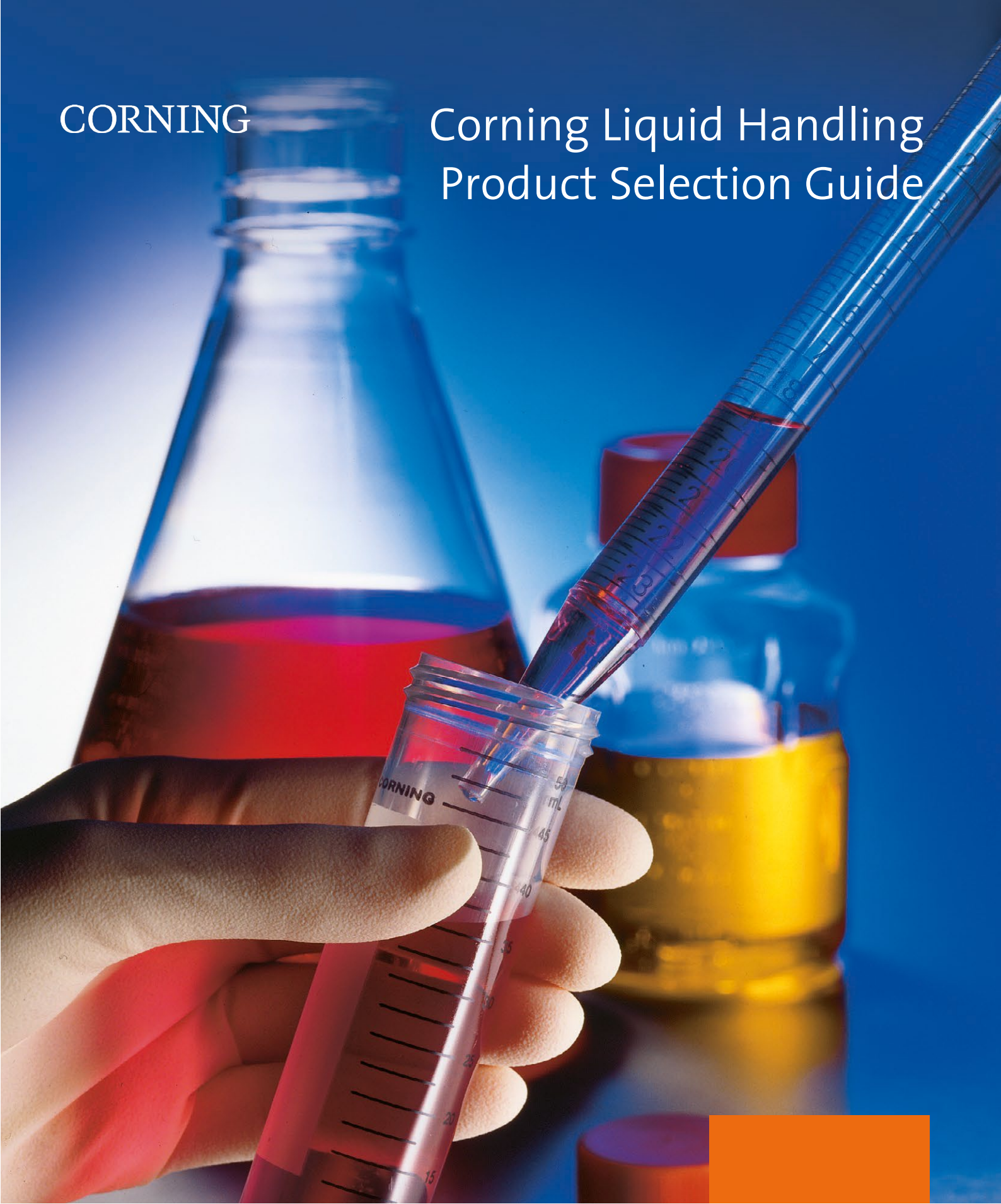


CORNING

Corning Liquid Handling Product Selection Guide



Find it at eu.fishersci.com

 **fisher scientific**
part of Thermo Fisher Scientific

Ordering Information

Ordering Products Direct

Corning products are manufactured by Mediatech, Inc., a Corning subsidiary. Corning products are available directly from Corning's European Distribution Center. To place your order call Customer Service:

France	Germany	The Netherlands	United Kingdom	All Other European Countries
t 0800 916 882	t 0800 101 1153	t +31 20 655 79 28	t 0800 376 8660	t +31 20 659 60 51
f 0800 918 636	f 0800 101 2427	f +31 20 659 76 73	f 0800 279 1117	f +31 20 659 76 73

Email direct: EUdirect@corning.com

Email distribution: EUdistrib@corning.com

Online: visit www.corning.com/lifesciences/media

Phone/Fax Online Orders

For each order, customers should provide the Corning product number, product description, and desired quantity. You should also include your billing and shipping address and your account number. To purchase Corning products online, visit www.corning.com/lifesciences/media.

Ordering Products Through our Distribution Partners

Customers can purchase Corning products from any one of our authorized distributors. See our complete listing of Corning distributors at:

www.corning.com/lifesciences/media

Our distribution partners can offer our customers a variety of value added services from local inventory and service, to managed services and preferred programs. Please contact your distributor of choice for more details.

Pricing

Prices shown on www.corning.com/lifesciences reflect our current suggested U.S. list price. For customer-specific pricing information, please contact your sales representative or your authorized distributor.

Scientific Support

Our experienced team of scientific support specialists are ready to assist you with applications questions, troubleshooting advice, product selection, and more.

For scientific support:

Email: ScientificSupportEMEA@corning.com

France

t 0800 916 882

Germany

t 0800 101 1153

The Netherlands

t +31 20 655 79 28

United Kingdom

t 0800 376 8660

All Other European Countries

t +31 20 659 60 51



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Overview

Designed For Performance

Corning Life Sciences offers a full line of liquid handling products that are manufactured under strict process controls for consistent product performance.

In addition, customers can request a Certificate of Quality at www.corning.com/lifesciences. This certificate details lot-specific information on component materials, sterility testing, and pyrogen testing. Also available are detailed product descriptions and drawings that highlight product dimensions and testing procedures. All are available simply by calling your local Corning Life Sciences office.

Nonpyrogenic Certification

Most Corning and Costar liquid handling products are certified nonpyrogenic with a documented endotoxin level of equal to or less than 0.1 EU/mL. Endotoxins have been shown to cause variability in cell culture. Nonpyrogenic certification is another way Corning helps ensure consistent cell culture results. Corning also offers a detailed technical bulletin on the effects of endotoxins in cell culture. This may be obtained by calling your local Corning Life Sciences office or by downloading the bulletin from the Corning website www.corning.com/lifesciences.

Pipets



Stripette™ Serological Pipets

- ▶ Manufactured and packaged with animal-free materials
- ▶ Sterile
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic
- ▶ Noncytotoxic
- ▶ Anti-drip tip assures accurate delivery.
- ▶ Color-coded magnifier stripes make volume reading and size selection easier.
- ▶ Bidirectional graduations provide choice of ascending and descending scales.
- ▶ Negative graduations allow additional working volume.
- ▶ Three packaging options:
 - Individually wrapped, paper/plastic
 - Individually wrapped, clear plastic
 - Bulk packed
- ▶ Volumetric accuracy of $\pm 2\%$ at stated capacity



Paper/plastic wrap



Clear plastic wrap



Bulk pack

Individually Wrapped, Paper/Plastic Wrap

Cat. No.	Capacity (mL)	Graduations (mL)	Negative Grads. (mL)	Color-coded Stripe	Qty/Pk	Qty/Cs
4485	1	1/100	0.2	Yellow	50	1,000
4486	2	1/100	0.2	Green	50	1,000
4487	5	1/10	2.5	Blue	50	200
4488	10	1/10	3.0	Orange	50	200
4489	25	2/10	10.0	Red	25	200
4490	50	1/2	10.0	Purple	25	100
4491	100	1	n/a	Aqua	10	100

Individually Wrapped, Clear Plastic Wrap

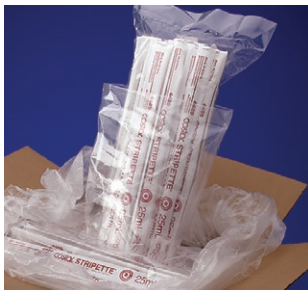
4011	1	1/100	0.2	Yellow	100	1,000
4012	1	1/100	0.2	Yellow	100	200
4021	2	1/100	0.2	Green	100	1,000
4051	5	1/10	2.5	Blue	50	200
4101	10	1/10	3.0	Orange	50	200
4492*	10	1/10	3.0	Orange	50	200
4251	25	2/10	10.0	Red	50	200
4501	50	1/2	10.0	Purple	25	100
4484	100	1	n/a	Aqua	10	100

Bulk Packed in Bags

4010	1	1/100	0.2	Yellow	50	1,000
4020	2	1/100	0.2	Green	50	1,000
4050	5	1/10	2.5	Blue	50	500
4100	10	1/10	3.0	Orange	50	500
4250	25	2/10	10.0	Red	25	200
4500	50	1/2	10.0	Purple	25	100

*Cat. No. 4492 features a wide tip for handling viscous fluids.

For Falcon® serological pipets, see the **Falcon Product Selection Guide (CLS-F-PSG-001)**.



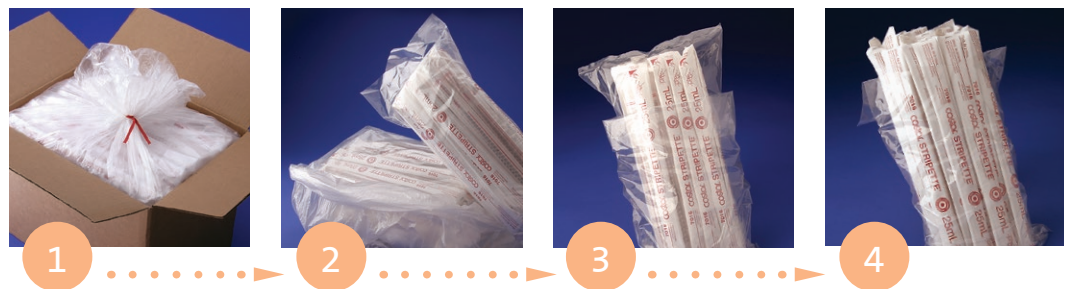
Triple bagged packaging

Triple Bagged Packaging for Stripette™ Serological Pipets

Corning's triple bagged pipets are a safety and convenience revolution. This packaging protects the product from external contamination and is ideal for cell-based vaccine and drug production facilities, as well as other laboratory clean rooms.

- ▶ Triple-bagged
- ▶ Each pipet is individually wrapped in easy open paper/plastic
- ▶ No need for decontamination spraying with alcohol
- ▶ Sterility Assurance Level (SAL) of 10^{-6}

Note: Triple bagged Stripette pipets have the same features as the standard Stripettes except for the sterility and packaging.



1
Contained in a twist-tied liner (Bag 1), the entire case contents of triple-bagged pipets can easily be removed from the corrugated box for clean area storage.

2
At the first stage clean room, the liner (Bag 1) is opened and the double-bagged inner packs with their outer sterile barrier (Bag 2) are removed.

3
At the second stage clean room, the outer sterile barrier (Bag 2) is opened and the inner sterile barrier (Bag 3) is removed.

4
Reaching the point of use, the inner sterile barrier (Bag 3) is opened and the individually wrapped pipets are removed.

Stripette Triple-bag Packaging, Individually Wrapped, Paper/Plastic

Cat. No.	Capacity (mL)	Graduations (mL)	Negative Grads. (mL)	Color-coded Stripe	Qty/Pk	Qty/Cs
7041	1	1/100	0.2	Yellow	50	1,000
7042	2	1/100	0.2	Green	50	1,000
7045	5	1/10	2.5	Blue	50	200
7015	10	1/10	3.0	Orange	50	200
7016	25	2/10	10.0	Red	25	200
7017	50	1/2	10.0	Purple	25	100
7000	100	1	n/a	Aqua	10	100

Aspirating Pipets

Aspirating pipets are sterile, ungraduated, and unplugged polystyrene pipets for aspirating liquid using vacuum suction.



Cat. No.	Volume (mL)	Packaging	Qty/Pk	Qty/Cs
4975	1	Individually wrapped, bulk packed	50	1,000
9186	2	Individually wrapped, clear plastic wrap	100	1,000
9016	2	Individually wrapped, paper/plastic wrap	50	500
9099	5	Individually wrapped, clear plastic wrap	50	200

For Corning® Stripettor™ and Lambda™ pipettors, see the **Equipment Product Selection Guide (CLS-EQ-090)**.

For Falcon® aspirating pipets, see the **Falcon Product Selection Guide (CLS-F-PSG-001)**.

Pipet Tips

Corning® DeckWorks Reload Systems



Remove deck from reload system.



Insert deck into hinged rack.

Corning DeckWorks reload systems are available in 10 µL, 200 µL, 300 µL, and 1,000 µL sizes and allow for convenient and economical reloading of durable Corning DeckWorks hinged racks. DeckWorks reload decks are packaged in transparent trays for easy tip identification, requires no transfer devices, saves space, and minimizes packaging waste. Although the pipet tips are made from virgin medical-grade resins, the reload decks and rack bases are manufactured from 100% recycled polypropylene. Nonsterile decks and racks are steam autoclavable.

Corning DeckWorks low binding tips are available in 10 µL, 200 µL, and 300 µL sizes. Proprietary low binding technology reduces surface tension on the interior wall of the tip. Leaching and/or subsequent sample degradation associated with silicone-based tips is eliminated. DeckWorks low binding tips are ideal for quantitative assays in which sample binding can significantly alter results. Specific applications include accurate and precise pipetting of expensive reagents, DNA, proteins, and/or peptides.

Standard Tips

Cat. No.	Volume Range (µL)	Color	Sterile	Decks/Pk	Tips/Pk	Pks/Cs
4125	0.1 - 10	Natural	No	10	960	4
4126	1 - 200	Natural	No	10	960	4
4127	1 - 200	Yellow	No	10	960	4
4128	1 - 300	Natural	No	10	960	4
4129	100 - 1,000*	Natural	No	8	768	4

*Maximum working volume is 1250 µL.

Low Binding Tips

4153	0.1 - 10	Natural	No	10	960	4
4154	1 - 200	Natural	No	10	960	4
4155	1 - 300	Natural	No	10	960	4

Corning DeckWorks Reload System Starter Kits

DeckWorks starter kits contain one DeckWorks reload system with standard tips and empty hinged racks.

- ▶ 10 empty racks accompany 10 µL, 200 µL, and 300 µL volume tips
- ▶ 8 empty racks accompany 1000 µL volume tips

Cat. No.	Volume Range (µL)	Color	Sterile	Decks/Pk	Tips/Pk	Pks/Cs
4130	0.1 - 10	Natural	No	10	960	1
4131	1 - 200	Natural	No	10	960	1
4132	1 - 200	Yellow	No	10	960	1
4133	1 - 300	Natural	No	10	960	1
4134	100 - 1,000	Natural	No	8	768	1

Corning® DeckWorks Hinged Rack Pipet Tips



Standard Tips

Corning universal fit tips in hinged DeckWorks racks are available in 10 µL, 200 µL, 300 µL, and 1,000 µL sizes. The 10 µL, 300 µL, and 1,000 µL tips are extended length and allow for improved access into microcentrifuge (1.5 mL) and standard conical bottom (15/50 mL) centrifuge tubes. Robust 96-tip racks are designed for repeated steam autoclave cycles and can be reused by removing the empty grey tip deck and replacing it with a new reload deck of 96 tips from the DeckWorks reload system. Corning racked 300 µL DeckWorks pipet tips are designed for all popular 300 µL multi-channel instruments.

Cat. No.	Volume Range (µL)	Color	Sterile	Racks/Pk	Tips/Pk	Packs/Cs
4120	0.1 - 10	Natural	Yes	10	960	4
4115	0.1 - 10	Natural	No	10	960	4
4121	1 - 200	Natural	Yes	10	960	4
4116	1 - 200	Natural	No	10	960	4
4122	1 - 200	Yellow	Yes	10	960	4
4117	1 - 200	Yellow	No	10	960	4
4123	1 - 300	Natural	Yes	10	960	4
4118	1 - 300	Natural	No	10	960	4
4124	100 - 1,000	Natural	Yes	8	768	4
4119	100 - 1,000	Natural	No	8	768	4

Low Binding Tips

Corning DeckWorks low binding tips are available in 10 µL, 200 µL, and 300 µL sizes. Proprietary low binding technology reduces surface tension on the interior wall of the tip. Leaching and/or subsequent sample degradation associated with silicone-based tips are eliminated. DeckWorks low binding tips are ideal for quantitative assays in which sample binding can significantly alter results. Specific applications include accurate and precise pipetting of expensive reagents, DNA, proteins and/or peptides.

Cat. No.	Volume Range (µL)	Color	Sterile	Racks/Pk	Tips/Pk	Packs/Cs
4150	0.1 - 10	Natural	Yes	10	960	4
4147	0.1 - 10	Natural	No	10	960	4
4151	1 - 200	Natural	Yes	10	960	4
4148	1 - 200	Natural	No	10	960	4
4152	1 - 300	Natural	Yes	10	960	4
4149	1 - 300	Natural	No	10	960	4

Low Binding Barrier Tips

Corning DeckWorks low binding barrier tips feature an inert, high-density polyethylene barrier to eliminate aerosol carryover contamination during critical pipetting procedures. DeckWorks low binding barrier tips will not trap liquids or inhibit PCR in the event of over pipetting.

Cat. No.	Volume Range (µL)	Color	Sterile	racks/Pk	Tips/Pk	Packs/Cs
4135	0.1 - 10	Natural	Yes	10	960	4
4136	1 - 20	Natural	Yes	10	960	4
4137	1 - 100	Natural	Yes	10	960	4
4138	1 - 200	Natural	Yes	10	960	4
4139*	1 - 200	Natural	Yes	8	768	4
4140	100 - 1,000	Natural	Yes	8	768	4

*The unique design of this extended-length tip allows standardization across a wide range of 20 µL, 50 µL, 100 µL, and 200 µL pipettors.

Corning® DeckWorks Tip Station



Corning DeckWorks tip station takes less space than other brands

Corning DeckWorks tip station maximizes bench space while minimizing plastic waste. Tip stations contain 960 tips, are available in extended-length 10 μ L and traditional 200 μ L sizes, and are the ideal single and multi-channel pipetting stations. The 5-layer deck design (2 x 96) matches the microtiter plate format. This stable pipetting platform fits easily into sterile hood environments. Lids can be snap-positioned to expose a single side (96 tips) only. Applications include pre- and post-PCR procedures, cell culture, and assays requiring large tip quantities. Corning DeckWorks tip stations are offered both sterile and nonsterile.

Cat. No.	Volume Range (μ L)	Color	Sterile	Tips/Pk	Packs/Cs
4141	0.1 - 10	Natural	No	960	5
4143	0.1 - 10	Natural	Yes	960	5
4142	1 - 200	Natural	No	960	5
4144	1 - 200	Natural	Yes	960	5



Bulk Tips

Corning DeckWorks bulk pipet tips are compatible with DeckWorks racks and packaged in resealable polyethylene bags. Tip sizes include 10 μ L, 200 μ L, and 1000 μ L and offer maximum savings.

Cat. No.	Volume Range (μ L)	Color	Sterile	Tips/Pk	Packs/Cs
4110	0.1 - 10	Natural	No	1000	10,000
4111	1 - 200	Natural	No	1000	10,000
4112	1 - 200	Yellow	No	1000	10,000
4114	100 - 1,000	Natural	No	768	7,680

Corning® DeckWorks Pipet Tips and Pipettor Compatibility Guide

Volume	CORNING									GILSON						SARTORIUS BIOHIT					
	Lambda™ Plus 2 µL Single-Channel	Lambda Plus 10 µL Single- and Multi-channel	Lambda Plus 20 µL Single-channel	Lambda Plus 50 µL Multi-channel	Lambda Plus 100 µL Single-channel	Lambda Plus 200 µL Single- and Multi-channel	Lambda Plus 300 µL Multi-channel	Lambda Plus 1,000 µL Single-channel	Pipetman® 2 µL Single-channel	Pipetman 10 µL Single-channel	Pipetman 20 µL Single-channel	Pipetman 100 µL Single-channel	Pipetman 200 µL Single- and Multi-channel	Pipetman 1,000 µL Single-channel	Proline® 2.5 µL Single-channel	Proline 10 µL Single- and Multi-channel	Proline 50 µL Single- and Multi-channel	Proline 100 µL Single- and Multi-channel	Proline 250 µL Multi-channel	Proline 300 µL Single- and Multi-channel	Proline 1,000 µL Single-channel
STANDARD TIPS																					
0.1 - 10 µL	■	■							■	■					■	■					
1 - 200 µL			■	■	■	■					■	■	■				■	■			
1 - 300 µL			■	■	■	■	■				■	■	■				■	■	■	■	
100 - 1,000 µL								■						■							■
BARRIER TIPS																					
0.1 - 10 µL	■	■							■	■					■	■					
1 - 20 µL			■								■										
1 - 100 µL					■							■						■	■		
1 - 200 µL						■							■								
1 - 200 µL*			■	■	■	■					■	■	■					■	■	■	
100 - 1,000 µL								■						■							■

*Extended length

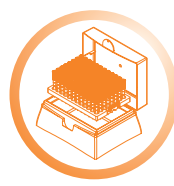
The DeckWorks Pipet Tip System Solution Includes:



RELOADS



BARRIER TIPS



RACKED TIPS



BULK TIPS



TIP STATION

EPENDORF

THERMOLABSYSTEMS

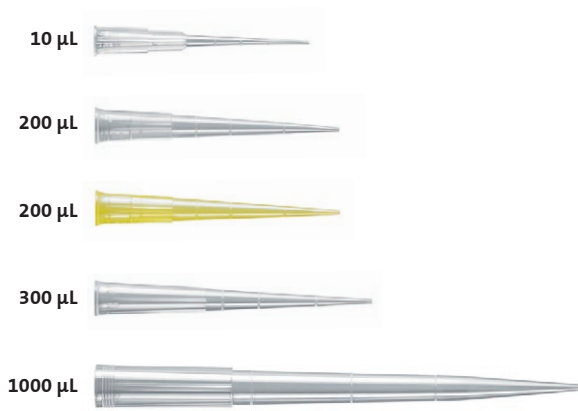
OXFORD/NICHIRYO

Research®/Reference® 2.5 µL Single-channel	Research/Reference 10 µL Single- and Multi-channel	Research/Reference 20 µL Single-channel	Research/Reference 100 µL Single- and Multi-channel	Research/Reference 200 µL Single-channel	Research/Reference 300 µL Single- and Multi-channel	Research/Reference 1,000 µL Single-channel	Finnpipette™ 2 µL Single-channel	Finnpipette 10 µL (micro) Single- and Multi-channel	Finnpipette 10 µL (Universal) Single-channel	Finnpipette 20 µL Single-channel	Finnpipette 50 µL Single- and Multi-channel	Finnpipette 100 µL Single-channel	Finnpipette 200 µL Single-channel	Finnpipette 300 µL Single- and Multi-channel	Finnpipette 1,000 µL Single-channel	Benchmate® 2 µL Single-channel	Benchmate 10 µL Single-channel	Benchmate 20 µL Single-channel	Benchmate 50 µL Single- and Multi-channel	Benchmate 100 µL Single-channel	Benchmate 200 µL Single- and Multi-channel	Benchmate 1,000 µL Single-channel	
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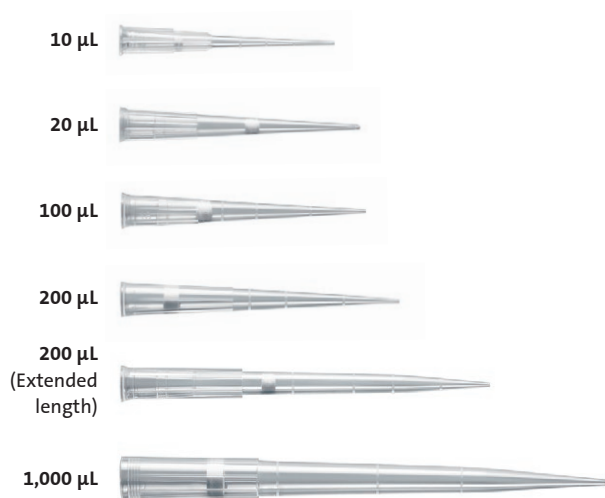
Corning® DeckWorks Pipet Tips Size Guide

Corning DeckWorks extended-length pipet tips minimize contamination issues often associated with traditional pipet tip styles.

Standard Tips

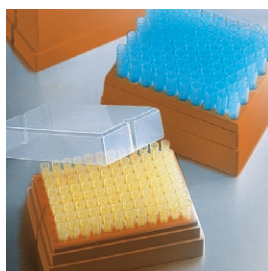


Barrier Tips



Corning® Universal Fit 200 µL and 1000 µL Pipet Tips

- ▶ Corning universal fit tips are designed to provide a reliable fit with most major brand pipettors. (A Pipet Tip Compatibility Guide can be requested or downloaded from the Corning website).
- ▶ Beveled orifice helps ensure accurate fluid delivery.
- ▶ 1-200 µL universal fit tips are graduated at the 250 µL, 500 µL, and 1,000 µL volumes.
- ▶ Select from three packaging options:
 - Stack rack tips feature a stack of five racks, each containing 96 tips, for a total of 480 tips in a space-saving design.
 - Bulk packed tips are nonsterile and economical.
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic



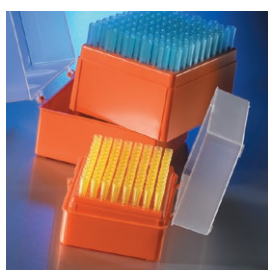
Racked pipet tips



Stack rack pipet tips



Bulk pack pipet tips



Universal fit hinged rack pipet tips

Racked Tips

Cat. No.	Volume Range (µL)	Format	Color	Sterile	Racks/Cs	Tips/Cs
4863	1 - 200	96 tips/rack	Natural	No	10	960
4864	1 - 200	96 tips/rack	Natural	Yes	10	960
4865	1 - 200	96 tips/rack	Yellow	No	10	960
4860	1 - 200	96 tips/rack	Yellow	Yes	10	960
4867	100 - 1,000	100 tips/rack	Blue	No	10	1,000
9032	100 - 1,000	100 tips/rack	Blue	Yes	10	1,000

Stack Rack Pipet Tips

4803	1 - 200	480 tips/stack rack	Natural	No	10	4,800
4804	1 - 200	480 tips/stack rack	Natural	Yes	10	4,800
4806	1 - 200	480 tips/stack rack	Natural	No	2	960

Universal Fit Hinged Rack Pipet Tips

4711	1 - 200	96 tip hinged rack	Yellow	Yes	10	960
4712	1 - 200	96 Tip hinged rack	Yellow	No	10	960
4710	1 - 200	96 tip insert for hinged rack	Yellow	No	10 Inserts	960
4714	100 - 1,000	100 tip hinged rack	Blue	Yes	10	1,000
4713	100 - 1,000	100 tip hinged rack	Blue	No	10	1,000
4715	100 - 1,000	100 tip insert for hinged rack	Blue	No	10 Inserts	1,000

Bulk Packed Pipet Tips

4844	1 - 200	Bulk pack	Natural	No	1,000	10,000
4862	1 - 200	Bulk pack	Natural	No	1,000	1,000
4845	1 - 200	Bulk pack	Yellow	No	1,000	10,000
4866	1 - 200	Bulk pack	Yellow	No	1,000	1,000
4846	100 - 1,000	Bulk pack	Blue	No	1,000	10,000
4868	100 - 1,000	Bulk pack	Blue	No	1,000	1,000



Isotip™ Filtered Pipet Tips

- ▶ Isotip filtered pipet tips feature an inert, hydrophobic barrier that prevents aerosolized contaminants from coming in contact with pipettor shafts. (A Pipet Tip Compatibility Guide can be requested or downloaded from the Corning website.)
- ▶ Ideal for applications where avoiding cross contamination is critical, such as DNA amplification and radioisotope handling
- ▶ Packaged sterile
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic

Cat. No.	Volume Range (µL)	Precise Fit	Tips/rack	Racks/Cs	Tips/Cs
4801	0.1 - 2.0	Gilson and other popular ultra-micropipettors	96	10	960
4807	0.2 - 10	Gilson and other popular ultra-micropipettors	96	10	960
4808	0.5 - 10	Eppendorf and other popular ultra-micropipettors	96	10	960
4821	1 - 30	All popular research-grade pipettors	96	10	960
4823	1 - 200	All popular research-grade pipettors	96	10	960
4810*	1 - 200	All popular research-grade pipettors	96	10	960
4809	100 - 1,000	All popular research-grade pipettors	100	10	1,000

*Extended-length tip designed for use with 2 µL to 20 µL, 10 µL to 100 µL, and 20 µL to 200 µL pipettors.

1 µL to 200 µL Gel-loading Pipet Tips

- ▶ Corning® gel-loading pipet tips feature a capillary end that allows easy access into vertical and horizontal electrophoresis gels.
- ▶ Total capacity of 200 µL
- ▶ Tips are 83 mm in length.
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic



Cat. No.	Tip Shape	End Thickness (mm)	Sterile	Tips/rack	Racks/Cs	Tips/Cs
4853	Round	0.5	No	200	2	400
4854	Flat	0.4	No	200	2	400
4884	Flat	0.2	No	200	2	400

Microvolume Gel-loading Pipet Tips

- ▶ Corning microvolume gel-loading tips feature a capillary end for gel-loading and are designed for use with Gilson and other popular ultra-micropipettors.
- ▶ Working volume of 0.2 µL to 10 µL
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic

Cat. No.	Tip Shape	End Thickness (mm)	Sterile	Tips/rack	Racks/Cs	Tips/Cs
4815	Flat	0.2	No	200	2	400

For reagent reservoirs, liquid transfer systems, and aspirators, the **Equipment Product Selection Guide** (CLS-EQ-090).

For Axygen® pipet tips, see the **Axygen Product Selection Guide** (CLS-A-PSG-001).



Microvolume Pipet Tips

- ▶ Microvolume tips provide accurate, reliable performance in the 0.1 µL to 10 µL range for major brand ultra-micropipettors.
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic

Cat. No.	Volume Range (µL)	Fit	Sterile	Qty/Pk	Tips/Cs
4826	0.1 - 10	Gilson and other popular ultra-micropipettors	No	96/rack	960
4894	0.1 - 10	Gilson and other popular ultra-micropipettors	Yes	96/rack	960
4840	0.1 - 10	Gilson and other popular ultra-micropipettors	No	1,000/bag	10,000
4830	0.5 - 10	Eppendorf and other popular ultra-micropipettors	Yes	96/rack	960
4834	0.5 - 10	Eppendorf and other popular ultra-micropipettors	No	96/rack	960
4901	0.5 - 10	Eppendorf and other popular ultra-micropipettors	No	1,000/bag	10,000

Vacuum Filtration



150 mL Tube Top Vacuum Filters

- ▶ 42 mm square membrane
- ▶ Minimizes unnecessary transfers by filtering directly into 50 mL centrifuge tube
- ▶ Includes two centrifuge tube stands with each case
- ▶ Each polypropylene centrifuge tube is supplied with an individually wrapped cap for storage.
- ▶ Individually packaged
- ▶ Sterile
- ▶ Nonpyrogenic

Cat. No.	Membrane	Funnel Size/Tube Size (mL)	Pore Size (µm)	Qty/Cs
430314	CA	150/50	0.45	12
430320	CA	150/50	0.22	12

CA = cellulose acetate.

Vacuum Filtration Systems

- ▶ Four sizes: 150 mL, 250 mL, 500 mL, and 1L with 45 mm neck size
- ▶ Low liquid retention funnel design
- ▶ Filters feature printing on the funnel for easy product identification
- ▶ Angled hose connector simplifies vacuum line attachment.
- ▶ Receiver bottles feature easy grip sides for improved handling.
- ▶ Extra plastic storage bottles are available.
- ▶ Prefilters must be ordered separately.
- ▶ Individually packaged
- ▶ Sterile
- ▶ Nonpyrogenic
- ▶ Caps for receiver bottles are sterile and individually packaged.

150 mL Capacity, 42 mm Square Membrane

Cat. No.	Membrane	Funnel/Bottle Volume (mL)	Pore Size (µm)	Qty/Cs
431153	PES	150/150	0.22	12
431154	CA	150/150	0.22	12
431155	CA	150/150	0.45	12

250 mL Capacity, 49.5 mm Square Membrane

430756	CN	250/250	0.22	12
430767	CA	250/250	0.22	12
430768	CA	250/250	0.45	12
430771	NY	250/250	0.2	12
431096	PES	250/250	0.22	12

PES = polyethersulfone, CA = cellulose acetate, CN = cellulose nitrate, NY = Nylon.



Vacuum Filtration Systems (Continued)

500 mL Capacity, 63 mm Square Membrane

Cat. No.	Membrane	Funnel/Bottle Volume (mL)	Pore Size (µm)	Qty/Cs
430758	CN	500/500	0.22	12
430769	CA	500/500	0.22	12
430770	CA	500/500	0.45	12
430773	NY	500/500	0.2	12
431097	PES	500/500	0.22	12
431475	PES	500/500	0.1	12

1,000 mL Capacity, 79 mm Square Membrane

430186	CN	1,000/1,000	0.22	12
430515	NY	1,000/1,000	0.2	12
430516	CA	1,000/1,000	0.45	12
430517	CA	1,000/1,000	0.22	12
431474	PES	1,000/1,000	0.1	12
431098	PES	1,000/1,000	0.22	12
431205*	CA	500*/1,000	0.22	12
431206*	CA	500*/1,000	0.45	12

*500 mL funnel with 63 mm membrane.

PES = polyethersulfone, CA = cellulose acetate, CN = cellulose nitrate, NY = Nylon.

For technical information, please refer to pages 25-35.

Bottle Top Vacuum Filters



- ▶ Three sizes: 150 mL, 500 mL and 1,000 mL
- ▶ Low liquid retention funnel design
- ▶ Available in 33 mm and 45 mm neck sizes to fit most glass and plastic media storage bottles.
- ▶ 45 mm neck sizes fit on Corning® glass 1395 bottles, to be used on 2L and smaller sizes only.
- ▶ Prefilters must be ordered separately.
- ▶ Individually packaged
- ▶ Sterile
- ▶ Nonpyrogenic

150 mL Capacity, 42 mm Square Membrane

Cat. No.	Membrane	Volume (mL)	Neck Size (mm)	Pore Size (µm)	Qty/Cs
430624	CA	150	33	0.22	48
430625	CA	150	33	0.45	48
430626	CA	150	45	0.22	48
430627	CA	150	45	0.45	48
431160	PES	150	33	0.22	48
431161	PES	150	45	0.22	48

500 mL Capacity, 63 mm Square Membrane

430049	NY	500	45	0.2	12
430512	CA	500	33	0.45	12
430513	CA	500	45	0.22	12
430514	CA	500	45	0.45	12
430521	CA	500	33	0.22	12
431117	PES	500	33	0.22	12
431118	PES	500	45	0.22	12

1,000 mL Capacity, 79 mm Square Membrane

430015	CA	1,000	45	0.22	12
431174	PES	1,000	45	0.22	12

PES = polyethersulfone, CA = cellulose acetate, CN = cellulose nitrate, NY = Nylon.

Corning® Glass Fiber Prefilters

For use with vacuum filtration systems or bottle top vacuum filters

Cat. No.	Shape	Filter Funnel (mL)	Qty/Cs
431410	42 mm square	150	100
431411	49.5 mm square	250	100
431412	63 mm square	500	100
431413	79 mm square	1000	100

For technical information, please refer to pages 25-35.

Syringe Filters



- ▶ A variety of membranes are available to meet your needs: Polyethersulfone (PES) – low protein binding and faster flow rates; surfactant-free cellulose acetate (SFCA) – lowest protein binding; polytetrafluoroethylene (PTFE) – chemical resistance; regenerated cellulose (RC) – best choice for DMSO compatibility; Nylon (NY) – hydrophilic, surfactant-free, and lowest extractable.
- ▶ 100% integrity tested, nonpyrogenic, and noncytotoxic.

Cat. No.	Diameter (mm)	Pore Size (µm)	Membrane Material	Housing Material	Sterile	Inlet/Outlet	Packaging	Qty/Cs
431212	4	0.2	RC	PP	Yes	LL/LS	Individual	50
431215	15	0.2	RC	PP	Yes	LL/LS	Individual	50
431218	28	0.2	SFCA-PF	AC	Yes	LL/LS	Individual	50
431219	28	0.2	SFCA	AC	Yes	LL/LS	Individual	50
431220	28	0.45	SFCA	AC	Yes	LL/LS	Individual	50
431221	28	0.8	SFCA	AC	Yes	LL/LS	Individual	50
431222	25	0.2	RC	PP	Yes	LL/LS	Individual	50
431224	25	0.2	NY	PP	Yes	LL/LS	Individual	50
431225	25	0.45	NY	PP	Yes	LL/LS	Individual	50
431227*	50	0.2	PTFE	PP	Yes	HB/HB	Individual	12
431229	28	0.2	PES	AC	Yes	LL/LS	Individual	50
431231	25	0.45	PTFE	PP	No	LL/LS	Bulk	50

*Recommended as in-line air filter.

PP = polypropylene, AC = acrylic copolymer, LL = Luer lock/female, LS = Luer slip/male, HB = hose barb, NY = Nylon.

Spin-X® Centrifuge Tube Filters



- ▶ Spin-X centrifuge tube filters consist of a membrane-containing filter unit within a microcentrifuge tube.
- ▶ Uses:
 - Removing bacteria, cells, and particles from liquids
 - HPLC sample preparation
 - DNA removal from agarose or acrylamide gels. Maximum RCF is 16,000 x g.

Cat. No.	Membrane Material	Working Volume (µL)	Pore Size (µm)	Sterile	Tube Size (mL)	Qty/Cs
8160	CA	500	0.22	Yes	2.0	96
8161	CA	500	0.22	No	2.0	100
8162	CA	500	0.45	Yes	2.0	96
8163	CA	500	0.45	No	2.0	100
8169	NY	500	0.22	No	2.0	200
8170	NY	500	0.45	No	2.0	200

CA = cellulose acetate, NY = Nylon.

For technical information, please refer to pages 25-35.

Spin-X® UF Concentrators

Spin-X UF centrifugal concentrators offer a simple, one step procedure for concentrating or desalting proteins and other biomolecules with 90% or better recovery.

- ▶ The vertical membrane design and thin channel filtration chamber minimizes membrane fouling and provides fast, high speed concentrating, even with particle laden solutions.
- ▶ Low binding polyethersulfone (PES) membranes are available with five molecular weight cut-offs (MWCO): 5,000, 10,000, 30,000, 50,000, and 100,000 to meet all of your concentrating needs. Choose an MWCO half to a third smaller than the protein to be concentrated.
- ▶ The MWCO and graduations are printed on the side of the concentrator tube to avoid mix-ups
- ▶ Spin-X UF 6 and 20 concentrators can be used with either swinging bucket or fixed angle rotors. Spin-X UF 500 concentrators require fixed angle rotors.

Spin-X UF 500

431477	Spin-X UF 500	500 µL	5,000 MWCO	25
431478	Spin-X UF 500	500 µL	10,000 MWCO	25
431479	Spin-X UF 500	500 µL	30,000 MWCO	25
431480	Spin-X UF 500	500 µL	50,000 MWCO	25
431481	Spin-X UF 500	500 µL	100,000 MWCO	25

Spin-X UF 6

Cat. No.	Description	Capacity	Membrane	Qty/Pk
431482	Spin-X UF 6	6 mL	5,000 MWCO	25
431483	Spin-X UF 6	6 mL	10,000 MWCO	25
431484	Spin-X UF 6	6 mL	30,000 MWCO	25
431485	Spin-X UF 6	6 mL	50,000 MWCO	25
431486	Spin-X UF 6	6 mL	100,000 MWCO	25

Spin-X UF 20

431487	Spin-X UF 20	20 mL	5,000 MWCO	12
431488	Spin-X UF 20	20 mL	10,000 MWCO	12
431489	Spin-X UF 20	20 mL	30,000 MWCO	12
431490	Spin-X UF 20	20 mL	50,000 MWCO	12
431491	Spin-X UF 20	20 mL	100,000 MWCO	12

A Size to Fit All Your Concentrating Needs



Spin-X UF 500



Spin-X UF 6



Spin-X UF 20

For technical information, please refer to pages 29-31.

Storage Bottles



Corning low profile easy grip style storage bottles



Costar traditional style storage bottles



Polystyrene Storage Bottles

- ▶ Disposable polystyrene bottles for storage of media, buffers, and other aqueous solutions
- ▶ Corning® low profile style with easy grip sides that facilitate handling
- ▶ Costar® traditional style with smooth sides
- ▶ Plug seal caps (45 mm) provide an airtight seal and help minimize the risk of contamination.
- ▶ Bottles can be used with Corning vacuum filtration systems with 45 mm neck sizes, see pages 12-13.
- ▶ Sterile
- ▶ Nonpyrogenic

Corning Low Profile Easy Grip Style Storage Bottles

Cat. No.	Volume (mL)	Neck Size (mm)	Qty/Pk	Qty/Cs
431175	150	45	2	24
430281	250	45	2	24
430282	500	45	2	24
430518	1,000	45	2	24

Costar Traditional Style Storage Bottles

Cat. No.	Volume (mL)	Neck Size (mm)	Qty/Pk	Qty/Cs
8388	125	45	1	24
8390	250	45	1	12
8393	500	45	1	12
8396	1,000	45	1	12

Corning Square PET Storage Bottles

- ▶ Good for storage of media, buffers and other aqueous solutions
- ▶ Available in four sizes: 125 mL, 250 mL, 500 mL, and 1L
- ▶ Large 37 mm opening provides easier access for liquid transfer
- ▶ Screened white enamel graduations are easier to read than molded graduations
- ▶ Large white marking spot for easier identification
- ▶ Individually packaged bottles have Sterility Assurance Level (SAL) of 10⁻⁶.
- ▶ Bottles are validated USP Class VI, noncytotoxic, and nonpyrogenic

Cat. No.	Capacity (mL)	Thread Finish	Neck I.D. Size (mm)	Approx. Diam. x Height (mm)	Grad. Range (mL)	Grad. Interval (mL)	Qty/Pk	Qty/Cs
431530	125	GL 45	37	52.5 x 106.5	50 - 125	25	12	24
431531	250	GL 45	37	59 x 142.5	50 - 250	25	12	24
431532	500	GL 45	37	77 x 176	100 - 500	50	12	24
431533	1000	GL 45	37	92 x 216.5	100 - 1000	50	12	24

Corning® Square Polycarbonate Storage Bottles



- ▶ Strong, easier to handle, require less space (13% to 20%) on the shelf or in the autoclave
- ▶ Ideal for mixing, sampling, and storage
- ▶ Strong polycarbonate bottles are more break-resistant than other glass or plastic bottles.
- ▶ Use a linerless, 45mm one-piece autoclavable orange GL 45 threaded polypropylene plug seal cap.
- ▶ Screened white enamel graduations are easier to see than molded graduations.
- ▶ Sterile
- ▶ Bottles can be autoclaved once at 121°C and 15 psi. Repeated autoclaving weakens polycarbonate and is not recommended.
- ▶ Store up to -80°C.



Corning offers reusable GL 45 septa caps for these storage bottles with a choice of silicone septa or PTFE-faced silicone septa.

Cat. No.	Capacity (mL)	Shape	Bottle Material	Neck Diam. (mm)	Qty/Bag	Qty/Cs
431430	150	Square	Polycarbonate	45	1	24
431431	250	Square	Polycarbonate	45	1	24
431432	500	Square	Polycarbonate	45	1	24
431433	1000	Square	Polycarbonate	45	1	24

Optional Caps and Accessories

Cat No.	Description	Thread Finish	Qty/Cs
1395-45HTSC	Cap, open top PBT high temperature	GL 45	10
1395-45SS	Septa, Silicone	N/A	10
1395-45TS	Septa, PTFE-faced silicone	N/A	10

Note: Most GL 45 threaded caps designed for glass storage bottles use a different sealing design and will not give a secure seal if used on these plastic bottles.

Caution: These square PET bottles should NOT be used with bottle top filter units, or in other applications involving vacuum pressure, as breakage may occur.

Corning Octagonal PET Storage Bottles



- ▶ Available in six sizes: 30 mL, 60 mL, 125 mL, 250 mL, 500 mL, and 1L
- ▶ Packaged in convenient, shrink-wrapped trays within an outer bag to assure cleanliness
- ▶ Break-resistant bottles are an ergonomic and easy to handle alternative to glass.
- ▶ Leak-proof, tamper-evident HDPE screw cap
- ▶ Molded graduations for accurate measurements
- ▶ USP class VI compliant bottles are validated noncytotoxic and nonhemolytic.
- ▶ Bottles have Sterility Assurance Level (SAL) of 10⁻⁶.
- ▶ Nonpyrogenic

Cat. No.	Capacity (mL)	Bottle Material	Screw Cap Color	Neck I.D. (mm)	Screw Cap (mm)	Qty/Tray	Qty/Cs
431729	30	PET*	Natural	17.5	21.0	24	120
431730	60	PET	Natural	17.5	21.0	24	96
431731	125	PET	Natural	31.7	34.7	24	48
431732	250	PET	Natural	31.7	34.7	24	48
431733	500	PET	Natural	31.7	34.7	12	24
431734	1000	PET	Natural	31.7	34.7	12	24

*Polyethylene terephthalate.

For a complete list of Corning storage bottles, visit www.corning.com/lifesciences.

Sample Containers

Corning® Flexible Polypropylene Sample Container



- ▶ Flexible polypropylene bottom with snap-on polyethylene lid serves as a beaker or storage container.
- ▶ Graduated in both milliliters and ounces
- ▶ Nonpyrogenic

Cat. No.	Description	Sterile	Capacity (mL)	Qty/Pk	Qty/Cs
430179	Container and lid	Yes	250	1	100
430180	Container only	Yes	250	20	500
430181	Lid only	Yes	n/a	20	500

Corning Coliform Water Test Disposable Sample Container, Sterile with Sodium Thiosulfate Tablet



Sterile container used in testing for the presence of coliform, a microbiological contaminant in drinking water. Manufactured from pure polypropylene in a sterile environment. The one-piece container has attached lid to reduce chance of contamination. Locking arrow assures sterility has not been compromised. The EPA fill line of 100 mL \pm 2.5% makes it easy to use. A sodium thiosulfate tablet has been added to each container thus saving lab prep time and expense. Leak-tight when sealed properly. An added benefit is the tie-down to protect from accidental opening and also serves as a custody seal. Sample label and instructions for use are supplied with each container. A low cost, convenient product which meets EPA requirements.

Cat. No.	Description	Capacity (mL)	Approx. Diam. x Height (mm)	Qty/Cs
1700-100	Container with tablet	100-120	65 x 120	100



Corning Water Test Disposable Sample Container, Sterile without Sodium Thiosulfate Tablet

Sterile container used in the testing of non-chlorinated drinking water. Manufactured from pure, recyclable polypropylene. The one-piece container has attached lid to reduce chance of contamination. Locking arrow assures sterility has not been compromised. Leak-tight when sealed properly. An added benefit is the tie-down which protects against accidental opening.

Cat. No.	Description	Capacity (mL)	Approx. Diam. x Height (mm)	Qty/Cs
1705-100	Container without tablet	100-120	65 x 120	100

Corning Snap-seal Disposable Plastic Sample Containers

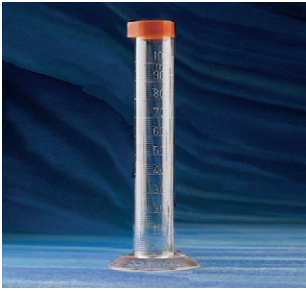


Designed for a wide variety of applications, these containers provide a reliable leak-tight seal when closed properly. The Snap-Seal locking device keeps the cap closed and secure. The specially designed hinged cap stays in place in use, reducing the chance of sample contamination. The containers are made of recyclable polypropylene, in a translucent style for normal usage. The containers are graduated in both milliliters and ounces, and the cap has a rough surface for marking.

Cat. No.	Capacity	Color	Approx. Diam. x Height (mm)	Qty/Cs
1730-5X	0.45 oz. (13 mL)	Natural	16 x 94	500
1730-2C	1.5 oz. (45mL)	Natural	30 x 84	400
1730-4H	4 oz. (120 mL)	Natural	45 x 91	200
1730-4L	4 oz. (120 mL)	Natural	68 x 52	200
1730-8	8 oz. (240 mL)	Natural	80 x 75	100
1730-10	10 oz. (300 mL)	Natural	63 x 112	100

For Falcon® containers, see the **Falcon Product Selection Guide** (CLS-F-PSG-001).

Cylinder



Corning® Graduated Cylinder

The 100 mL Corning optically clear polystyrene graduated cylinder is designed for aseptic and accurate dispensing of sterile culture media or other biological fluids. A polyethylene dust cover is included.

- ▶ Optically clear polystyrene
- ▶ Graduated for accurate dispensing
- ▶ Polyethylene dust cover included
- ▶ Sterile

Cat. No.	Capacity (mL)	Graduation (mL)	Sterile	Qty/Pk	Qty/Cs
430182	100	1	Yes	1	50

Spatulas



Spatulas

Disposable Anti-static Spatulas

- ▶ Corning spatulas are designed to save time and to provide contamination-free samples.
- ▶ Eliminates the recycling and resterilizing necessary with reusable spatulas
- ▶ Available in five different configurations
- ▶ Microspatulas available in two configurations
- ▶ Individually packaged
- ▶ Antistatic
- ▶ Sterile
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic



Microspatulas

Cat. No.	Description	Qty/Cs
3003	Spatula, tapered blade/spoon	100
3004	Spatula, small spoon/spoon	100
3005	Spatula, round end/spoon	100
3006	Spatula, V-scoop/spoon	100
3007	Spatula, flat end/spoon	100
3012	Microspatula, tapered end/scoop	50
3013	Microspatula, rounded end/scoop	50

For Falcon® spatulas, see the **Falcon Product Selection Guide** (CLS-F-PSG-001).

Centrifuge Tubes



15 mL Centrifuge Tubes

- ▶ Corning® 15 mL and 50 mL centrifuge tubes feature black printed graduations and a large white marking spot.
- ▶ Available with your choice of cap styles: the advanced Corning CentriStar™ cap or the original plug seal cap
- ▶ 95 kPa (14 psi) pressure tested – plug seal cap only
- ▶ Sterile
- ▶ RNase-/DNase-free
- ▶ Nonpyrogenic

Cat. No.	Material	Cap Style	Max. RCF	Qty/Pk	Qty/Cs
430053	PET	Plug seal	3,600	50/sleeve	500
430055	PET	Plug seal	3,600	50/rack	500
430052	PP	Plug seal	12,000	50/rack	500
430766	PP	Plug seal	12,000	50/sleeve	500
430790	PP	CentriStar	12,500	50/rack	500
430791	PP	CentriStar	12,500	50/sleeve	500
431470	PP	No cap (tube only)	12,000	25/sleeve	500
431471	PP	CentriStar cap only (no tube)	12,000	100/sleeve	500
431355	Foam centrifuge tube rack, 15 mL		–	–	20

PP = polypropylene, PET = polyethylene terephthalate, RCF = relative centrifugal force (x g).

50 mL Centrifuge Tubes

Cat. No.	Material	Cap Style	Max. RCF	Feature	Qty/Pk	Qty/Cs
430897	PP	Plug seal	3,000	Self-standing bottom	25/sleeve	500
430921	PP	CentriStar	3,000	Self-standing bottom	25/sleeve	500
430304	PET	Plug seal	3,600	Conical bottom	25/rack	500
430290	PP	Plug seal	15,500	Conical bottom	25/rack	500
430291	PP	Plug seal	15,500	Conical bottom	25/sleeve	500
430828	PP	CentriStar	17,000	Conical bottom	25/rack	500
430829	PP	CentriStar	17,000	Conical bottom	25/sleeve	500
4558	PP	CentriStar	17,000	Conical bottom	25/rack	300

PET = polyethylene terephthalate, PP = polypropylene, RCF = relative centrifugal force (x g).

For dimensions of Corning 15 mL and 50 mL centrifuge tubes, contact Corning Scientific Support at ScientificSupportEU@corning.com.

250 mL and 500 mL Centrifuge Tubes and Support Cushions

- ▶ Corning 250 mL and 500 mL polypropylene tubes are ideal for applications requiring large volume centrifugation.
- ▶ Support cushions must be used with this product unless the rotor has appropriately shaped V-bottom holders.
- ▶ Sterile
- ▶ Nonpyrogenic



Cat. No.	Description	Material	Cap Style	Max RCF	Qty/Pk	Qty/Cs
430776	250 mL tube	PP	Plug seal	6,000	6	102
430236	250 mL support cushion	PEI	N/A	N/A	N/A	6
431123	500 mL tube	PP	Plug seal	6,000	6	36
431124	500 mL support cushion	PEI	N/A	N/A	N/A	6

PP = polypropylene, PEI = polyetherimide, RCF = relative centrifugal force (x g).

For Falcon® centrifuge tubes, see the **Falcon Product Selection Guide (CLS-F-PSG-001)**.

Corning Centrifuge Bottles



- ▶ Two easy grip cap styles: standard and high performance with silicone O-ring
Note: Caps are not interchangeable among different materials or sizes.
- ▶ Wide-mouth design improves liquid handling.
- ▶ Compatible with most centrifuges and do not require special buckets
- ▶ Extra-thick walls for durability
- ▶ Leak-free processing at maximum rated speeds
- ▶ Polypropylene bottles are autoclavable at 121°C, 15 psi for 20 minutes.



Cat. No.	Capacity (mL)	Material	Cap Style	RCF Rating	Qty/Pk	Qty/Cs
431840	250	Polypropylene	Silicone O-ring	27,500	4	36
431841	250	Polypropylene	Standard	13,500	4	36
431842	250	Polycarbonate	Silicone O-ring	27,500	4	36
431843	250	Polycarbonate	Standard	13,700	4	36
431844	500	Polypropylene	Silicone O-ring	13,700	4	24
431845	500	Polypropylene	Standard	13,700	4	24
431846	500	Polycarbonate	Silicone O-ring	13,700	4	24
431847	500	Polycarbonate	Standard	13,700	4	24

▶ For Falcon® centrifuge tubes, see the **Falcon Product Selection Guide** (CLS-F-PSG-001).

Microcentrifuge Tubes

Corning offers two styles of microcentrifuge tubes: traditional snap cap tubes for quick access or screw cap tubes for greater sealing security.



Costar® Snap Cap Polypropylene Microcentrifuge Tubes

- ▶ Supplied nonsterile and are autoclavable
- ▶ External graduations and frosted writing spot for easy sample identification
- ▶ Positive seal design allows repeated opening and closing.
- ▶ Flat cap surface for convenient labeling
- ▶ Withstands a maximum RCF of 17,000 x g
- ▶ Costar low binding microcentrifuge tubes feature a bonded polymer technology that reduces protein and nucleic acid binding, resulting in better sample recovery.
- ▶ RNase-/DNase-free

Snap Cap Microcentrifuge Tubes

Cat. No.	Volume (mL)	Color	Qty/Pk	Qty/Cs
3208	0.65	Natural	500	1,000
3209*	0.65	Rainbow*	200	1,000
3620	1.7	Natural	500	500
3621	1.7	Natural	500	5,000
3622*	1.7	Rainbow*	100	500
3213**	2.0	Natural	500	1,000

Low Binding Snap Cap Microcentrifuge Tubes

3206	0.65	Natural	500	500
3207	1.7	Natural	250	250

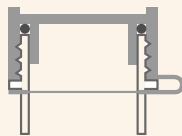
*Rainbow pack includes one bag each of blue, green, yellow, red, and purple tubes.

**2.0 mL Dolphin style tube.

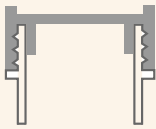
Corning® Screw Cap Polypropylene Microcentrifuge Tubes

- ▶ Corning polypropylene microcentrifuge tubes feature screw caps that provide a tight secure seal.
- ▶ Choice of attached cap with silicone O-ring or unattached rim seal cap
- ▶ Withstands a maximum 20,000 RCF
- ▶ Sterile





▶ Attached loop cap allows for optimum one-handed convenience. Silicone O-ring gasket provides a snug seal, safeguarding samples against leakage.



▶ Easy-to-use unattached rim seal cap design twists on or off in a single turn.

Cat. No.	Volume (mL)	Cap Style	O-ring	Self-standing	Qty/Cs
430909	1.5	Attached	Yes	No	500
430915	2.0	Attached	Yes	Yes	500
430917	2.0	Unattached	No	Yes	500



Corning® 96-well Cluster Tubes

- ▶ Composed of 96 polypropylene tubes in a standard microplate format
- ▶ Features 1.2 mL tubes that are available individually or in strips of eight tubes
- ▶ Polyethylene tube caps are available in 8-cap strips

Cat. No.	Format	Sterile	Rack	Qty/Pk	Qty/Cs
4401	Individual	No	No	960/bag	960
4410	Individual	No	Yes	96/rack	960
4411	Individual	Yes	Yes	96/rack	960
4408	8-tube strip	No	No	120/bag	120
4412	8-tube strip	No	Yes	12/rack	120
4413	8-tube strip	Yes	Yes	12/rack	120
4418	8-cap strip	Yes	No	12/bag	120

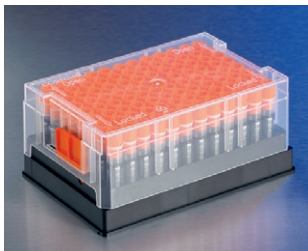
Bar Coded Storage Tubes

Corning 96 1D/2D Bar Coded Storage Tubes

A System Solution for Automated Sample Management

The 1D/2D storage line offers a superior storage solution designed to provide maximum identification.

- ▶ Temperature-resistant polypropylene storage tubes withstand a temperatures range from -100°C to +110°C.
- ▶ Maximum identification – Synchronized 2D and linear bar code along with marking spot
- ▶ Maximum information – 14 x 14 dot 2D bar code
- ▶ Bar code stability – Laser-etched for permanent identification
- ▶ Compound compatibility – Universal inert polypropylene construction throughout
- ▶ Nonsterile



Storage Tubes

Cat. No.	Description	Qty/Pk	Pk/Cs	Qty/Cs
8500	96 1D/2D bar coded storage tubes, 1.3 mL, without screw caps, bulk pack	96	10	960 tubes
8501	96 1D/2D bar coded storage tubes, 1.3 mL, without screw caps, racked, with cover	96/rack	10 racks	960 tubes
8502	96 1D/2D bar coded storage tubes, 1.3 mL, with screw caps, bulk pack	96	10	960 tubes
8503	96 1D/2D bar coded storage tubes, 1.3 mL, with screw caps, racked, with cover	96/rack	10 racks	960 tubes

Compatible Caps and Rack

8504	96 storage tube screw cap, polypropylene with O-ring, bulk pack	96	50	4,800 caps
8505	96 storage tube screw cap, polypropylene, with O-ring, on mat, 96 caps per mat, clear, with cover	480	10	4,800 caps
8506	Thermoplastic elastomer (TPE) 96 storage tube septum cap, bulk pack	96	100	9,600 caps
8507	Thermoplastic elastomer (TPE) 96 storage tube septum cap on mat, 96 caps per mat	960	5	4,800 caps
8508	Empty racks with lids for 96 screw capped or thermoplastic elastomer (TPE) capped storage tubes	5 racks	2	10 racks

Corning 384 2D Bar Coded Storage Tubes

A System Solution for Automated Sample Management

The 2D storage line offers a superior storage solution designed to provide maximum identification.

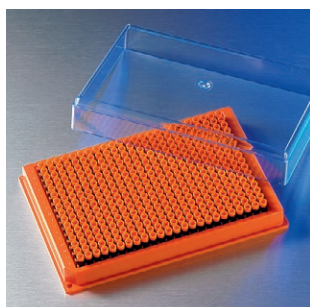
- ▶ Temperature-resistant polypropylene storage tubes withstand a temperatures range from -100°C to +110°C.
- ▶ Maximum information – 14 x 14 dot 2D bar code
- ▶ Bar code stability – Laser-etched for permanent identification
- ▶ Compound compatibility – Universal inert polypropylene construction throughout
- ▶ Nonsterile

Storage Tubes

Cat. No.	Description	Qty/Pk	Pk/Cs	Qty/Cs
8509	384 2D bar coded storage tubes, round, without plug caps, racked	384/rack	20	7,680 tubes
8510	384 2D bar coded storage tubes, square, racked	384/rack	20	7,680 tubes

Compatible Caps and Rack

8511	384 storage tubes plug cap for round tube, bulk pack	384	100	38,400 caps
8512	384 storage tubes plug cap on mats for round tube, 384 caps/mat	3,840	10	38,400 caps
8513	Empty racks with lids for 384 round or square storage tubes	1 rack	20	20 racks



Technical Appendix

Selecting the Best Corning® Syringe or Vacuum Filter for Your Application

Choosing a filter doesn't have to be complicated. Corning has simplified the process. Just follow these four easy steps:

- ▶ **Step 1:** Match your application with the best pore size.
- ▶ **Step 2:** Select the best Corning membrane and housing material for your application.
- ▶ **Step 3:** Select the correct membrane diameter to optimize flow rate and throughput.
- ▶ **Step 4:** Choose the best Corning filter design for your application.

Step 1: Match your application with the best pore size.

The pore size is usually determined by your application or objective.

- ▶ Routine laboratory sterilization of most media, buffers, biological fluids, and gases is usually done with 0.2 or 0.22 µm pore filter membranes.
- ▶ Clarification and prefiltration of solutions and solvents is best accomplished with 0.45 µm or larger filter membranes.
- ▶ Prefiltration to improve filter performance can also be accomplished by the use of glass fiber prefilters sold separately.
- ▶ Use Table 1 to match your applications with a recommended membrane and pore size.

Step 2: Select the best membrane and housing material for your application.

Your filter unit must be fully compatible with the chemical characteristics of your sample.

- ▶ Some filter membranes contain nontoxic wetting agents that may interfere with some applications.
- ▶ Other membranes may bind proteins or other macromolecules leading to premature filter clogging or loss of valuable samples.

Therefore, it is very important to understand their characteristics and the potential effects filter membranes can have on the solutions they contact. The information from Tables 2 and 3 will help you choose the best Corning membranes for your applications:



Polyethersulfone (PES) membranes are best for filtering cell culture media and sera. PES has both very low protein binding and extractables. PES also demonstrates faster flow rates than cellulosic or nylon membranes.

Cellulose acetate (CA) membranes have a very low binding affinity for most protein binding, such as filtering culture media containing sera. However, both cellulose acetate and cellulose nitrate membranes are naturally hydrophobic and contain small amounts (less than 1%) of nontoxic wetting agents added during manufacture to ensure proper wetting of the membrane. If desired, these agents can be easily removed prior to use by filtering a small amount of warm purified water through the membrane or filter unit. Surfactant free cellulose acetate membranes, with very low levels of extractables, are available on some Corning syringe filters.

Nylon membranes are naturally hydrophilic and are recommended for applications requiring very low extractables since they do not contain any wetting agents, detergents, or surfactants. Their greater chemical resistance makes them better for filtering more aggressive solutions, such as alcohols and DMSO. However, like cellulose nitrate membranes, they may bind greater amounts of proteins and other macromolecules than do the cellulose acetate or PES membranes.

Table 1. Selecting the Pore Size

Application	Pore Size (µm)	Membrane Availability
Removing mycoplasma from solutions	0.1	Only PES
Sterilization of aqueous solutions	0.2 to 0.22	All membranes except PTFE
Ultracleaning of solvents (HPLC)	0.2 to 0.22	RC, Nylon, PTFE
Clarification of aqueous solutions	0.45	All membranes except PTFE
Clarification of solvents (HPLC)	0.45	RC, Nylon, PTFE
Course particle removal	0.8	SFCA

PES = polyethersulfone, SFCA = surfactant-free cellulose acetate, PTFE = polytetrafluoroethylene, RC = regenerated cellulose.

Cellulose nitrate (CN) membranes are recommended for filtering solutions where protein binding is not a concern. They are recommended for use in general laboratory applications such as buffer filtration. Corning's cellulose nitrate membranes are Triton X-100-free and noncytotoxic.

Regenerated cellulose (RC) membranes are hydrophilic and have very good chemical resistance to solvents, including DMSO. They are used to ultraclean and de-gas solvents and mobile phases used in HPLC applications.

Polytetrafluorethylene (PTFE) membranes are naturally and permanently hydrophobic. They are ideal for filtering gases, including humidified air. The extreme chemical resistance of PTFE membranes makes them very useful for filtering solvents or other aggressive chemicals for which other membranes are unsuitable. Because of their hydrophobicity, PTFE membranes must be pre-wetted with a solvent, such as ethanol, before aqueous solutions can be filtered.

Glass fiber filters are used as a depth filter for prefiltration of solutions. They have very high particle loading capacity and are ideal for prefiltering dirty solutions and difficult to filter biological fluids such as sera.

Corning® Filter Housing Materials

The filter housing materials, as well as the filter membrane must be compatible with the solutions being filtered.

Polystyrene (PS) is used in the filter funnels and storage bottles for all of the Corning® plastic vacuum filters. This plastic polymer should only be used in filtering and storing nonaggressive aqueous solutions and biological fluids. Refer to Table 3 for more chemical compatibility information.

Acrylic copolymer (AC) is used in some of the Corning syringe filter housings. This plastic should only be used in filtering non-aggressive aqueous solutions and biological fluids. Refer to Table 3 for more chemical compatibility information.

Polypropylene (PP) is used in some of the syringe and disc filter housings. This plastic polymer has very good resistance to many solvents; refer to Table 3 for more chemical compatibility information.

PYREX® and PYREXPLUS® glass is very resistant to virtually all laboratory solvents. However, it can be attacked by hydrofluoric or hot phosphoric acid etched by hot alkali. The coating of PYREXPLUS labware is designed to resist leakage resulting

Table 2. Characteristics of Corning Filter Membranes

Membrane Material	Polyethersulfone	Cellulose Acetate	Nylon	Cellulose Nitrate	Regenerated Cellulose	Polytetrafluorethylene (PTFE)
Flow rates for Medium with 10% Serum	Best	Very good	Poor	Good	Not applicable	Not applicable
Wetting Agents	No	Yes	No, naturally hydrophilic	Yes	Yes	Does not wet
Protein Binding	Very low	Very Low	Low to moderate	Very high	Low	Not applicable
DNA Binding	Very low	Very low	Very high	High	Low	Not applicable
Chemical Resistance	Low	Low	Moderate to high	Low	Very high	Very high

Table 3. Chemical Resistance of Filter Membranes and Housing Materials

This information has been developed from a combination of laboratory tests, technical publications, or material suppliers. It is believed to be reliable. Due to conditions outside of Corning's control, such as variability in temperatures, concentrations, duration of exposure, and storage conditions, no warranty is given or is to be implied with respect to this information.

Chemical Class	Membrane Material						Housing Material			
	CN	CA	NY	PES	RC	PTFE	PS	PP	AC	PYR
Weak acids	2	2	2	3	1	1	1	1	2	1
Strong acids	3	2	3	3	3	1	2	1	3	2
Alcohols	3	1	1	1	1	1	2	1	2	1
Aldehydes	2	3	2	3	2	1	3	1	3	1
Aliphatic amines	3	3	1	1	1	1	3	1	3	1
Aromatic amines	3	3	2	3	1	1	3	1	3	1
Bases	3	3	2	3	2	1	1	1	2	2
Esters	3	3	1	3	1	1	3	2	2	1
Hydrocarbons	2	2	2	3	1	1	3	2	2	1
Ketones	3	3	2	3	1	1	3	2	3	1

1 = recommended, 2 = may be suitable for some applications, a trial run is recommended, 3 = not recommended.

CN = cellulose nitrate, CA = cellulose acetate, NY = nylon, PES = polyethersulfone, RC = regenerated cellulose, PTFE = polytetrafluorethylene, PS = polystyrene, PP = polypropylene, AC = acrylic copolymer, PYR = PYREX glass.



Filtration systems with bottles



Bottle top filters



Centrifuge tube top filters

from a brief chemical exposure that might occur if the vessel is broken. Prolonged and/or repeated chemical exposure of the coating to aldehydes, ketones, chlorinated solvents, and concentrated acids should be avoided.

Chemical Compatibility of Corning Filters

The mechanical strength, color, appearance, and dimensional stability of Corning® filters are affected to varying degrees by the chemicals with which they come into contact. Specific operating conditions, especially temperature and length of exposure, will also affect their chemical resistance. Table 3 provides a general guideline for the chemical resistance of Corning filter membranes and housings.

Step 3: Select the correct membrane area to optimize flow rate and throughput.

The third step is selecting a filter that will have enough volume capacity or throughput to process your entire sample quickly and efficiently. This is primarily determined by the effective surface area of the membrane. Table 4 shows the relationship between filter design, effective filtration surface area, and expected throughput volumes. The lower values are typical of viscous or particle-laden solutions; the higher values are typical of buffers or serum-free medium.

Step 4: Choose the best filter design for your application.

Corning offers three basic filter types: positive pressure-driven syringe and disc filters and vacuum-driven filters. The vacuum-driven filters offer several different designs and styles in both reusable and disposable plastic products.

Disposable Plastic Vacuum Filters

These sterile filters are available in three styles: complete filter/storage systems, bottle top filters, and centrifuge tube top filters. Angled hose connector simplifies vacuum line attachment.

Corning filter/storage systems consist of a polystyrene filter funnel joined by an adapter ring to a removable polystyrene storage bottle with a separate sterile polyethylene cap. Receiver bottles feature easy grip sides for improved handling. Additional Corning polystyrene receiver/storage bottles can be ordered separately to increase throughput. Filters are available with cellulose acetate, cellulose nitrate, nylon, or polyethersulfone membranes.

Corning bottle top filters have the same polystyrene filter funnel designs and capacities as the filter systems, but the adapter ring is designed for threading onto a glass or plastic bottle supplied by the user. Select either the 33 mm thread design for standard narrow glass mouth media bottles or the 45 mm design for glass Storage Bottles with GL 45 threads. See Safety Precautions section (below) for recommendations on using these products with glass bottles. Filters are available with cellulose acetate, nylon, or polyethersulfone membranes.

150 mL centrifuge tube top filters feature a 150 mL polystyrene filter funnel with an 18 cm² cellulose acetate membrane attached to a 50 mL polypropylene centrifuge tube to minimize unnecessary transfers by filtering directly into centrifuge tube. Filters are available with cellulose acetate membranes.

Disposable Syringe/Disc Filters

The smaller **Corning syringe filters** (4, 15, 25, 26, and 28 mm diameter) are used with syringes which serves as both the fluid reservoir and the pressure source. They are 100% integrity tested. The HPLC certified nonsterile syringe filters are available with nylon, regenerated cellulose or polytetrafluorethylene (PTFE) membranes in polypropylene housing for extra chemical resistance. The sterile tissue culture tested syringe filters are available in PES, regenerated cellulose (ideal for use with DMSO-containing solutions) or surfactant-free cellulose acetate membranes in either polypropylene or acrylic copolymer housings.

Table 4. Typical Expected Throughput Volumes

Filter Design and Dimensions	Effective Filter Area (cm ²)	Expected Throughput (mL)*
4 mm diameter syringe/disc	0.07	0.05 - 3
15 mm diameter syringe/disc	1.7	3 - 15
25 mm diameter syringe/disc	4.8	10 - 50
26 mm diameter syringe/disc	5.3	10 - 50
28 mm diameter syringe/disc	6.2	10 - 50
50 mm diameter disc	19.6	100 - 500
150 mL filter funnel (42 x 42 mm)	13.6	100 - 500
250 mL filter funnel (49.5 x 49.5 mm)	19.6	200 - 750
500 mL filter funnel (63 x 63 mm)	33.2	300 - 1,500
1000 mL filter funnel (79 x 79 mm)	54.5	500 - 3,000

*These values assume an aqueous solution and a 0.2 µm membrane. Solutions containing sera or other proteinaceous materials will be at the lower end of the range. Use of pre-filters with filter funnels may extend the throughput 50% to 100% above the values shown.

The larger 50 mm diameter disc filter has a PTFE membrane and polypropylene housing with hose barb connectors. This product is ideal for filtering aggressive solvents or gases and applications requiring sterile venting of gases. Because they have a hydrophobic (will not pass aqueous solutions) membrane, they are also ideal for protecting vacuum lines and pumps.

Safety Precautions

Corning® filter units are intended for use by persons knowledgeable in safe laboratory practices. Safety is one of the most critical concerns of any lab. Due to variations in conditions, Corning cannot guarantee any glassware or plasticware against breakage under vacuum or pressure. Failure can result from surface damage, improper pressure or temperature, or use with incompatible chemicals. Adequate precautions should always be taken to protect personnel doing such work. To help improve lab safety, Corning has compiled these suggestions concerning the safe use of filtration products:

- ▶ Use appropriate personal protective equipment for the application.
- ▶ Use of vacuum-driven filters on glass or plastic bottles may cause personal injury if they implode during use. Eye protection is strongly recommended whenever glass or plastic vessels are used under partial vacuum negative pressure to guard against these injuries. Only bottles specifically designed for these applications should be used.
- ▶ Always use cylindrical bottles.
- ▶ Never use a 45 mm threaded bottle top filter on a PYREX® or PYREXPLUS® media bottle larger than 2 liter capacity.
- ▶ Never use a square bottle for vacuum applications.
- ▶ Never use a 33 mm threaded bottle top filter on a glass media bottle that is larger than 500 mL.



4, 15, and 25 to 28 mm syringe filters



50 mm syringe filters

- ▶ Never use plastic roller bottles as substitute receiver bottles for vacuum filtration.
- ▶ Do not use a bottle for vacuum applications if it is not designed to withstand a vacuum; if the bottle is scratched, chipped or cracked; if the bottle is clamped in such a way as to induce stress; or if the bottle is being hand held.
- ▶ Care must be taken when using syringe filters with small syringes (5 mL or less) as the pressures generated may exceed the 75 psi limit, causing a possible membrane or housing failure. Loss of valuable contents and personal injury may result. If clogging causes slower flow rates, we recommend that you replace filters rather than increase the pressure.

References

1. Brock, T.S. Membrane Filtration: A User's Guide and Reference Manual. Science Tech, Inc. Madison, WI, 381 pp. (1983).
2. Lukaszewicz, R.C. and Fisher, R. Mechanisms of Membrane Filtration for Particulate and Microbial Retention in Critical Applications. Pharmaceutical Technology, Vol. 5 (June 1981).
3. Walsh, R.L. and Coles, M.E. Binding of IgG and Other Proteins to Microfilters. Clinical Chemistry 26(3):496-498 (1981).

Table 5. Corning Filter Designs

Design	Sterile	Filter Diameters (mm)	Available Membrane Materials	Pore Sizes (µm)	Special Features
Syringe Filters	Some	4, 15, 25, 26, 28	RC, PES, SFCA, NY, and PTFE	0.2, 0.45	Ideal for small volume pressure filtration
Disc Filters	Yes	50	PTFE	0.2	Ideal for filtering solvents and gases
Vacuum Filter Storage Systems**	Yes	42, 49.5, 63, 79	PES, CA, CN, and NY	0.1, 0.2, 0.22, and 0.45	Easy grip bottles for storing filtrate
Bottle Top Vacuum Filters**	Yes	42, 63, 79	PES, CA, and NY	0.2, 0.22, and 0.45	2 neck widths to fit most glass bottles
Tube Top Vacuum Filters**	Yes	42	CA	0.22 and 0.45	Minimizes unnecessary transfers by filtering into a 50 mL centrifuge tube
Spin-X® Centrifuge Filters	Some	7.7	CA and NY	0.22 and 0.45	Ideal for purifying DNA from agarose gels
FiltrEX™ 96-well and 384-well Filter Plates	Some	6.4, 3.2	PVDF, Glass Fiber, PES, NC, and UF	0.2, 0.45, 1.2, and others	Clear, opaque, or solvent resistant*

*Call for specific details; several custom-made products available.

**Membrane design is square.

RC = regenerated cellulose, PES = polyethersulfone, SFCA = surfactant-free cellulose acetate, NY = nylon, PTFE = polytetrafluorethylene, CA = cellulose acetate, CN = cellulose nitrate, PVDF = polyvinylidene fluoride, NC = nitrocellulose, UF = ultrafiltration.

Selecting the Best Spin-X® UF Concentrator for Your Application

Spin-X UF concentrators are disposable, single use only ultrafiltration devices with polyethersulfone membranes (PES) for the centrifugal concentration and/or purification of biological samples. This guide will help you choose the best Spin-X UF concentrator for your application.

Major Uses for Ultrafiltration

Ultrafiltration is a convective process that uses anisotropic semi-permeable membranes to separate macromolecular species and solvents primarily on the basis of size. It is particularly appropriate for the concentration of macromolecules and can also be used to purify molecular species or for solvent exchange (Table 6). Ultrafiltration is a gentle, non-denaturing method that is more efficient and flexible than alternative processes.

Solute Concentration

Ultrafiltration membranes are used to increase the solute concentration of a desired biological species. The filtrate is cleared of macromolecules which are significantly larger than the retentive membrane pores. Microsolute is removed convectively with the solvent.

Solute Desalting or Purification

A solution may be purified from salts, non-aqueous solvents and generally from low molecular weight materials. Multiple solvent exchanges will progressively purify macromolecules from contaminating solutes. Microsolutes are removed most efficiently by adding solvent to the solution being ultrafiltered at a rate equal to the speed of filtration. This is called diafiltration.

Choosing the Right Concentrator

Corning offers Spin-X UF concentrators in three sizes. The information below and Tables 7 and 8 will help you find the best concentrator for your needs.

1. Spin-X UF 500 for 100 to 500 µL Samples

Spin-X UF 500 µL centrifugal filter units offer a simple, one-step procedure for sample preparation. They can effectively be used in fixed angle rotors accepting 2.2 mL centrifuge tubes.

The vertical membrane design and thin channel filtration chamber minimizes membrane fouling and provides high speed concentrations, even with particle laden solutions.

2. Spin-X UF 6 for 2 to 6 mL Samples

Spin-X UF 6 mL concentrators offer increased volume flexibility and performance. Spin-X UF 6 concentrators can process up to 6 mL in swing bucket or fixed angle rotors accepting standard 15 mL conical bottom tubes. In a single spin, solutions can be concentrated in excess of 100-fold. Samples are typically concentrated in 10 to 30 minutes with macromolecular recoveries in excess of 95%.



Table 6. Typical Ultrafiltration Applications

- ▶ General purpose laboratory concentration and desalting of proteins, enzymes, cells, biomolecules, antibodies, and immunoglobulins
- ▶ Removal of labeled amino acids and nucleotides
- ▶ HPLC sample preparation
- ▶ Deproteinization of samples
- ▶ Recovery of biomolecules from cell culture supernatants, lysates

The Spin-X UF 6 features twin vertical membranes for unparalleled filtration speeds and 100X plus concentrations. Remaining volume is easy to read off the printed scale on the side of the concentrator and the modified dead stop pocket further simplifies direct pipet recovery of the final concentrate.

3. Spin-X UF 20 for 5 to 20 mL Samples

Spin-X UF 20 mL centrifugal concentrators offer increased volume flexibility and performance. Spin-X UF 20 handles up to 20 mL in swing bucket centrifuges and 14 mL in 25° fixed angle rotors accepting 50 mL centrifuge tubes.

Featuring twin vertical membranes for unparalleled filtration speeds the Spin-X UF 20 can achieve 100X plus concentrations. The remaining volume is easy to read off of the printed scale on the side of the concentrator, and the modified dead stop pocket further simplifies direct pipet recovery of the final concentrate.

Choosing the Best Molecular Weight Cut-off (MWCO) Membrane

Spin-X® UF concentrators use general purpose polyethersulfone membranes that provide excellent performance with most solutions when retentate recovery is of primary importance. Polyethersulfone membranes exhibit no hydrophobic or hydrophilic interactions and are usually preferred for their low fouling characteristics, exceptional flux, and broad pH range.

The advanced designs and low adsorption materials that characterize Spin-X UF products offer a unique combination of faster processing speeds and higher recovery of the concentrated sample. Providing that the appropriate device size (Table 7) and membrane cut-off (Table 8) are selected, Spin-X UF products will typically yield recoveries of the concentrated sample in excess of 90% when the starting sample contains over 0.1 mg/mL of the solute of interest (Table 9). Most of the loss is caused by non-specific binding both to the membrane surface and to exposed binding sites on the plastic of the sample container.

Adsorption to the Membrane

Depending on sample characteristics relative to the membrane type used, solute adsorption on the membrane surface is typically 2 to 10 µg/cm². This can increase to 20 to 100 µg/cm² when the filtrate is of interest and the solute must pass through the whole internal structure of the membrane. Typically, a higher cut-off membrane will bind more than a low molecular weight cut-off membrane.

Adsorption to the Sample Container

Although every effort is made to minimize this phenomenon by the selection of low adsorption materials and tool production to optical standards, some solute will bind to the internal surface of the sample container. While the relative adsorption will be proportionately less important on the sample container than on the membrane, due to the higher total surface area, this can be the major source of yield loss.

Table 7. Technical Properties of Spin-X UF Concentrators

Concentrator	Spin-X UF 500	Spin-X UF 6	Spin-X UF 20
Concentrator Capacity			
Swing Bucket Rotor	Do not use	6 mL	20 mL
Fixed Angle Rotor	500 µL	6 mL	14 mL
Minimum Rotor Angle	40°	25°	25°
Dimensions			
Total Length	50 mm	122 mm	116 mm
Width	11 mm	17 mm	30 mm
Active Membrane Area	0.5 cm ²	2.5 cm ²	6.0 cm ²
Membrane Hold Up Volume	<5 µL	<10 µL	<20 µL
Dead Stop Volume*	5 µL	30 µL	50 µL
Materials of Construction			
Body	PC	PC	PC
Filtrate Vessel	PP	PC	PC
Concentrator Cap	PP	PP	PP
Membrane	PES	PES	PES

*Dead stop volume as designed in molding tool. This volume may vary depending on sample, sample concentration, operation temperature, and centrifuge rotor.
PC = polycarbonate, PP = polypropylene, PES = polyethersulfone.

Table 8. PES Membrane Selection Guide (Recommended MWCO*)

Application	<5,000	10,000	30,000	50,000	100,000
Bacteria					■
Enzymes	■	■			
Growth factors	■	■			
Immunoglobulins			■	■	■
MAB			■	■	■
Peptides	■		■	■	
Virus			■	■	■
Yeast					■

*For highest recovery, select a membrane MWCO which is at least half of the molecular weight of the solute to be retained.

Table 9. Spin-X UF Concentrators Performance Characteristics

(Time in minutes to concentrate up to 30X at 20°C and solute recovery %)

Concentrator	Spin-X UF 500		Spin-X UF 6				Spin-X UF 20			
	40° Fixed Angle		Swing Bucket		25° Fixed Angle		Swing Bucket		25° Fixed Angle	
Start Volume	500 µL		6 mL		6 mL		20 mL		14 mL	
	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.
BSA 1.0 mg/mL (66,000 MW)										
5,000 MWCO PES	15	96%	20	98%	12	98%	23	99%	29	99%
10,000 MWCO PES	5	96%	13	98%	10	98%	16	98%	17	98%
30,000 MWCO PES	5	96%	12	98%	9	97%	13	98%	15	98%
IgG 0.25 mg/mL (160,000 MW)										
30,000 MWCO PES	10	96%	18	96%	15	95%	27	97%	20	95%
50,000 MWCO PES	10	96%	17	96%	14	95%	27	96%	22	95%
100,000 MWCO PES	10	96%	15	91%	12	91%	25	91%	20	90%

Helpful Hints

Flow Rate

Filtration rate is affected by several parameters, including MWCO, porosity, sample concentration, viscosity, centrifugal force, and temperature. Expect significantly longer spin times for starting solutions with over 5% solids. When operating at 4°C, flow rates are approximately 1.5 times slower than at 25°C. Viscous solutions such as 50% glycerin will take up to 5 times longer to concentrate than samples in a predominantly buffer solution.

Pre-rinsing

Membranes fitted to Spin-X® UF concentrators contain trace amounts of glycerin and sodium azide. Should these interfere with analysis, they can be removed by rinsing fill volume of buffer solution or deionized water through the concentrator. Decant filtrate and concentrate before processing sample solution. If you do not want to use the pre-rinsed device immediately, store it in the refrigerator with buffer or water covering the membrane surface. Please do not allow the membrane to dry out.

Sterilization of Polyethersulfone Membranes

Polyethersulfone membranes should not be autoclaved as high temperatures will substantially increase membrane MWCO. To sanitize or sterilize these devices, use a 70% ethanol solution or sterilizing gas mixture.

Optimizing Solute Recovery

When highest solute recoveries are most important, in particular when working with solute quantities in the microgram range, Corning recommends considering the following key points:

- ▶ Select the smallest device that suits the sample volume. Additionally, take advantage of the extra speed of Spin-X UF concentrators by refilling a smaller concentrator repeatedly.
- ▶ Select the lowest MWCO membrane that suits the application.
- ▶ When available, use swing bucket rotors rather than fixed angle rotors. This reduces the surface area of the concentrator that will be exposed to the solution during centrifugation.
- ▶ Reduce centrifugal force to approximately half of the maximum recommended (Table 10).
- ▶ Avoid over concentration. The smaller the final concentrate volume, the more difficult it is to achieve complete recovery. If feasible, after a first recovery, rinse the device with one or more drops of buffer and then recover again.
- ▶ Pre-treat the device overnight with a passivation solution, such as 5% SDS, Tween 20, or Triton™ X in distilled water. Then, rinse thoroughly before use.

Table 10. Maximum Recommended Centrifugal Force

Concentrator	Spin-X UF 500	Spin-X UF 6	Spin-X UF 20
Maximum Centrifugal Force – Swing Bucket			
5,000 to 50,000 MWCO PES	Do not use	4,000 x g	4,000 x g
>100,000 MWCO PES	Do not use	4,000 x g	3,000 x g
Maximum Centrifugal Force – Fixed Angle			
5,000 to 50,000 MWCO PES	12,000 x g	8,000 x g	6,000 x g
>100,000 MWCO PES	12,000 x g	6,000 x g	6,000 x g

Table 11. Chemical Compatibility*

(2-hour contact time; compatible pH range, pH 1-9)

Acetic Acid (25.0%)	1	Lactic Acid (5.0%)	1
Acetone (10.0%)	3	Mercaptoethanol (10 mL)	1
Acetonitrile (10.0%)	3	Methanol (60%)	2
Ammonium Hydroxide (5.0%)	2	Nitric Acid (10.0%)	1
Ammonium Sulphate (saturated)	1	Phenol (1.0%)	2
Benzene (100%)	3	Phosphate Buffer (1.0M)	1
n-Butanol (70%)	1	Polyethylene Glycol (10%)	1
Chloroform (1.0%)	3	Pyridine (100%)	2
Dimethyl Formamide (10.0%)	2	Sodium Carbonate (20%)	2
Dimethyl Sulfoxide (5.0%)	1	Sodium Deoxycholate (5.0%)	1
Ethanol (70.0%)	1	Sodium Dodecylsulfate (0.1M)	1
Ethyl Acetate (100%)	3	Sodium Hydroxide	3
Formaldehyde (30%)	1	Sodium Hypochlorite (200 ppm)	2
Formic Acid (5.0%)	1	Sodium Nitrate (1.0%)	1
Glycerine (70%)	1	Sulfamic Acid (5.0%)	1
Guanidine HCl (6M)	1	Tetrahydrofuran (5.0%)	3
Hydrocarbons, aromatic	3	Toluene (1.0%)	3
Hydrocarbons, chlorinated	3	Trifluoroacetic Acid (10%)	1
Hydrochloric Acid (1M)	1	Tween 20 (0.1%)	1
Imidazole (500 mM)	1	Triton X-100 (0.1%)	1
Isopropanol (70%)	1	Urea (8M)	1

*1 = acceptable; 2 = questionable, testing advised; 3 = not recommended

Chemical Compatibility

Spin-X UF concentrators are designed for use with biological fluids and aqueous solutions. For chemical compatibility details, refer to Table 11.

Characteristics of Corning® Plasticware

	Polystyrene (PS)	Polyethylene (High Density)	Polypropylene (PP)	Polycarbonate (PC)	Nylon (NY)	Polytetrafluorethylene (PTFE)	Polyethylene Terephthalate (PET)
PHYSICAL CHARACTERISTICS							
Basic Properties	Biologically inert, hard, excellent optical qualities	Biologically inert, high chemical resistance	Biologically inert, high chemical resistance, exceptional toughness	Clear, very tough, inert, high temperature resistance	Tough, heat resistant, machinable, high moisture vapor transmission	Biologically and chemically inert, high resistant slippery surface	Biologically inert, hard, tough, excellent optical qualities
Clarity	Clear	Opaque	Translucent	Clear	Opaque	Opaque	Clear
Autoclave Results	Melts	May distort	Withstands several cycles	Withstands one cycle	OK	OK	Melts
Heat Distortion Point	147-175°F 64-80°C	250°F 121°C	275°F 135°C	280-290°F 138-143°C	300-356°F 150-180°C	250°F 121°C	158°F 70°C
Burning Rate	Slow	Slow	Slow	Self-extinguishing	Self-extinguishing	None	—
EFFECTS OF LABORATORY REAGENTS							
Weak Acids	None	None	None	None	None	None	None
Strong Acids	Oxidizing acids attack	Oxidizing acids attack	Oxidizing acids attack	May be attacked	Attacked	None	Oxidizing acids attack
Weak Alkalies	None	None	None	None	None	None	None
Strong Alkalies	None	None	None	Slowly attacked	None	None	Attacked
Organic Solvents	Soluble in aromatic chlorinated hydrocarbons	Resistant below 80°C	Resistant below 80°C	Soluble in chlorinated hydrocarbons; partly soluble in aromatics	Resistant	Resistant	Soluble in aromatic or chlorinated hydrocarbons
GAS PERMEABILITY OF THIN WALL PRODUCTS*							
O ₂	Low	High	High	Very low	Very low	—	Very low
N ₂	Very low	Low	Low	Very low	Very low	—	Very low
CO ₂	High	Very high	Very high	Low	—	—	Low

*Obtained from a table which lists gas permeability in CC/100 sq. inches per 24 hr/mil.

Portions of this table courtesy of Modern Plastics Encyclopedia. Most data are from tests by A.S.T.M. methods. Tables show averages or ranges. Many properties vary with manufacturer, formulation, testing laboratory, and the specific operating conditions.

Chemical Compatibility of Corning® Plasticware

	PS	PP	PVC	CA	PC	CN	NY	MCE	PTFE	PET
Acids										
Hydrochloric acid (25%)	G	G	G	N	R	R	N	O	R	R
Hydrochloric acid (concentrated)	F	G	F	N	R	N	N	N	R	O
Nitric acid (concentrated)	P	P	P	N	R	N	N	N	O	N
Nitric acid (25%)	P	G	F	N	R	L	N	O	R	R
Alcohols										
Butanol	G	G	G	R	R	R	R	R	R	R
Ethanol	G	G	G	R	R	N	R	O	R	R
Methanol	G	G	G	R	R	N	R	O	R	R
Amines										
Aniline	G	G	P	N	N	R	R	N	R	O
Dimethylformamide	P	G	F	N	N	N	R	N	R	N
Bases										
Ammonium hydroxide (25%)	F	G	G	R	N	R	R	O	N	O
Ammonium hydroxide (1N)	F	G	G	N	N	R	R	O	N	N
Sodium hydroxide	G	G	G	N	N	N	R	N	R	N
Hydrocarbons										
Hexane	P	G	F	R	R	R	R	R	R	R
Toluene	P	G	P	R	O	R	R	R	R	N
Xylene	P	F	P	R	R	R	R	R	R	N
Dioxane	P	G	P	N	N	N	R	N	R	R
Dimethylsulfoxide (DMSO)	P	G	P	N	N	N	R	N	R	O*
Halogenated Hydrocarbons										
Chloroform	P	N	P	N	N	R	R	N	R	N
Methylene chloride	P	F	P	N	N	R	R	N	R	N
Ketones										
Acetone	P	G	P	N	O	N	R	N	R	N
Methyl ethyl diketone	P	G	P	N	O	N	R	O	R	R

*Can be used with aqueous solutions containing up to 20% DMSO.

R = Recommended, L = Limited resistance, N = Not recommended, O = Testing advised, F = Fair, G = Good, P = Poor.

PP = polypropylene, PVC = polyvinyl chloride, CA = cellulose acetate, PC = polycarbonate, PTFE = polytetrafluoroethylene PS = Polystyrene, CN = cellulose nitrate, NY = Nylon, MCE = mixed cellulose esters, PET = polyethylene terephthalate.

Characteristics of Corning Centrifuge Tubes

The following information is provided to serve as a general guideline for determining suitability of Corning centrifuge tubes for your applications. In addition, Corning recommends following the procedures outlined by the centrifuge manufacturer, as well as conducting a trial run to determine proper conditions before beginning any critical applications.

Corning centrifuge tubes are tested for leakage. They should not break or leak if used in a properly balanced rotor with suitable carriers, holders, and adapters that fully support the tubes when run in accordance with the guidelines in this section. These tubes are intended for one-time use only; reuse is not recommended as breakage or leakage may occur.

The recommended working temperature range for Corning centrifuge tubes is 0°C to 40°C. The suitability of these tubes for storage below 0°C depends on both the solution and the storage conditions. In general, the polypropylene and PET

tubes are more resistant to stress at low temperatures than polystyrene. It is strongly recommended that a trial run be performed under actual conditions to test the suitability of the tubes for frozen storage.

Suggestions for Safe Centrifugation

- ▶ **Caution:** When centrifuging pathogenic organisms, specimens known or suspected of being infectious, or any other potentially infectious or hazardous materials, approved safety containment systems should be used. Contact your centrifuge manufacturer for appropriate accessories or recommendations.
- ▶ Read protocols and instruction manuals carefully. Do not confuse speed or revolutions per minute (RPM) with relative centrifugal force (RCF). Instructions for centrifuging a sample at a given RPM and time are incomplete unless the rotor or radius is specified. Protocols should always state the time and RCF value for centrifuging a sample.

- Proper balancing and distribution of the load in a centrifuge is critical for optimum performance and to prevent damage to the tubes or centrifuge. Opposing buckets or loads should always be balanced within the range specified by the manufacturer. Tubes should always be distributed in the buckets with respect to the center of rotation as well as the pivotal axis of the bucket. Failure to do this may prevent the bucket from achieving a horizontal position during the centrifugation run. Uneven separations or tube failure may result.

These centrifuge tubes are intended for use by persons knowledgeable in safe laboratory practices. Failure can result from surface damage, exceeding the specified RCF values, using unsuitable support systems, improper temperatures, or incompatible chemicals.

The RCF ratings for Corning® disposable centrifuge tubes have been established at room temperature using tubes filled to

nominal capacity with water and spun in a horizontal rotor centrifuge for 5 minutes. The centrifuge must be equipped with the recommended carriers, adapters, and cushions that fully support the tubes. If an angle head rotor is used or proper support is not provided, RCF values will be lower. Use of liquid other than water may also lower RCF values. Please consult your centrifuge specifications and the nomogram table (page 34) to determine speeds at which maximum RCF is achieved.

Chemical Compatibility of Disposable Plastic Centrifuge Tubes

The mechanical strength, flexibility, color, weight, and dimensional stability of all plastic centrifuge tubes are affected to varying degrees by the chemicals with which they come in contact. Specific operating conditions, especially temperature, RCF, rotor type, carrier design, and run length will also affect tube performance.

Physical Properties of Disposable Plastic Centrifuge Tubes

	Polycarbonate	Clear Polypropylene	New Polyethylene Terephthalate
Recommended Working Temperature*	4°C to 20°C	4°C to 20°C	4°C to 20°C
Heat Distortion Point	121°C	121°C	70°C
Flexibility	Rigid	Moderate	Rigid
Transparency	Extremely clear	Clear	Optically clear
Maximum RCF:			
15 mL Tube	—	12,000/12,500 x g**	3,600 x g
50 mL Tube	—	15,500/17,500 x g**	3,600 x g
250 mL Tube	—	6,000 x g**	—
500 mL Tube	—	6,000 x g**	—
250 mL Flat-bottom Tube	13,500 x g/27,500 x g**	13,700 x g/27,500 x g**	—
500 mL Flat-bottom Tube	13,700 x g	13,700 x g**	—

*At room temperature for 24 hours.

**Depends on closure.

Chemical Resistance of Disposable Plastic Centrifuge Tubes*

Chemical Class	Polyethylene Terephthalate	Polypropylene	Polyethylene Caps
Acids (weak)	1	1	1
Acids	3	1	1
Alcohols	1	1	1
Aldehydes	3 ^a	2 ^a	1
Bases	3	1	1
Esters	2	2	2
Hydrocarbons:			
Aliphatic	1	2	3
Aromatic	3	3 ^b	3
Halogenated	3	3	3
Ketones	2	2 ^c	2

*At room temperature for 24 hours.

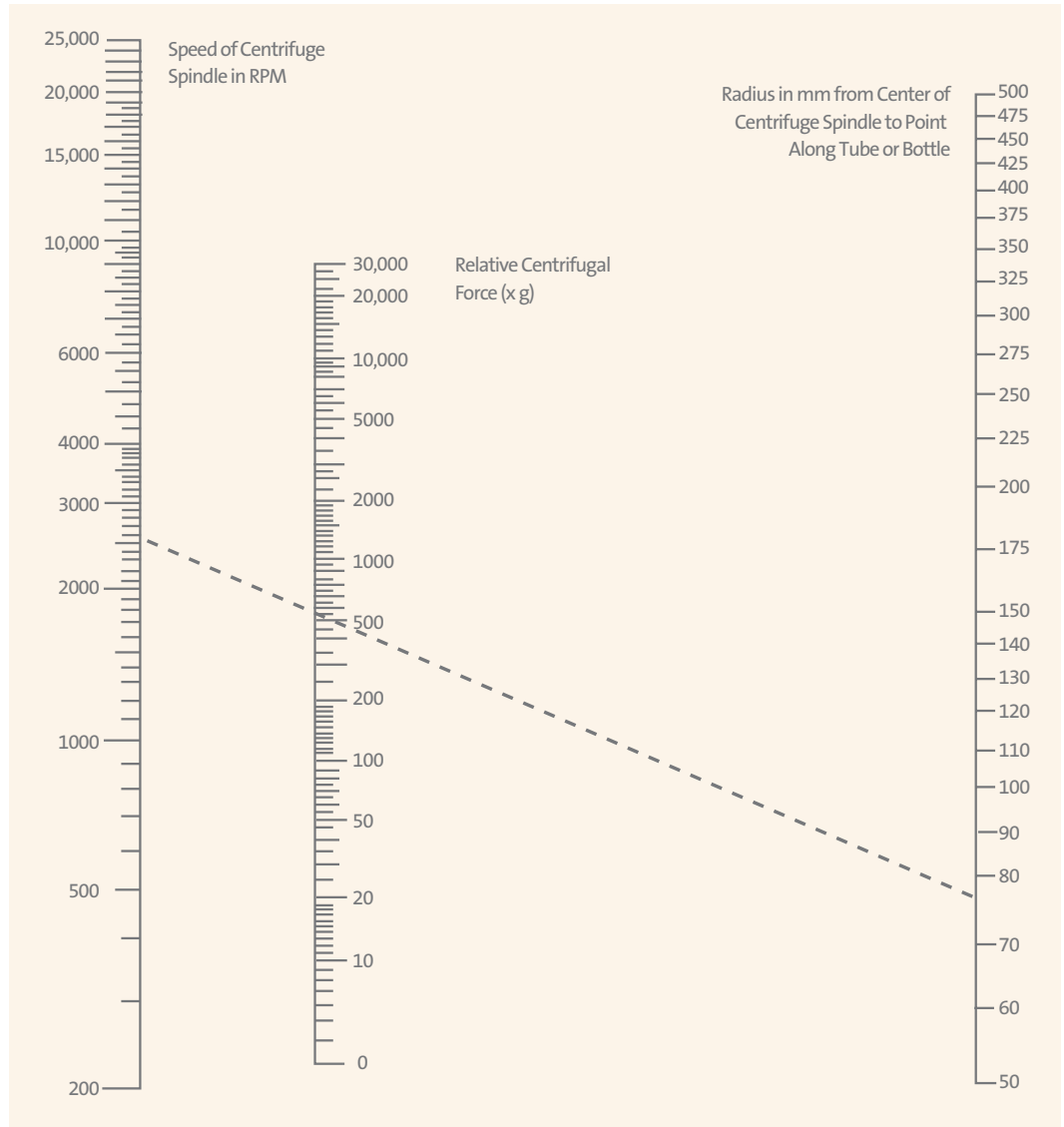
1 = Recommended, 2 = Suitable for most applications. However, a trial run under specific operating conditions is recommended, 3 = Not recommended.

^aFormaldehyde, rated 1.

^bPhenol, rated 1.

^cAcetone, rated 1.

Nomogram for Computing Relative Centrifugal Force



All data subject to normal manufacturing variations.

To calculate the RCF value at any point along the tube or bottle, measure the radius, in millimeters (mm), from the center of the centrifuge spindle to the particular point. Draw a line from the radius value on the right hand column to the appropriate centrifuge speed on the left-hand column.

The RCF value is the point where the line crosses the center column. The nomogram is based on the formula:

$$RCF = (11.17 \times 10^{-7}) RN^2$$

where:

R = Radius in mm from centrifuge spindle to point in tube bottom

N = Speed of spindle in RPM

Note: Tubes should not be spun in excess of 1500 x g.

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