	100 70214 CG
Micro inserts for N 11-1 and N 11-1 CG, with mounted PP springs	0.25 ml	–	–	5 x 29 mm	100 702824
Micro inserts for N 11-1 standard, clear	0.25 ml	–	–	5 x 30 mm	100 702968.1
Micro inserts for N 11-1, strongly tapered	0.2 ml	–	–	5 x 30 mm	100 702968
Springs for micro inserts 5 x 30 mm	–	–	–	–	100 702974.1
N 11-1 HP, clear, wide opening	1.5 ml	11 mm	3 mm	11.6 x 32 mm	100 70201 HP
N 11-1 HP, clear, with label area and scale, wide opening	1.5 ml	11 mm	3 mm	11.6 x 32 mm	100 702885
N 11-1 HP, amber, with label area and scale, wide opening	1.5 ml	11 mm	3 mm	11.6 x 32 mm	100 702892
Micro inserts for N 11-1 HP, strongly tapered	0.2 ml	–	–	5.5 x 30 mm	100 702813
Micro inserts for N 11-1 HP, with mounted PP springs	0.25 ml	–	–	5.5 x 29 mm	100 702818
N 11-01 702891 N 11-15 702888 N 11-03 PP 702809 N 11-03 702250 N 11-1 C 702141 N 11-1 70201 N 11-1 70214 N 11-1 CG 70201 CG N 11-1 CG 70214 CG N 11-1 HP 70201 HP N 11-1 HP 702885 N 11-1 HP 702892					
Micro inserts for vials N 11-1					
702813 702818 702824 702968.1 702968 702974.1					

Crimp top vials and caps N 11



Designation	Dimensions (all drawings scale 1:2)	Pack of	Cat. No.
Combi packs of crimp top vials and caps N 11, with sealing disks assembled			
Combi pack vials N 11-1 HP, clear + aluminium crimp caps N 11 TB/oA-1.0 with centre hole, sealing disks butyl rubber red / PTFE colourless		1000 each	702842
Combi pack vials N 11-1 HP, clear + aluminium crimp caps N 11 TS/oA with centre hole, sealing disks silicone rubber white / PTFE red		1000 each	702843

Crimp caps N 11 with centre hole

	hole diameter	material	sealing disk thickness	hardness		
Aluminium crimp caps with or without sealing disks (caps with sealing disks are assembled)						
N 11 TB/oA aluminium coloured	5.6 mm	butyl rubber red / PTFE colourless	1.3 mm	45 shore	100	70231
N 11 TB/oA-0.9 aluminium coloured	5.6 mm	butyl rubber red / PTFE colourless	0.9 mm	45 shore	100	70256
N 11 TB/oA green	5.6 mm	butyl rubber red / PTFE colourless	0.9 mm	45 shore	100	70231.1
N 11 TB/oA red	5.6 mm	butyl rubber red / PTFE colourless	0.9 mm	45 shore	100	70231.2
N 11 TB/oA blue	5.6 mm	butyl rubber red / PTFE colourless	0.9 mm	45 shore	100	70231.3
N 11 TS/oA aluminium coloured	5.6 mm	silicone rubber white / PTFE red	1.3 mm	35 shore	100	70288
N 11 TS/oAKS aluminium coloured	5.6 mm	silicone rubber white / PTFE blue, slotted	1.5 mm	55 shore	100	702823
N 11 TST/oA aluminium coloured	5.6 mm	PTFE red / silicone rubber white / PTFE red	1.0 mm	45 shore	100	702995
N 11 TBT/oA aluminium coloured	5.6 mm	PTFE light grey / butyl rubber red / PTFE light grey	1.3 mm	55 shore	100	70239
N 11 T/oA aluminium coloured	5.6 mm	PTFE white	0.25 mm	53 shore	100	70284
N 11 aluminium coloured	5.6 mm	without sealing disk	-	-	100	702801
Steel crimp caps with sealing disks, assembled						
N 11 TS/oA-M magnetic	5 mm	silicone rubber white / PTFE red	1.3 mm	45 shore	100	702879
           						

PE caps (caps with sealing disks are not assembled)

without centre hole, blue, thin piercing area, for N 11 crimp top vials

N 11	NEW!	-	-	-	100	702401
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with centre hole for vials N 11 with 3 mm rim

N 11 TB/oA	4.5 mm	butyl rubber beige / PTFE grey	1.3 mm	55 shore	100	70241
N 11	4.5 mm	-	-	-	100	70265



702401



70241



70265

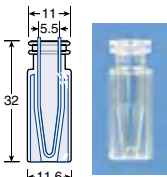
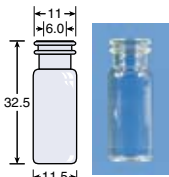
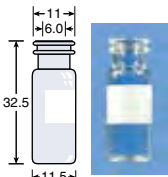
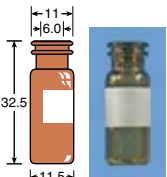
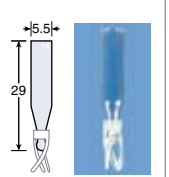
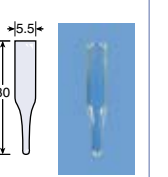
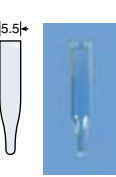
Sealing disks N 11

material	drawing	OD	thickness	hardness	
N 11 natural rubber red / PTFE colourless		11 mm	1.3 mm	60 shore	100 702903
N 11 butyl rubber beige / PTFE grey		11 mm	1.3 mm	55 shore	100 70268
N 11 silicone rubber white / PTFE red		11 mm	1.3 mm	35 shore	100 70263
N 11 PTFE red / silicone rubber white / PTFE red		11 mm	1.3 mm	45 shore	100 70264
N 11 PTFE white		11 mm	0.25 mm	53 shore	100 70262

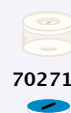
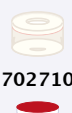


Snap ring vials and caps N 11

Designation	Dimensions (all drawings scale 1:2)				Pack of	Cat. No.
Vials N 11 with snap ring design						
	net volume	rim diameter	height	OD x height		
N 11-1, TPX with glass micro insert 0.2 ml, clear, wide opening NEW!	0.2 ml	11 mm	–	11.6 x 32 mm	100	702708
N 11-1, clear, wide opening	1.5 ml	11 mm	–	11.5 x 32.5 mm	100	702714
N 11-1, clear, wide opening, with label area	1.5 ml	11 mm	–	11.5 x 32.5 mm	100	702713
N 11-1, amber, wide opening, with label area	1.5 ml	11 mm	–	11.5 x 32.5 mm	100	702712
Micro inserts for snap ring vials N 11, with mounted PP springs	0.25 ml	–	–	5.5 x 29 mm	100	702818
Micro inserts for snap ring vials 15 mm tip, strongly tapered	0.2 ml	–	–	5.5 x 30 mm	100	702715
Micro inserts for snap ring vials, 12 mm tip	0.25 ml	–	–	5.5 x 30 mm	100	702716

						
N 11-1 TPX 702708	N 11-1 702714	N 11-1 702713	N 11-1 702712	micro insert 702818	micro insert 702715	micro insert 702716

Snap ring caps						
	hole diameter	material	sealing disk thickness	hardness		
N 11 with centre hole	6 mm	natural rubber orange red / PTFE colourless	1.0 mm	60 shore	100	702711
N 11 with centre hole	6 mm	silicone rubber white / PTFE red	1.3 mm	45 shore	100	702710
N 11 with centre hole	6 mm	PTFE red / silicone rubber white / PTFE red	1.0 mm	45 shore	100	702718
N 11 with centre hole	6 mm	silicone rubber white / PTFE blue, slotted	1.0 mm	55 shore	100	702717

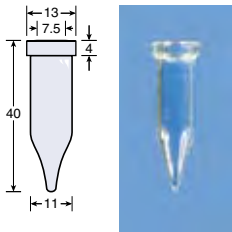


Vials N 11 with snap ring design can also be used with N 11 crimp caps (see previous page)

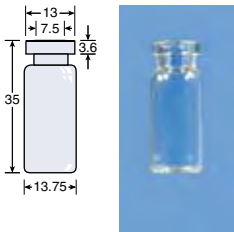
Crimp top vials and caps N 13



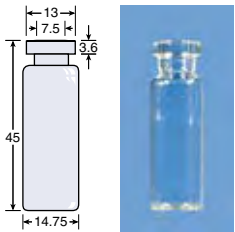
Designation	Dimensions (all drawings scale 1:2)			Pack of	Cat. No.
Vials N 13 with crimp top					
	net volume	rim diameter	height	OD x height	
N 13-1 TK, clear	1 ml	13 mm	4 mm	11 x 40 mm	100 70255
N 13-2, clear	2 ml	13 mm	3.6 mm	13.75 x 35 mm	100 70203
N 13-4, clear	4 ml	13 mm	3.6 mm	14.75 x 45 mm	100 70253
N 13-4 TK, clear	2 ml	13 mm	4 mm	11 x 43 mm	100 70258



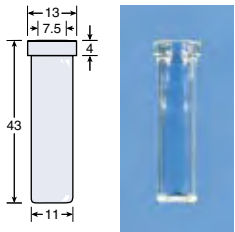
N 13-1 TK
70255



N 13-2
70203



N 13-4
70253



N 13-4 TK
70258

Crimp caps N 13						
	hole diameter	material	sealing disk	thickness	hardness	
Aluminium crimp caps with centre hole, with or without sealing disks						
N 13 TB/oA aluminium coloured	6 mm	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		2 mm	50 shore	100 70257
N 13 aluminium coloured	6 mm	without sealing disk · use sealing disks N 12		-	-	100 702802
Aluminium crimp caps with tear-off middle seal						
N 13 TB gold coloured	-	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		2 mm	50 shore	100 70232
N 13 gold coloured	-	without sealing disk · use sealing disks N 12		-	-	100 702803
Stoppers N 13						
Bromobutyl rubber stoppers N 13 grey					45 shore	100 702820

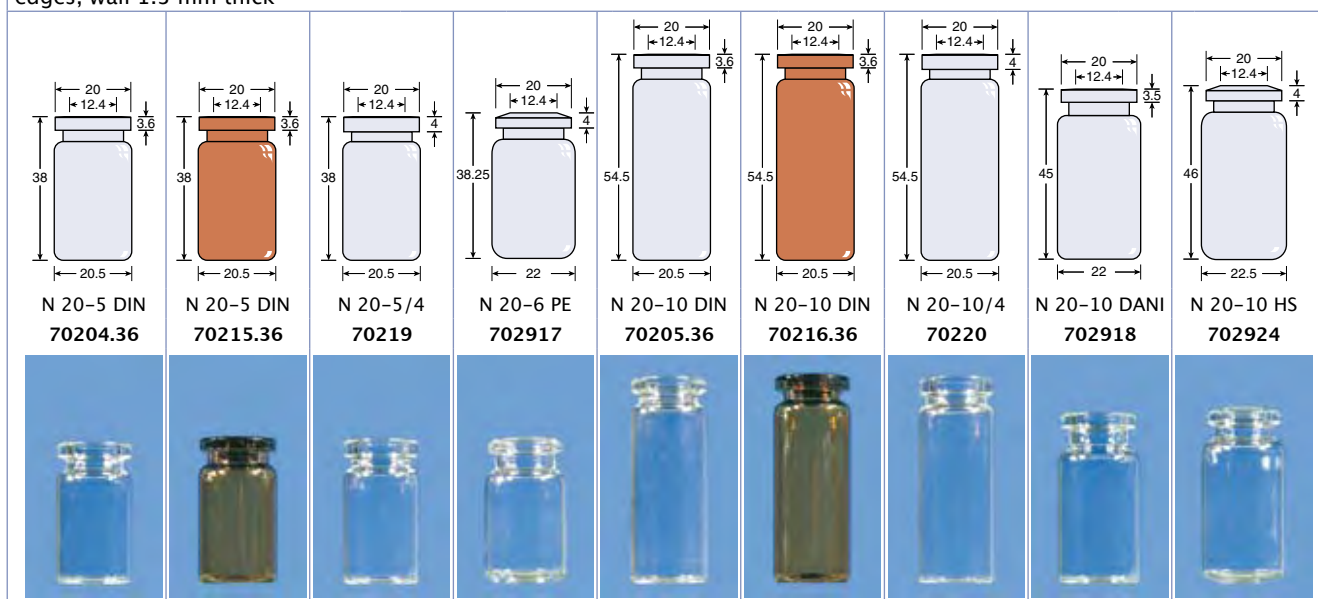
70257	702802	70232	702803	702820

Sealing disks for crimp caps N 13						
material	drawing	OD	thickness	hardness		
N 12 PTFE white		12 mm	0.25 mm	53 shore	100	70260
N 12 natural rubber orange red / PTFE colourless		12 mm	1.3 mm	60 shore	100	702967



Crimp top vials N 20

Designation	Dimensions (all drawings scale 1:2)				Pack of	Cat. No.
Vials N 20 with crimp top (volume 5, 6 and 10 ml)						
	net volume	rim diameter	height	OD x height		
N 20-5 DIN, clear	5 ml	20 mm	3.6 mm	20.5 x 38 mm	100	70204.36
N 20-5 DIN, amber	5 ml	20 mm	3.6 mm	20.5 x 38 mm	100	70215.36
N 20-5/4, clear	5 ml	20 mm	4 mm	20.5 x 38 mm	100	70219
N 20-6 PE, clear, conic rim, rounded bottom edges	6 ml	20 mm	4 mm	22 x 38.25 mm	100	702917
N 20-10 DIN, clear	10 ml	20 mm	3.6 mm	20.5 x 54.5 mm	100	70205.36
N 20-10 DIN, amber	10 ml	20 mm	3.6 mm	20.5 x 54.5 mm	100	70216.36
N 20-10/4, clear	10 ml	20 mm	4 mm	20.5 x 54.5 mm	100	70220
N 20-10 DANI, clear	10 ml	20 mm	3.5 mm	22 x 45 mm	100	702918
N 20-10 HS, conic rim, rounded bottom edges, wall 1.3 mm thick	10 ml	20 mm	4 mm	22.5 x 46 mm	100	702924



Vials N 20 with crimp top (volume 20 ml)					
	net volume	rim diameter	height	OD x height	
N 20-20, clear	20 ml	20 mm	3 mm	23.25 x 75.5 mm	100 70206
N 20-20 DIN, clear	20 ml	20 mm	3.6 mm	23.25 x 75.5 mm	100 70206.36
N 20-20 DIN, amber	20 ml	20 mm	3.6 mm	23.25 x 75.5 mm	100 70217.36
N 20-20/4, clear	20 ml	20 mm	4 mm	23.25 x 75.5 mm	100 70226
N 20-20 HS, clear, wall 0.95 mm thick	20 ml	20 mm	4 mm	23.25 x 75.5 mm	100 70207
N 20-20 R, clear, rounded bottom edges, wall 1.0 mm thick	20 ml	20 mm	4 mm	23.25 x 75.5 mm	100 70218
N 20-20 PE, clear, conic rim, rounded bottom edges for PE autosamplers, wall 1.2 mm thick	20 ml	20 mm	4 mm	23 x 75.5 mm	100 70254
N 20-20 DANI, clear, conic rim, rounded bot- tom for PE/CTC autosamplers, wall 1.2 mm thick	20 ml	20 mm	4 mm	22 x 75 mm	100 702261
N 20-20 HP/CTC, clear, flat crimp top, long neck, rounded bottom for PE/CTC and HP autosamplers, wall 1.2 mm thick	20 ml	20 mm	3.6 mm	22 x 75.5 mm	100 702263

Crimp top vials N 20



Designation	Dimensions (all drawings scale 1:2)							Pack of	Cat. No.
N 20-20 70206	N 20-20 DIN 70206.36	N 20-20 DIN 70217.36	N 20-20/4 70226	N 20-20 HS 70207	N 20-20 R 70218	N 20-20 PE 70254	N 20-20 DANI 702261	N 20-20 HP / CTC 702263	

Vials N 20 with crimp top (volume 25, 50 and 100 ml)						
	net volume	rim diameter	height	OD x height		
N 20-25 DIN, clear	25 ml	20 mm	3.6 mm	30 x 65 mm	100	70210.36
N 20-50 DIN, clear	50 ml	20 mm	3.6 mm	31 x 101 mm	100	70208.36
N 20-100 DIN, clear (3 rd hydrolytic class)	100 ml	20 mm	3.6 mm	52 x 95 mm	88	70209.1

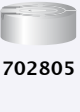
N 20-25 DIN 70210.36	N 20-50 DIN 70208.36	N 20-100 DIN 70209.1
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Crimp caps N 20

Designation	Dimensions (all drawings scale 1:2)					Pack of	Cat. No.
Crimp caps N 20							
	hole diameter	material	sealing disk	thickness	hardness		
Aluminium crimp caps with centre hole, with or without sealing disks							
N 20 TB/oA aluminium coloured	10 mm	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		3 mm	50 shore	100	70234
N 20 TB/oA aluminium coloured	10 mm	butyl rubber red / PTFE grey		3 mm	55 shore	100	702773
N 20 TB/oA-F aluminium coloured	10 mm	shaped butyl rubber disk grey / PTFE dark grey		3 mm	50 shore	100	70234.9
N 20 B/oA aluminium coloured	10 mm	butyl rubber stopper grey, not assembled		–	37 shore	100	70237
N 20 TS/oA aluminium coloured	10 mm	silicone rubber blue / PTFE colourless		3 mm	40 shore	100	702817
N 20 TS/oA aluminium coloured	10 mm	silicone rubber cream / PTFE grey		3 mm	60 shore	100	702815
N 20 aluminium coloured	10 mm	without sealing disk		–	–	100	702804
 70234  702773  70234.9  70237  702817 NEW!  702815  702804							

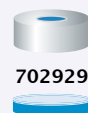
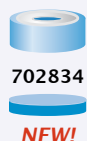
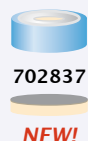
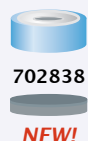
Aluminium crimp caps with centre hole, special perforation for burst protection, with sealing disks						
N 20 TB/HS aluminium coloured	8 mm	shaped butyl rubber disk grey / PTFE grey		3 mm	50 shore	100 70234.8
N 20 TB/HS aluminium coloured	8 mm	butyl rubber red / PTFE grey		3 mm	55 shore	100 702836
N 20 TS/HS aluminium coloured	8 mm	silicone rubber blue / PTFE white		3 mm	45 shore	100 702927
N 20 TS/HS aluminium coloured	8 mm	silicone rubber cream / PTFE grey		3 mm	60 shore	100 702835
   						

Aluminium crimp caps with tear-off middle seal, with or without sealing disks						
N 20 TB gold coloured	-	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		3 mm	50 shore	100 70233
N 20 B aluminium coloured	-	butyl rubber stopper grey, not assembled		-	37 shore	100 70236
N 20 gold coloured	-	without sealing disk		-	-	100 702806
Aluminium tear-off crimp caps, with or without sealing disks						
N 20 TB/mE aluminium coloured	-	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		3 mm	50 shore	100 70235
N 20 B/mE aluminium coloured	-	butyl rubber stopper grey, not assembled		-	37 shore	100 70238
N 20 aluminium coloured	-	without sealing disk		-	-	100 702805
     						

Aluminium crimp caps with centre hole, blue, with steel insert, magnetic, with sealing disks						
N 20 TB/oA ASM bimetal, magnetic	8 mm	butyl rubber grey / PTFE grey		3 mm	50 shore	100 702838
N 20 TS/oA ASM bimetal, magnetic	8 mm	silicone rubber cream / PTFE grey		3 mm	60 shore	100 702837
N 20 TS/oA ASM bimetal, magnetic	8 mm	silicone rubber blue / PTFE colourless		3 mm	40 shore	100 702834



Designation	Dimensions (all drawings scale 1:2)				Pack of	Cat. No.
	hole diameter	material	sealing disk	thickness	hardness	
Steel crimp caps N 20 with centre hole, magnetic, with sealing disks						
N 20 TB/oA-M magnetic	8 mm	shaped butyl rubber disk grey / PTFE grey		3 mm	50 shore	100 702928
N 20 TB/oA-M magnetic	8 mm	shaped butyl rubber disk dark grey / centre coated with PTFE light grey		3 mm	50 shore	100 702928.9
N 20 TB/oA-M magnetic	8 mm	butyl rubber red / PTFE grey		3 mm	55 shore	100 702774
N 20 TS/oA-M magnetic	8 mm	silicone rubber blue / PTFE white		3 mm	45 shore	100 702929

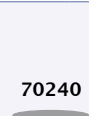
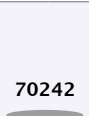


Sealing disks for crimp caps N 20

Material	Drawing	OD	Thickness	Hardness		
N 20 B, butyl rubber red		20 mm	3 mm	55 shore	100	70276
N 20 B/PTFE, butyl rubber red / PTFE grey		20 mm	3 mm	55 shore	100	70277
N 20 S/PTFE, silicone rubber cream / PTFE grey		20 mm	3 mm	60 shore	100	70278
N 20 S/ALU, silicone rubber white, aluminium coated		20 mm	3 mm	50 shore	100	70279
N 20 TB, shaped butyl rubber disk dark grey, centre coated with PTFE light grey		20 mm	3 mm	50 shore	100	702D20TB

PE caps N 20 (for caps with sealing disks: disks are not assembled)

	Hole diameter	Material	Sealing disk	Thickness	Hardness		
with centre hole for vials N 20 with 3 mm rim							
N 20 TB/oA	4.3 mm	butyl rubber beige / PTFE grey		1.3 mm	55 shore	100	70242
N 20	4.3 mm	-		-	-	100	70266
with centre hole for vials N 20 with 4 mm rim							
N 20 TB/oA-4	4.3 mm	butyl rubber beige / PTFE grey		1.3 mm	55 shore	100	70240
N 20-4	4.3 mm	-		-	-	100	70267



Sealing disks for PE caps N 20

material	drawing	OD	thickness	hardness		
N 20 butyl rubber beige / PTFE grey		20 mm	1.3 mm	55 shore	100	70269
N 20 natural rubber red / PTFE colourless		20 mm	1.3 mm	45 shore	100	702904

Stoppers N 20

Rubber stoppers N 20 light grey	37 shore	100	702931
Bromobutyl rubber stoppers N 20 red	45 shore	100	702931.1
Rubber stoppers N 20, for freeze-drying	37 shore	100	702N20 GT



702931



702931.1



702N20 GT



Crimpers and opening pliers

Manual crimpers and opening pliers

For tightly closing crimp top vials manually, you need an appropriate crimper, for opening the corresponding opening pliers are used. If you have e.g. sample vials with 20 mm rim diameter and the proper crimp caps (e.g. N 20 TB/oA), you can use crimpers N 20 and opening pliers N 20 OE. The crimpers listed below can be adjusted to the respective rim height with the aid of a hexagonal key (except for the N8 crimper).



Ordering information

Designation	Pack of	Cat. No.
Hand crimpers for crimp top vials		
N 8 for crimp caps with 8 mm ID	1	735126
N 11 for crimp caps with 11 mm ID	1	735111
N 13 for crimp caps with 13 mm ID	1	735113
N 20 for crimp caps with 20 mm ID	1	735120

Designation	Pack of	Cat. No.
Opening pliers for crimp top vials		
N 8 OE for crimp caps with 8 mm ID	1	735408
N 11 OE for crimp caps with 11 mm ID	1	735911
N 13 OE for crimp caps with 13 mm ID	1	735913
N 20 OE for crimp caps with 20 mm ID	1	735920

Pneumatic crimpers and opening devices

- for more convenient operation
- available for manual or pedal operation

Pneumatic crimpers consist of a pneumatic unit, for either manual or pedal operation, and a crimping head or opening head. Connection to pressurized air or gas (6 bar min.) is accomplished via DN-5 quick-connects for 4 x 6 mm tubing. The type of crimping or opening head depends on the diameter of the crimp caps. Crimping and opening heads are exchangeable, both pneumatic units and crimping / opening heads can be ordered separately.



Ordering information

Designation	Pack of	Cat. No.
Pneumatic crimpers with crimping head for crimp top vials		
N 11 H, complete, for manual control	1	735114
N 20 H, complete, for manual control	1	735116
N 11 F, complete, for pedal control	1	735117
N 20 F, complete, for pedal control	1	735119

Designation	Pack of	Cat. No.
Crimping heads without pneumatic unit		
N 11	1	735121
N 20	1	735123

Designation	Pack of	Cat. No.
Opening heads without pneumatic unit		
N 8 OE	1	735308.1
N 11 OE	1	735434.1
N 20 OE	1	735139

Pneumatic units without crimping heads		
for manual control	1	735124
for pedal control	1	735125



Special vials

- 🔸 **Vials without crimp top, not threaded**, which are closed with special plastic stoppers (for Waters WISP autosamplers)
- 🔸 **Vials for snap-on caps** are sample vials made from clear AR glass (3rd hydrolytic class), which may be closed with polyethylene snap-on caps
- 🔸 The corresponding **polyethylene snap-on caps** and **plastic stoppers** do not require sealing disks.

Ordering information

Designation	Dimensions		Pack of	Cat. No.
Vials N 8 without crimp top				
	Net volume	OD x height		
N 8-1.2 W, clear	1.2 ml	8.2 x 40 mm	100	70202.1
Plastic stoppers N 8				
Plastic stopper N 8 – colourless for N 8-1.2 W			100	702807
8.2 40 N 8-1.2 W 70202.1 702807				

Vials for snap-on caps (AR glass)

	Net volume	OD x height		
N 18-5, clear	7.5 ml	20 x 40 mm	100	70271
N 18-10, clear	10 ml	22 x 45 mm	100	70272
N 22-25, clear	25 ml	26 x 65 mm	100	70273
N 18-5 70271 N 18-10 70272 N 22-25 70273				

Polyethylene snap-on caps

N 18 for vials N 18-5 and 18-10	100	70274
N 22 for vials N 22-25	100	70275
70274 70275		



Screw thread vials and screw caps

Screw thread vials and screw caps

- **Vials with screw threads** (threaded vials) are available in sizes N 8, N 9, N 12, N 13 and N 18. They feature a threaded rim for screw caps.
- **Conic vials with screw threads and thick glass walls** are micro reaction vials with tapered inner shape for small sample volumes, which are also closed with screw caps.
- **Micro inserts** are used to reduce the volume of standard sample vials for application with very small sample volumes. Vials are closed as usual. As an alternative for small volumes you may use the sample vials with conic inner shape (conic vials).
- **Screw caps** for threaded vials are available with or without sealing disks and with or without centre hole.
- Additionally we offer a versatile range of **sealing disks** for screw caps.

Ordering information

Designation	Dimensions		Pack of Cat. No.	
Vials N 8, threaded (8–425 threads) e.g. for autosamplers of CTC, VWR (Merck) / Hitachi, Shimadzu, Spark, Thermo, Varian				
	Net volume	OD x height		
N 8–1, clear	1.5 ml	11.5 x 32.5 mm	100	70213
N 8–1, amber	1.5 ml	11.5 x 32.5 mm	100	70213.2
N 8–1, amber, with label area and scale	1.5 ml	11.5 x 32.5 mm	100	702893
Micro inserts for N 8–1, with mounted PP springs	0.25 ml	5 x 29 mm	100	702824
Micro inserts for N 8–1, standard, clear	0.25 ml	5 x 30 mm	100	702968.1
Micro inserts for N 8–1, strongly tapered	0.2 ml	5 x 30 mm	100	702968
Springs for micro inserts 5 x 30 mm	–	–	100	702974.1
N 8–1 C, conic, clear	1.0 ml	11.5 x 32.5 mm	100	702860

 N 8–1 70213 	 N 8–1 70213.2 	 N 8–1 702893 	 N 8–1 C 702860 	 702824 	 702968.1 	 702968 	 702974.1
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Combi packs of screw thread vials and screw caps N 8 with sealing disks assembled

Combi pack vials N 8–1, clear + screw caps N 8, sealing disks natural rubber red/ PTFE colourless	1000 each 702844
Combi pack vials N 8–1, clear + screw caps N 8, sealing disks silicone rubber white / PTFE red	1000 each 702845

Screw thread vials and screw caps



Designation		Dimensions			Pack of		Cat. No.	
Screw caps N 8 (8-425 threads) with or without sealing disks								
	hole diameter	material	sealing disk	thickness	hardness			
N 8 with centre hole	5.5 mm	natural rubber orange red / PTFE colourless		1.3 mm	60 shore	100	702431	
N 8 with centre hole	5.5 mm	natural rubber red / PTFE colourless, not assembled		1.3 mm	60 shore	100	70243	
N 8 with centre hole	5.5 mm	butyl rubber beige / PTFE grey		1.3 mm	55 shore	100	70244.1	
N 8 with centre hole NEW!	5.5 mm	silicone rubber white / PTFE red, slotted		1.3 mm	35 shore	100	702437	
N 8 with centre hole	5.5 mm	silicone rubber white / PTFE red		1.3 mm	35 shore	100	70245	
N 8 with centre hole	5.5 mm	without sealing disk		-	-	100	70249	
N 8 without centre hole	-	without sealing disk		-	-	100	70250	
								
702431	70243	70244.1	702437	70245	70249	70250		
								

Sealing disks N 8							
material	drawing	OD	thickness	hardness			
N 8 natural rubber red / PTFE colourless		8 mm	1.3 mm	60 shore	100	70246	
N 8 butyl rubber beige / PTFE grey		8 mm	1.3 mm	55 shore	100	70247	
N 8 silicone rubber white / PTFE red		8 mm	1.3 mm	35 shore	100	70248	
N 8 silicone rubber white / PTFE blue, slotted		8 mm	1.0 mm	55 shore	100	702481	
N 8 PTFE white		8 mm	0.25 mm	53 shore	100	70261	

Vials N 9, threaded (short scale screw) e.g. for autosamplers of Agilent, Waters, CTC, Dionex, Thermo, Varian					
		net volume	OD x height		
N 9-1, clear, wide opening		1.5 ml	11.6 x 32 mm	100	702282
N 9-1, clear, silanised, wide opening	NEW!	1.5 ml	11.6 x 32 mm	100	702266
N 9-1, clear, with label area and scale, wide opening	NEW!	1.5 ml	11.6 x 32 mm	100	702283
N 9-1, amber, with label area and scale, wide opening		1.5 ml	11.6 x 32 mm	100	702284
Micro inserts for N 9-1, strongly tapered		0.2 ml	5.5 x 30 mm	100	702813
Micro inserts for N 9-1, with mounted PP springs		0.25 ml	5.5 x 29 mm	100	702818

N 9-1 702282	N 9-1 702266	N 9-1 702283	N 9-1 702284	702813	702818



Screw thread vials and screw caps

Designation		Dimensions			Pack of		Cat. No.	
Screw caps N 9 (short scale screw) with centre hole and sealing disks, assembled								
	hole diameter	material	sealing disk	thickness	hardness			
N 9, transparent	5.5 mm	natural rubber orange red / PTFE colourless		1.0 mm	60 shore	100	702285	
N 9, blue	5.5 mm	natural rubber red / PTFE colourless		1.0 mm	45 shore	100	702285.1	
N 9, transparent	5.5 mm	PTFE red / silicone rubber white / PTFE red		1.0 mm	45 shore	100	702286	
N 9, transparent	5.5 mm	silicone rubber white / PTFE red		1.0 mm	55 shore	100	702287	
N 9, blue	5.5 mm	silicone rubber white / PTFE red		1.3 mm	35 shore	100	702287.1	
N 9, transparent	5.5 mm	silicone rubber white / PTFE blue, slotted		1.0 mm	55 shore	100	702288	
N 9, blue	NEW!	5.5 mm	silicone rubber white / PTFE red, slotted	1.3 mm	35 shore	100	702288.1	
 702285  702285.1  702286  702287  702287.1  702288  702288.1								

Sealing disks N 9 acc. to VDI 3482, sheet 3

Material	Drawing	OD	Thickness	Hardness	
N 9 butyl rubber red / PTFE colourless		9	1.3	60 shore	100 70270

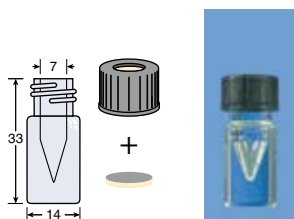
Micro reaction vials

Vials N 12 with conic inner shape, threaded, with screw caps (phenolic resin) and sealing disks

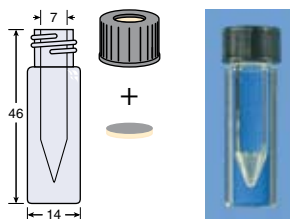
	Net volume	OD x height	
N 12-03 conic, clear	0.25 ml	14 x 33 mm	1 702210
N 12-1 conic, clear	0.75 ml	14 x 46 mm	1 702220

Screw caps N 12 for vials N 12-03 conic and N 12-1 conic, with sealing disks, not assembled

	Hole diameter	Material	Sealing disk	Thickness	Hardness	
N 12-SD	8.5 mm	butyl rubber beige / PTFE grey, not assembled		1.3 mm	55 shore	48 702270



N 12-03 conic
702210



N 12-1 conic
702220



N 12-SD
702270

Sealing disks N 12 for screw caps N 12-SD

Material	Drawing	OD	Thickness	Hardness	
N 12 butyl rubber beige / PTFE grey		12 mm	1.3 mm	55 shore	48 702290

Vials N 13, threaded

	Net volume	OD x height	
N 13-4 G, clear	4 ml	14.75 x 45 mm	100 702962
N 13-4 G, amber	4 ml	14.75 x 45 mm	100 702973
Micro inserts for vials N 13-4 G	0.3 ml	6 x 40 mm	100 702972
Springs for micro inserts 702972	-	-	100 702974



Designation	Dimensions		Pack of Cat. No.	
 N 13-4 G 702962		 N 13-4 G 702973		
	 micro insert 702972		 spring 702974	

Screw caps N 13 (13-425 threads) with or without sealing disks

	hole diameter	material	sealing disk	thickness	hardness	
N 13 with centre hole	8.5 mm	silicone rubber white / PTFE red		1.3 mm	35 shore	100 702926
N 13 with centre hole	8.5 mm	without sealing disks		-	-	100 702963
N 13 without centre hole	-	use sealing disks N 12 PTFE		-	-	100 702966
		 702926	 702963	 702966		

Sealing disks for screw caps N 13

material	drawing	OD	thickness	hardness	
N 12 PTFE white		12 mm	0.25 mm	53 shore	100 70260
N 12 butyl rubber red / PTFE colourless		12 mm	1.3 mm	60 shore	100 702967

Micro reaction vials

Vials N 18 with conic inner shape, threaded, with screw caps (phenolic resin) and sealing disks

	Net volume	OD x height	
N 18-3, clear	3 ml	20 x 47 mm	1 702230
N 18-5, clear	4.5 ml	20 x 59 mm	1 702240

Screw caps N 18 for vials N 18-3 conic and N 18-5 conic, with sealing disks, not assembled

hole diameter	material	sealing disk	thickness	hardness	
N 18-SD	12 mm butyl rubber beige / PTFE grey		1.3 mm	55 shore	48 702280
 N 18-3 conic 702230	 + 		 N 18-5 conic 702240	 + 	 702280

Sealing disks N 18 for screw caps N 18-SD

Material	Drawing	OD	Thickness	Hardness	
N 18 butyl rubber beige / PTFE grey		18 mm	1.3 mm	55 shore	48 702300



Autosampler compatibility of MN vials

A large number of our vials can also be used in automatic samplers. The table on the following pages shows, which types are suited for a given instrument. The list of autosamplers is by no means complete. At the same time we cannot consider technical changes recently introduced by the manufacturers of these instruments.

Vial size [mm]	6 x 32	7 x 40	8.2 x 30	8 x 40
Designation	N 8-03	N 8-07	N 8-08	N 8-1.2 W
Cat. No.				
Crimp top vials	70282	70212 70212.1	70251	
Screw thread vials				
Vials with snap-on caps				70202.1
Autosampler type				
Altex / Antek / A.I. 42 / AIM / Alcott 718, 719, 738				
Agilent 1100, 1048, 1090	x			
Agilent 1050, 1090, 1100, 5880, 5890, 6850, 6890, 7670A, 7671A, 7672, 7673A, 7673B, 7683				
Agilent Headspace, 19395 A, G 1888				
Agilent HS 7694				
Beckman 501, 502, 507	x			
Beckman 504		x		
Bruker LC 51				
Carlo Erba AS-V 42, 60, 105	x			
Carlo Erba A 200 / CTC AS 200 S		x		
Carlo Erba 60 tray AS-V 60			x	
Carlo Erba AS-V 42, 105, 550, 8000				
Carlo Erba Headspace HS 250, 500, 800				
Carlo Erba Headspace CTC 500				
CTC CombiPal		x		
CTC LC PAL / GC PAL / HTC PAL / HTS PAL / AS 200				
Dani, Dynatech PS 411 (42-tray)				
Dani HS 39.50, 86.50				
Dionex Gina 50, AS 50, ASI 100				
Dynatech (60-tray), LC 2000			x	
Finnigan A200S		x	x	
Fisons AS 800				
Fisons HS 500				
Fisons HS 850				
Gilson 231 / 232 / 401	x	x	x	
Gilson 231 / 232 / 235 / 401 / 402, Aspec				
Gynkotek Gina 50				
Hitachi / Merck AS-2000, AS4000, Lachrom L-2200, L-7200	x		x	
ICI LC 1600				
Infochroma / Jasco AS 2055 / 2057 / 2059				

Autosampler compatibility of MN vials



11.5 x 32.5 N 8-1, N 11-1 regular	11.5 x 32.5 N 9-1, N 11-1 wide neck	11 x 40 N 13-1 TK	14.75 x 45 N 13-4	22 x 38.5 N 20-6 PE	22.5 x 45 N 20-10 DANI	22.5 x 46 N 20-10 HS	N 20-20 PE	23 x 75.5 N 20-20 DANI + HP / CTC	23.25 x 75.5 N 20-20 R
70201 / CG 70214 702891 702809 702250	70201 HP 702885 702892 702888	70255	70253	702917	702918	702924	70254	702261 702263	70218
70213 70213.2 702893	702282 702283 702284 702712 702713 702714 702708 702266		702962 702973						
x	x								
x	x								
	x								
				x		x		x	
								x	
x	x								
			x						
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x	x								
x	x								
x	x								
x	x								
x	x								
x									
x	x								
x	x								

Vials and Accessories



Autosampler compatibility of MN vials

Vial size [mm]	6 x 32	7 x 40	8.2 x 30	8 x 40
Designation	N 8-03	N 8-07	N 8-08	N 8-1.2 W
Cat. No.				
Crimp top vials	70282	70212 70212.1	70251	
Screw thread vials				
Vials with snap-on caps				70202.1
Autosampler type				
Kontron 360, 460				
Kontron MSI 660, Promis				
LDC 713-60			x	
LDC Marathon				
Perkin-Elmer ISS-100, 200, Autosystem GC	x			
Perkin Elmer AS 100/300/2000B			x	
Perkin-Elmer AI-1, ISS-100, 200, LC 600 (42-tray), 420, 420B, 600, AS 100, 300, 2000B, 8300, 4710, 4900				
Perkin-Elmer Autosystem GC, Clarus 500				
Perkin Elmer Headspace HS 6, 40, ISS 100/200, Autosystem GC, Integral 4000				
Perkin Elmer Headspace F 40/45, HS 100, HS 110				
Pharmacia LKB 2157-010, 020		x		
Sedere				
Shimadzu SIL-2 AS, SIL-6A	x			
Shimadzu AOC 9/14/1400, SIL-6 A/6 B/9 A, LC 10A, SIL-6 B, LC-10A, AOC-14/1400				
Spark Promise/Midas/Triathlon/Marathon / Spectra Physics / Talbot				
Thermo AS 100, 1000, 2000, 3000, 3500, A 200LC				
Unicam LC-XP				
Varian Prostar 400, 410, 420, 430,				
Varian 8000, 8035, 8200, 8400, 8410				
Varian CP-910 / 911 / 912				
Varian LC 9090 / 9095 / 9100				
Varian Vista 8000				
Waters Acquity™				
Waters Alliance® 2690/2695, 2790/2795, HT				
Waters WISP™ (96-tray)				x
Waters WISP™ (48-tray)				

Vials and Accessories



Containers · Vials for doping control

Containers for vials

- available in 3 different sizes for small (N 8 to N 11), medium size (N 13) and large (N 20) sample vials
- suited for freezers
- stackable



Ordering information

Designation	Pack of	Cat. No.
81 positions, for vials N 8, N 9 and N 11, with integrated insert; size 130 x 130 x 45 mm, coded, incl. lid	1	702514
49 positions, for vials N 13, with integrated insert; size 130 x 130 x 50 mm, incl. lid	1	702515
25 positions, for vials N 20, with removable insert; size 130 x 130 x 80 mm, incl. lid	1	702516

Vials and crimp caps for doping control

- available in a polystyrene box with 12 sets or as separate units (vials, caps and boxes)
- allow protection from manipulation of doping samples



Ordering information

Designation	Pack of	Cat. No.
Vials N 20–100 with crimp top	88	70209.1
Safety crimp caps N 20 TB/Ü, aluminium, without hole, sealing disks lined with PTFE	100	70280
Vials N 20–100 with safety crimp caps N 20 TB/Ü and sealing disks lined with PTFE, sealed with UP caps	88 each	702V 005 UP
Polystyrene box for 12 vials N 20–100, empty	1 Box	702V leer 01
Polystyrene box with 12 vials N 20–100 and 12 safety crimp caps N 20 TB/Ü with sealing disks lined with PTFE	1 Box	702V 001
Polystyrene box with 12 vials N 20–100 and 12 safety crimp caps N 20 TB/Ü with sealing disks lined with PTFE, sealed with UP caps	1 Box	702V 001 UP