

# Ophthalmics

## Solutions Guide



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## Ophthalmic Applications

As a world leader in the development of packaging solutions for ophthalmic applications, Berry has a wide range of offerings to meet the needs of our pharmaceutical customers.

### Product Offering

We offer a variety of proprietary, multi-dose, preservative-free eye droppers with patient-friendly features that fit your requirements in terms of:

- Capacity
- Appearance
- Drug compatibility
- Dose consistency
- Drop size
- Barrier properties
- Filling volumes
- Child-resistant
- Tamper-evident
- User-independent
- Preservative-free, antimicrobial systems
- Veterinary-friendly
- Materials: HDPE, LDPE, PP



## Multidose Eye-Dropper Sets

At Berry Global, we offer the broadest range of multidose ophthalmic bottles, droppers and closures.

# Rispharm™ Universal Set

A global staple in patient-friendly premium multi-dose droppers, the Rispharm™ Universal Set is compatible with both generic drugs and new formulations.



## Features

- Bottle & nozzle in white or natural
- Nozzle drop size
- Nozzle flow control features
- Cap colours
- Sterilization G.I and/or ETO

## Benefits

- Compatible with Risdrop™ nozzle
- Compatible with Activated Rispharm™
- Combining functionality and aesthetics

## Bottles

Code	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in m)	Height (in mm)	Weight (in gr)	Material	Source
1653	13	5	7,3	21,2	42,6	2,95	LDPE	France
1730*	13	10	12,7	24,2	52,5	3,6	LDPE	France
1620	13	10	13,2	24,5	52,5	3,15	PP	France
1620	13	10	13,2	24,5	52,5	3,15	HDPE	France
1749	13	15	17,5	24,5	65,5	4,6	LDPE	France
1770	13	25	27,7	30,7	65,5	6,7	LDPE	France
B-0065-H	13	10	13,2	24,1	52,3	3,15	HDPE	India
B-0064	13	5	7,3	21,2	42,6	2,95	LDPE	India
B-0065	13	10	12,7	24,25	52,5	3,6	LDPE	India
B/D-0066	13	15	17,5	24,5	65,5	4,6	LDPE	India

\*Bottle reference 1730 exists in 2 versions: 3,6g and 4,2g

## Compatible Nozzles and Caps

Code	Part	Shape	Drop Size (mm* / µl)*	Flow Control	Height (in mm)	Weight (in gr)	Material	Source
7781	Nozzle	short	43 / 58	with	19	0,47	LDPE	France
N-0064	Nozzle	short	30	with	17	0,41	LDPE	India
N-0063	Nozzle	short	45	with	19	0,47	LDPE	India
N/D-0079	Nozzle	short	60	with	19	0,47	LDPE	India
RD/D-0073-01	Nozzle Risdrop™	short	30	with	18	0,6	LDPE	India
U/D-0087	Nozzle Risdrop™	short	45	with	19	0,7	LDPE	India
7496	Cap TE	short	-	-	32	2,3	HDPE	France
7936	Cap CRC-TE	short	-	-	34	3,55	HDPE	France
C-0062	Cap TE	short	-	-	32	2,3	HDPE	India

Nozzle drop size measured with water at 45°

# Rispharm™ R2 - V2

The new Rispharm™ R2 multidose eye dropper with a tamper-evident ring retention feature meets the FDA recommendation to ensure the tamper-evident ring stays connected to the bottle which reduces potential risk of injury to patients.



## Features

- Bottle & nozzle in white or natural
- Nozzle drop size
- Nozzle flow control features
- Cap colours
- Regulatory compliances – Active DMF and Technical File
- Sterilizations options for both Gamma and ETO available
- Available in different resins, PP, PE
- Packaging needs can be adapted – Polybag, Tyvek Bags, Beta Bags, etc.

## Benefits

- Compatible with Risdrop™ nozzle
- Compatible with Activated Rispharm™
- TE Ring Retention feature (US FDA)

## Meets industry requirements

- In 2016, the FDA issued a warning recommending that TE rings should remain on bottles once opened to prevent caps from falling into patients' eyes.
- In 2011 the FDA issued 21CFR211.132 requirement, a rule requiring all over-the-counter (OTC) human drug products to be tamper evident.
- Our Rispharm R2 is commercial in the USA market and has been tested to ensure compliance with all US regulatory requirements and industry guidelines.



## Rispharm™ R2 - V2

### Bottles

Code	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in m)	Height (in mm)	Weight (in gr)	Material	Source
B/D-0105	13	5	7,3	21,2	42,6	2,45	PP	India
B-0064-R2	13	5	7,3	21,2	42,6	2,95	LDPE	India
B-0065-R2	13	10	12,7	24,25	52,5	3,6	LDPE	India
B/D-0066-R2	13	15	17,5	24,5	65,5	4,6	LDPE	India
B-0065-H-R2	13	10	13,2	24,1	52,3	3,15	HDPE	India
1876	13	5	7,3	21,2	42,6	2,95	LDPE	France
1878	13	10	12,7	24,2	52,5	3,6	LDPE	France
1749 R2	13	15	17,5	24,5	65,5	4,6	LDPE	France
1770 R2	13	25	27,7	24,5	65,5	6,7	LDPE	France
1620 R2	13	10	13,2	24,5	52,5	3,15	PP	France
1620 R2	13	10	13,2	24,5	52,5	3,15	HDPE	France

### Compatible Nozzles and Caps

Code	Part	Shape	Drop Size (mm* / µl)*	Flow Control	Height (in mm)	Weight (in gr)	Material	Source
N-0064	Nozzle	short	30	with	17	0,41	LDPE	India
N-0063	Nozzle	short	45	with	19	0,47	LDPE	India
N/D-0079	Nozzle	short	60	with	19	0,47	LDPE	India
U/D-0073	Nozzle Risdrop™	short	30	with	18	0,47	LDPE	India
U/D-0087	Nozzle Risdrop™	short	45	with	19	0,7	LDPE	India
7781	Nozzle	short	43/58	with	19	0,47	LDPE	France
C-0062-R2	Cap TE	short	-	-	31,5	2,3	HDPE	India
7496	Cap TE	short	-	-	32	2,3	HDPE	France
7936	Cap CRC-TE	short	-	-	34	3,55	HDPE	France




## Activated Rispharm™

To help reduce eye microbial infections for patients and consumers.

### Hygienic drops for patient protection

Pylote technology integration into Rispharm™ allows patients to have hygienic applications for every use with a multidose dropper.

Activated  Rispharm™ is proven and certified effective against conjunctivitis virus, Escherichia Coli and Staphylococcus aureus bacteria.

### Breakthrough sustainable innovation

100% mineral, biocompatible, patented Pylote technology from production to application, manufactured in France using in-house green chemistry process.

### An activated multidose dropper

- Self decontamination of tip and cap
- Identical patient treatment methods
- Same packaging design and use of existing manufacturing/filling lines
- Plastic waste 16X less for 1-month of treatment vs. monodose solutions

### Antimicrobial dropper activated by Pylote technology



> 85% of the contamination is found\* on the dropper tip and cap

\*Nentwich et al, Br J Ophthalmol 91(10): 1265-68



## Risdrop™

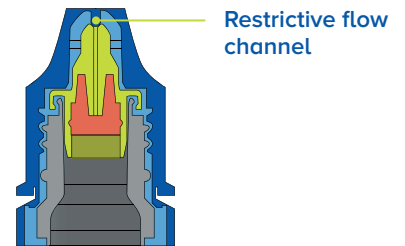
A unique patented ophthalmic nozzle for a safe and reliable drug delivery.

### Features

- 30 and 45µl drop size are commercial, 60µl coming soon
- Drop size variance is low +/- 10%
- No streaming, jetting or double drop delivery
- Uses Rispharm™ bottles and closures
- Compatible with existing filling lines
- 100% flow testing during manufacturing

### Benefits

- User independent nozzle
- Independent of container inclination and irrespective of squeeze force
- Helps prevent overdosage
- Compatible with many viscosities
- No streaming, jetting or double drop delivery



#### Safe



##### Support Optimum Adherence

- Avoid jet creation
- Delivery irrespective of squeeze force

#### Reliable



##### Increase Compliance

- User-independent
- Any angle of delivery
- Calibrated drops

#### Simple



##### Enable Confidence

- Easy-to-use
- One drop at a time
- Prevent overdosage



# Kerpharm™ universal set

A tamper-evident range with different drop sizes and flow control features.



## Features

- Sterilization G.I and/or ETO
- Bottle & nozzle in white or natural
- Nozzle Drop size
- Nozzle flow control features
- Cap colours

## Bottles

Code	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in m)	Height (in mm)	Weight (in gr)	Material	Source
0910	13	5	7,8	20,2	43,2	2,5	LDPE	France
4966	13	7,5	10,5	22,3	48,1	3,2	LDPE	France
0800	13	11	11 13,25	22,3	53,7	3,4	LDPE	France
0799	13	15	17,5	26,4	60	5	LDPE	France
4850	13	20	21,5	28,2	62,8	6	LDPE	France

## Compatible Nozzles and Caps

Code	Part	Shape	Drop Size (mm* / µl)*	Flow Control	Height (in mm)	Weight (in gr)	Material	Source
7408	Nozzle	short	30	without	16,38	0,5	LDPE	France
7192	Nozzle	short	43	without	16,38	0,5	LDPE	France
7389	Nozzle	short	43	with	16,38	0,46	LDPE	France
7327	Nozzle	long	43	with or without	23,85	0,65	LDPE	France
7408	Nozzle	short	50	with or without	16,38	0,5	LDPE	France
7516	Cap	short	-	-	28,5	1,95	HDPE	France
7493	Cap	long	-	-	36,3	2,25	HDPE	France
7368	Cap	long	-	-	36,5	2,15	PP	France



## Domestic Multidose Eyedropper Sets

At Berry Global, our range of domestic brands are manufactured locally to meet your country's needs.

# O-Design

Pharmerging target market tamper-evident eyedropper without flow control.



## Features

- Range of capacities available (5 ml to 15 ml)
- Design solution to comply with regulatory requirements with a DMF type III for the O-Design eyedropper range

## Bottles

Code	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in m)	Height (in mm)	Weight (in gr)	Material	Source
B/D-0038	13	5	7,5	21.1	42,4	2,9	LDPE	India
B/D-0034	13	10	12,7	24.4	52,5	3,6	LDPE	India
B/D-0035	13	15	18	24.4	65,5	4,5	LDPE	India

## Compatible Nozzles and Caps

Code	Part	Shape	Flow Control	Height (in mm)	Weight (in gr)	Material	Source
N/D-0036	Nozzle	short	without	19	0,45	LDPE	India
C/D-0037	Cap TE	short	-	32	2,25	HDPE	India

## R-Design

Pharmerging target market comprehensive range of eyedroppers with varied shape, color, designs, and filling capacity.



### Features

- Range of capacities available 5 ml to 30 ml
- Tamper-evident caps available in a variety of colors
- Short shaped nozzles with non-controlled drop size

### Bottles

Code	Bottle	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in mm)	Height (in mm)	Weight (in gr)	Material	Source
B/D-0001	R	13	5	9,5	23.1	42,2	2,9	LDPE	India
B/D-0002	R	13	10	13	25.0	46,2	3,65	LDPE	India
B/D-0003	R	13	15	19	26.0	57,8	4,4	LDPE	India
B/D-0016	R	13	30	36	31.5	73	8	LDPE	India
B/D-0049	EXT R	13	5	9,5	23.1	43	2,8	LDPE	India
B/D-0050	EXT R	13	10	13	25.0	46,5	3,65	LDPE	India
B/D-0015	RL	13	5	9,5	23.1	41,82	2,9	LDPE	India
B/D-0017	RL	13	10	13	25.0	47	3,63	LDPE	India
B/D-0069	EXT RL	13	15	19	25.6	58	4,4	LDPE	India
B/D-0021	EXT RL	13	5	9,5	23.1	42,5	2,8	LDPE	India
B/D-0022	EXT RL	13	10	13	25.0	46,5	3,65	LDPE	India

### Compatible Nozzles and Caps

Code	Part	Shape	Flow Control	Height (in mm)	Weight (in gr)	Material	Source
N/D-0007	Nozzle RG Block	short	without	20,5	0,56	LDPE	India
N/D-0006	Nozzle RG Block	short	without	20,5	0,6	LDPE	India
N/D-0008	Nozzle RL Block	short	without	20,5	0,52	LDPE	India
N/D-0120	Nozzle Blocked 3-Ring	short	without	20,5	0,6	LDPE	India
C/D-0012	Cap TE	short	-	28,4	1,75	HDPE	India
C/D-0013	Cap R	short	-	28,7	1,65	HDPE	India
C/D-0023	Cap DS	short	-	32,25	1,75	HDPE	India
C/D-0023-NX	Cap DS NX	short	-	32,9	1,8	HDPE	India

# I-Design

Pharmerging target market Ideal for small dosage applications.



## Features

- Range of capacities available (5 ml to 10 ml)
- Tamper-evident caps
- Short shaped nozzles with non-controlled drop size

## Bottles

Code	Neck Finish	Capacity (cc/ml)	Overflow Capacity (cc/ml)	Diameter (Ø in mm)	Height (in mm)	Weight (in gr)	Material	Source
B/D-0030	13	5	7,5	21	21	2,45	LDPE	India
B/D-0031	13	10	12,5	24	24	3,55	LDPE	India
B/D-0035	13	15	18	24,4	65,5	4,5	LDPE	India

## Compatible Nozzles and Caps

Code	Part	Shape	Height (in mm)	Weight (in gr)	Material	Source
C/D 0033	Cap TE	short	31	2,2	HDPE	India
N/D-0032	Nozzle	short	18,3	0,45	LDPE	India

# Droppers & Neck 15

Pharmerging market basic TE eye droppers.



## Features

- Bottle & nozzle in white or natural nozzle
- Shapes (round & square)
- Cap TE: ring colours
- One drop size available
- Not manufactured in a clean room
- Sterilization G.I and/or ETO
- Nozzle: Non-controlled and generic; short shape

## Bottles

Code	Neck Finish	Capacity (ml)	Overflow Capacity (ml)	Diameter (Ø in mm)	Height (in mm)	Weight (in gr)	Material	Source
S0312	15	9	10+/- 1.0	22,58	46,91	3,3	LDPE90% HDPE10%	Mexico
S0302	15	15	18 +/- 1.0	24,99	61,21	4,8	LDPE90% HDPE10%	Mexico
S0314	15	30	35 +/- 1.0	30,99	72,16	6,2	HDPE40.% LDPE60%	Mexico
S0317	15	30	35 +/- 1.0	30,99	72,16	6,2	HDPE40.% LDPE60%	Mexico

## Compatible Nozzles and Caps

Code	Shape	Height (in mm)	Weight (in gr)	Material	Source
I1210/I2202	short	27,5	1,7	PP	Mexico
I1112	short	16,6	0,41	LDPE	Mexico



## Sentinel Closures

Small diameter, push and turn closures designed to meet new Consumer Product Safety Commission (CPSC) imidazoline regulations.



### Features

- 13 mm neck diameter with custom sizes available upon request
- Maintains child resistance while still being senior friendly
- Compatible with most existing bottles and tips

### Nozzles and Caps

Code	Part	Shape	Height (in mm)	Weight (in gr)	Material	Source
7496	Cap TE	short	32	2,3	HDPE	France
7936	Cap CRC-TE	short	34	3,55	HDPE	France
C-0062	Cap TE	short	36,5	2,15	PP	India
CR1342AFPTT	Cap CRC non-TE	short	23.9	2.1	PP/HDPE	USA

# Lens Cleaning Set

Extending our expertise to support your full ophthalmic portfolio.



## Features

- Bottle and nozzle in white or natural colors
- Different color cap options
- No nozzle drop control
- One drop size available (orifice 1,2 mm)
- IBM bottle manufactured in GMP area

Product	Reference	Material	Nominal Volume (in ml)	Brimful Volume (in ml)	Height (in mm)
Areoharm Bottle	899830070A	HDPE	15	20	58,8
Areoharm Bottle	8999988330000080AB	HDPE	30	38	77,6
Areoharm Bottle	899830090AB	HDPE	60	65	95,7
Areoharm Tamper Evident Cap	216152302AA	HDPE	-	-	22,2
Areoharm Dropper	0BO103012XX	HDPE	-	-	-





## Complete solutions provider

Berry is the global partner for your packaging needs.

### What do we do?

- Provide full design and centralized program management
- Convert ideas to products
- Industrialization solutions (tool development, assembly and automation and program management) to cater customer needs
- Scalability that can accelerate market access and penetration

### How do we do it?

- Strong collaboration between sales, technical, and operations teams
- Flexibility and speed in development
- Superior quality standards and regulatory expertise to execute even the most complex projects

