

Suggested Tightening Forces for Various Cap Sizes

The integrity of the cap-to-container seal is dependent upon a number of variables, such as the materials of the cap and container, the sealing surface of the container, and the application torque applied to the closure. The most important of these is the application torque. If the cap is applied too loosely, the contents could leak (especially during shipping). If the cap is applied too tightly, it may be too difficult to remove the cap, or the container could break during application. The table below offers some suggested torques that should provide an adequate seal for most applications.

It is recommended that proper tests be performed to determine the optimum torque for the application. The most practical way to check the tightness is to measure the removal torque after the cap has been on the container for about five minutes. The removal torque should closely approximate the application torque. The minimum removal torque noted in the table should be maintained after a 24-hour period.

Plastic Resins

Selecting the Right Resin

Listed below are the primary types of resins used by Wheaton Science Packaging in the manufacturing of our Dropper Bottles, Tips, and Caps. Following are some of the characteristics and features of these resins.

Low Density Polyethylene (LDPE)

Very flexible, natural milky color with high impact strength. Excellent for mild and strong buffers, good chemical resistance to solvents, weak acids, and alkalis. Good water vapor and alcohol barrier properties. Poor gas barrier. Sterilizable with EtO or gamma radiation. Good stress-crack and impact resistance. LDPE is unreactive with most chemicals; some solvents will cause softening or swelling. Tough, flexible, and slightly translucent in the natural state.

Polypropylene (PP)

Rigid, solid, and durable in container or cap form. Natural yellow-gray tint color. Excellent stress-crack and impact resistance. Excellent moisture barrier, good oil and alcohol barrier, poor gas barrier properties. Good chemical resistance. Sterilization information provided (see Typical Properties of Plastics).

Permeability of Plastics

	LDPE	PP
N₂*	180	44
O₂*	500	90-140
CO₂*	2700	650
Moisture**	1.3	0.3-0.7

* Units are cc x mil/100 in² x day x atm @ 25°C
**Units are g x mil/100 in² x day @ 38°C, 50 - 90% RH

Typical Properties of Plastics

	LDPE	PP
Max Temp C°	80	135
Transparency	transl	transl
Sterilization:	yes	yes
Autoclave	no	yes
Gas	yes	yes
Dry Heat	no	no
Radiation	yes	yes
Disinfectants	yes	yes
Density gm/cc	0.92	0.90
Flexibility	flex.	rigid
Brittleness Temp C°	-100	0
Tensile Strength, psi	2000	5000

Dropper tip caps are manufactured from radiation grade resin.

Suggested Torques for Closures (in-lb)

PP/PE Cap on Plastic Container

Cap mm	Min. Application Torque	Removal Torque
8	4	2
13	7	4
15	8	4
20	10	5

Applications

- Pharmaceutical
- Biotech
- Diagnostic
- Animal Health

PACKAGING PRODUCTS



Product Highlights

- Dispenses reliable, repeatable uniform drop sizes
- Excellent alternative to pipetting
- Available in sizes ranging from 1 - 125 mL
- Manufactured to rigid ISO and quality standards
- Excellent chemical resistance making it ideal for most biotech, diagnostic and pharmaceutical applications
- Friction fit tips provide a secure fit to the bottle
- Tips and caps are available in a wide variety of colors
- Products are double bagged and twist-tied to reduce particulate
- Methods of sterilization: gas and gamma
- Custom configurations are available upon request

Dropper Bottles, Tips, and Caps

Dropper Bottles, Tips, and Caps

Dropper Bottles



Available in black or white for UV light-sensitive products

Dropper Bottles

Part No.	Size (mL)	Color	Cap Size (mm)	Tip Size (mm)	Qty/Case
W009899	1	White	8-425	8	3,000
W009891	1	Natural	8-425	8	3,000
W001500	3	White	8-425	8	3,000
W001550	3	Natural	8-425	8	3,000
W009879	3	Black	8-425	8	3,000
W009912	6	White	13-425	13	2,400
W001814	6	Natural	13-425	13	2,600
W013881	6 w/Transfer Bead*	White	13-425	13	2,600
W015166	6 w/Transfer Bead*	Natural	13-425	13	2,600
W001520	7	White	15-415	15	1,800
W001551	7	Natural	15-415	15	1,800
W009791	7	Black	15-415	15	1,800
W001813	10	White	15-415	15	1,400
W001810	10	Natural	15-415	15	1,400
W010976	10	Black	15-415	15	1,400
W001857	15	White	15-415	15	800
W001552	15	Natural	15-415	15	800
W001843	30	White	20-410	20	1,500
W001553	30	Natural	20-410	20	1,500
W001856	60	White	20-410	20	800
W001663A	60	Natural	20-410	20	800
W001599	125	White	20-410	20	450
W001555	125	Natural	20-410	20	450

*Transfer bead for use with shrink bands

Natural Flat Controlled Dropper Tips

Part No. Natural	Size (mm)	Description	Drop Size	Qty/Case
W013440	15	Tip	55 µL ±5	10,000
W013438	13	Tip	55 µL ±5	10,000
W009323	20	Tip	62 1/2 µL ±5	4,500
W008761	15	Tip	62 1/2 µL ±5	8,500
W001529	13	Tip	62 1/2 µL ±5	10,000

Natural Flat Controlled Dropper Tips & Caps

Part No. Natural	Size (mm)	Description	Drop Size	Qty/Case
W001693A*	8	Cap	N/A	10,000
W001695	8	Tip	18 µL ±5	20,000
W009445	8	Tip	25 µL ±5	20,000

*Cap designed to work with all 4 round controlled dropper tips

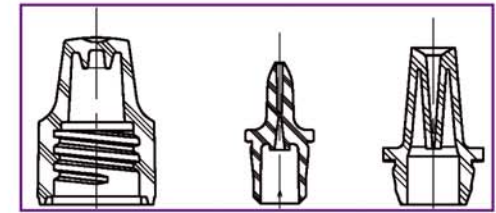
White Flat Controlled Dropper Tips

Part No. White	Size (mm)	Description	Drop Size	Qty/Case
W013422	15	Tip	55 µL ±5	10,000
W013439	13	Tip	55 µL ±5	10,000
W013437	20	Tip	62 1/2 µL ±5	4,500
W011431	15	Tip	62 1/2 µL ±5	8,500
W008580	13	Tip	62 1/2 µL ±5	10,000

White Round Controlled Dropper Tips & Caps*

Part No. White	Size (mm)	Description	Drop Size	Qty/Case
W001693A*	8	Cap	N/A	10,000
W011025	8	Tip	18 µL ±5	20,000
W013441	8	Tip	25 µL ±5	20,000

*Cap designed to work with all 4 round controlled dropper tips



All products are double bagged and twist-tied

Minimum order quantities apply to all products.

Dropper Tips



Dispensing Characteristics:

The general tolerance for the hole size in a pierced part is ± 0.003 inches. Average drop size for stock, controlled round tips (8 mm - 20 mm) is 43 µL ±5 µL.

Average drop size was calculated through statistical analysis of randomly selected dropper tips using distilled water at room temperature of approximately 78°F.

8 mm LDPE Dropper Tips

Part No.	Color	Qty/Case
W001761	Natural	20,000
W001558	Pink	20,000
W001498	Red	20,000
W001557	Orange	20,000
W001496	Blue	20,000
W001556	Gray	20,000
W001497	Green	20,000
W001559A	Purple	20,000
W001499	Yellow	20,000
W001601	Black	20,000
W001501	White	20,000

15 mm LDPE Dropper Tips

Part No.	Color	Qty/Case
W001762	Natural	9,000
W001800	Pink	9,000
W001873	Red	9,000
W001799	Orange	9,000
W001851	Blue	9,000
W001795	Gray	9,000
W001852	Green	9,000
W001802A	Purple	9,000
W001850	Yellow	9,000
W009790	Black	9,000
W001882	White	9,000

13 mm LDPE Dropper Tips

Part No.	Color	Qty/Case
W001891	Natural	10,000
W001787	Pink	10,000
W001790	Red	10,000
W001783	Orange	10,000
W001770	Blue	10,000
W001780	Gray	10,000
W001781	Green	10,000
W001788A	Purple	10,000
W001793	Yellow	10,000
W001605	Black	10,000
W001791	White	10,000

20 mm LDPE Dropper Tips

Part No.	Color	Qty/Case
W001760	Natural	5,000
W001815	Pink	5,000
W001817	Red	5,000
W001807	Orange	5,000
W001804	Blue	5,000
W001805	Gray	5,000
W001806	Green	5,000
W001816A	Purple	5,000
W001819	Yellow	5,000
W001608	Black	5,000
W001818	White	5,000

8-425 PP Dropper Tip Caps

Part No.	Color	Qty/Case
W009510R	Natural	26,000
W001644R	Pink	26,000
W001632R	Red	26,000
W001645R	Orange	26,000
W001633R	Blue	26,000
W001646R	Gray	26,000
W001634R	Green	26,000
W001647R	Purple	26,000
W001635R	Yellow	26,000
W001596R	Black	26,000
W001765R	White	26,000

15-415 PP Dropper Tip Caps

Part No.	Color	Qty/Case
W001839R	Natural	8,000
W001649R	Pink	8,000
W001636R	Red	8,000
W001650R	Orange	8,000
W001637R	Blue	8,000
W001651R	Gray	8,000
W001638R	Green	8,000
W001652R	Purple	8,000
W001639R	Yellow	8,000
W008512R	Black	8,000
W001766R	White	8,000

13-425 PP Dropper Tip Caps

Part No.	Color	Qty/Case
W009342R	Natural	15,000
W001560R	Pink	15,000
W001561R	Red	15,000
W001562R	Orange	15,000
W001563R	Blue	15,000
W001564R	Gray	15,000
W001565R	Green	15,000
W001566R	Purple	15,000
W001567R	Yellow	15,000
W012876R	Black	15,000
W009245R	White	15,000

20-410 PP Dropper Tip Caps

Part No.	Color	Qty/Case
W007995R	Natural	4,500
W001654R	Pink	4,500
W001640R	Red	4,500
W001655R	Orange	4,500
W001641R	Blue	4,500
W001656R	Gray	4,500
W001642R	Green	4,500
W001657R	Purple	4,500
W001643R	Yellow	4,500
W011836R	Black	4,500
W008888R	White	4,500

Dropper Tip Caps



Manufactured with radiation grade material. Torque Information noted on back page.