

 **WHEATON | Dropping Bottles**

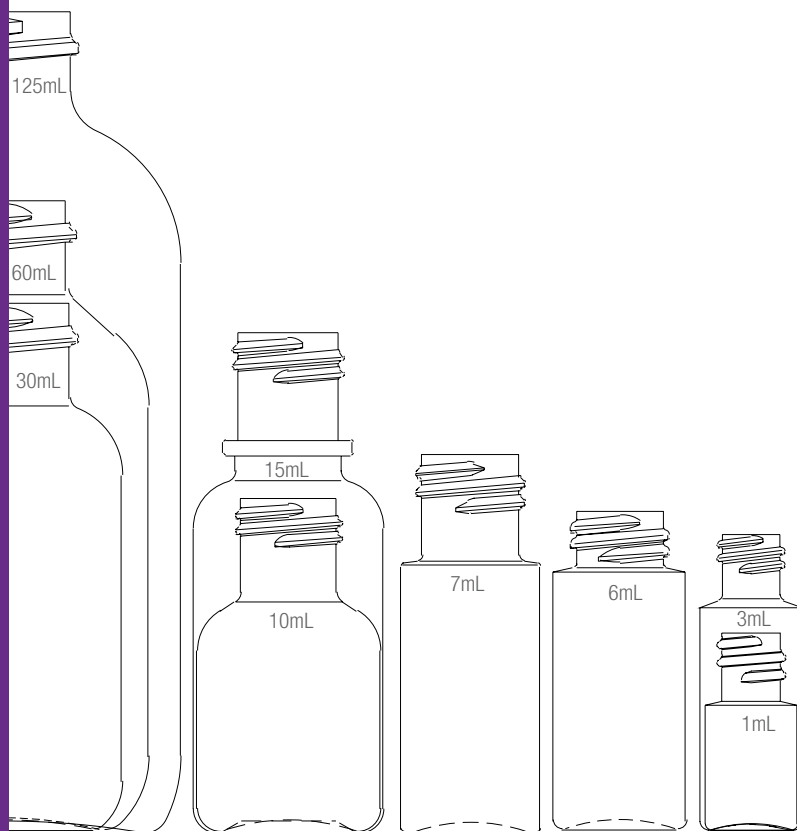


Dropping Bottles, Tips and Closures



Product Highlights

- Extended controlled dropping tips dispense reliable, repeatable uniform drop sizes
- Excellent chemical resistance making it ideal for most biotech, diagnostic and pharmaceutical applications
- Friction and snap fit tips provide a secure fit to the bottle
- Available in black and white for light sensitive products
- Manufactured to rigid ISO and quality standards
- Excellent alternative to pipetting
- Bottles available in sizes ranging from 1-125mL
- Bottles made of Low Density Polyethylene (LDPE)
- Tips made of Linear Low Density Polyethylene (LLDPE) and closures made of radiation grade polypropylene
- Tips and closures available in 11 colors
- All colorants meet CONEG regulations
- Products are double bagged and twist-tied to reduce particulates
- Methods of sterilization: gas and gamma
- Custom configurations are available upon request
- Lot controlled



Approximate Sizes

Dropping Bottle, LDPE

Part No.	Size (mL)	Color	Closure Size (mm)	Tip Size (mm)	Dia x H (mm)*	Qty/Case
W009899	1	White	8-425	8	12 x 25	3,000
W009891	1	Natural	8-425	8	12 x 25	3,000
W001500	3	White	8-425	8	13 x 39	3,000
W001550	3	Natural	8-425	8	13 x 39	3,000
W009879	3	Black	8-425	8	13 x 39	3,000
W009912	6	White	13-425	13	17 x 42	2,400
W001814	6	Natural	13-425	13	17 x 42	2,600
W013881**	6	White	13-425	13	17 x 42	2,600
W015166**	6	Natural	13-425	13	17 x 42	2,600
W001520	7	White	15-415	15	19 x 51	1,800
W001551	7	Natural	15-415	15	19 x 51	1,800
W009791	7	Black	15-415	15	19 x 51	1,800
W001813	10	White	15-415	15	25 x 45	1,400
W001810	10	Natural	15-415	15	25 x 45	1,400
W010976	10	Black	15-415	15	25 x 45	1,400
W001857**	15	White	15-415	15	25 x 66	800
W001552**	15	Natural	15-415	15	25 x 66	800
W001843	30	White	20-410	20	31 x 70	1,500
W001553	30	Natural	20-410	20	31 x 70	1,500
W001856	60	White	20-410	20	39 x 85	800
W001663A	60	Natural	20-410	20	39 x 85	800
W001599	125	White	20-410	20	46 x 108	450
W001555	125	Natural	20-410	20	46 x 108	450

* Dimensions without closure

** Tamper proofing bead for use with shrink bands

Flat Controlled Dropping Tip*

Part No.	Size (mm)	Drop Size	Use Closure Size	Qty/Case
Natural				
W013438	13	55µL ±5	13-425	10,000
W001529	13	62.5µL ±5	13-425	10,000
W013440	15	55µL ±5	15-415	10,000
W008761	15	62.5µL ±5	15-415	8,500
W009323	20	62.5µL ±5	20-410	4,500
White				
W008580	13	62.5µL ±5	13-425	10,000
W011431	15	62.5µL ±5	15-415	8,500

*Designed to work with standard dropping tip closure. See pages 8-9.

Round Controlled Dropping Tip

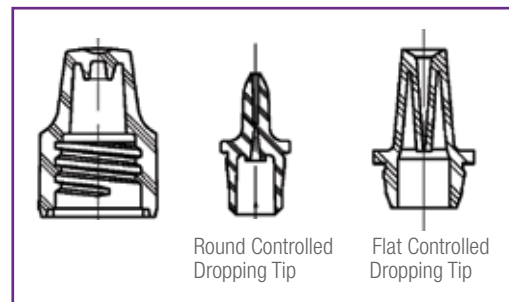
Part No.	Size (mm)	Drop Size	Use Closure	Qty/Case
Natural				
W001695	8	18µL ±5	W001693C	20,000
W009445	8	25µL ±5	W001693C	20,000
White				
W011025	8	18µL ±5	W001693C	20,000
W013441	8	25µL ±5	W001693C	20,000
White Closure for use with Round Controlled Dropping Tip				
W001693C	8			10,000

Dropping Bottles



- Available in black or white for UV light sensitive products
- For standard tips and closures see pages 4-5
- For torque information refer to page 6

Controlled Dropping Tips



Dropping Bottle Tips



- Made of LLDPE
- Select from 11 colors
- All colorants meet CONEG regulations
- Tip color can be coordinated with closure color
- Minimum order quantities apply to all products

Dispensing Characteristics:

The general tolerance for the hole size in a pierced part is $\pm .0762\text{mm}$ (± 0.003 inches). Average drop size for stock, controlled round tips (8mm - 20mm) is $41\mu\text{L} \pm .05\mu\text{L}$.

Average drop size was calculated through statistical analysis of randomly selected dropping tips using distilled water at room temperature of approximately 78°F (26°C).



8mm Tip for use with 8-425 Closure

Part No.	Color	Drop Size	Qty/Case
W001761	Natural	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001558A	Pink	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001498	Red	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001557	Orange	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001496	Blue	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001556	Gray	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001497	Green	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001559A	Purple	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001499	Yellow	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001601	Black	$41\mu\text{L} \pm 5\mu\text{L}$	20,000
W001501	White	$41\mu\text{L} \pm 5\mu\text{L}$	20,000

13mm Tip for use with 13-425 Closure

Part No.	Color	Drop Size	Qty/Case
W001891	Natural	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001787A	Pink	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001790	Red	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001783	Orange	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001770	Blue	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001780	Gray	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001781	Green	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001788A	Purple	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001793	Yellow	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001605	Black	$41\mu\text{L} \pm 5\mu\text{L}$	10,000
W001791	White	$41\mu\text{L} \pm 5\mu\text{L}$	10,000

15mm Tip for use with 15-415 Closure

Part No.	Color	Drop Size	Qty/Case
W001762	Natural	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001800A	Pink	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001873	Red	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001799	Orange	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001851	Blue	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001795	Gray	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001852	Green	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001802A	Purple	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001850	Yellow	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W009790	Black	$41\mu\text{L} \pm 5\mu\text{L}$	9,000
W001882	White	$41\mu\text{L} \pm 5\mu\text{L}$	9,000

20mm Tip for use with 20-410 Closure

Part No.	Color	Drop Size	Qty/Case
W001760	Natural	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001815A	Pink	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001817	Red	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001807	Orange	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001804	Blue	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001805	Gray	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001806	Green	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001816	Purple	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001819	Yellow	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001608	Black	$41\mu\text{L} \pm 5\mu\text{L}$	5,000
W001818	White	$41\mu\text{L} \pm 5\mu\text{L}$	5,000



Dropping Bottle Closures

8-425 Closure for use with 8mm Tip

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
W001647RA	Purple	26,000
W001635RA	Yellow	26,000
W001596R	Black	26,000
W001765R	White	26,000

13-425 Closure for use with 13mm Tip

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

15-415 Closure for use with 15mm Tip

Part No.	Color	Qty/Case
W001839RA	Natural	8,000
W001649RA	Pink	8,000
W001636RA	Red	8,000
W001650RA	Orange	8,000
W001637RA	Blue	8,000
W001651RA	Gray	8,000
W001638RA	Green	8,000
W001652RB	Purple	8,000
W001639RA	Yellow	8,000
W008512RA	Black	8,000
W001766RA	White	8,000

20-410 Closure for use with 20mm Tip

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
W001657RA	Purple	4,500
W001643RA	Yellow	4,500
W011836R	Black	4,500
W008888R	White	4,500



- Made of radiation grade polypropylene
- Select from 11 colors
- All colorants meet CONEG regulations
- Closure color can be coordinated with tip color
- Minimum order quantities apply to all products
- For torque information refer to page 6.

Suggested Tightening

Forces for Various Closure Sizes

The integrity of the closure-to-container seal is dependent upon a number of variables, such as the materials of the closure 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 closure is applied too loosely, the contents could leak (especially during shipping). If the closure is applied too tightly, it may be too difficult to remove the closure, 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 closure 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.

Suggested Torques for Closures (in-lb)

Closure (mm)	Min. Application Torque	Removal Torque
PP/PE Closure on Plastic Container		
8	4	2
13	7	4
15	8	4
20	10	5

Permeability of Plastics

	LDPE	PP
N ₂ *	180	44
O ₂ *	500	90-140
CO ₂ *	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

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 Closures. 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 closure 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).

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 closures are manufactured from radiation grade resin.

 **WHEATON** Science Packaging
a division of **WHEATON** Industries Inc.

1501 North 10th Street, Millville, NJ 08332-2038
800.225.1437 (U.S. & Canada) • 856.825.1100 • 856.825.9014 (F)
www.wheatonpkg.com

