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# Plastic packaging solutions for diverse pharmaceutical applications

Gerresheimer Primary Packaging Plastics specializes in the widely varied spectrum of pharmaceutical plastic packaging within solid, liquid and ophthalmic applications, plastic vials and plastic bottles for personal care.

Our leading brands Duma®, Dudek™ and Triveni for solid dosage, edp-branded PET bottles for liquid dosage and our ophthalmic products form part of a comprehensive and innovative product range. Our monolayer plastic vials are based on COP and offer inert contact surface and deliver a unique packaging safety feature to manufacturers of

toxic or high potency drug solutions. Our standard range includes a wide choice of different types of containers and closures, PET bottles, eye droppers, nasal sprays, nebulizers, applicators, accessories as well as numerous customized developments.

Using our ideas and experience to produce intelligent, increasingly safe and user-friendly packaging solutions has enabled us to become an innovative partner to the global pharmaceutical industry. We know, understand and reinforce our customers business.

#### Ophthalmic and nasal applications



### Liquid formulations



Solid formulations





# Specialist and quality leader in primary plastic packaging

Our manufacturing operations use state-of-the-art technology and apply the most rigorous quality and hygiene standards. They cover all production technologies from injection moulding and injection blow moulding to blow moulding processes. The majority of our production

operations are carried out in modern classified clean-rooms or in clean conditions. All plants apply the rules of Good Manufacturing Practice (GMP) and are certified in accordance with ISO standards.

- Solution providing
- Good Manufacturing Practice (GMP)
- ISO certifications
   (ISO 9001, ISO 15378, ISO 14001, ISO 45001)
- Automated in-line controls
- Vision-based inspection system
- Class 7 (10,000) + class 8 (100,000) clean-rooms

# Strong regulatory approach

Strong quality culture

We ensure full conformity of our products with the European pharmacopoeia, the United States pharmacopeia and the requirements for FDA registration with a Drug Master File as the standard. Knowing the extensive requirements of our customers we focus on providing a high level of documentation with our products.

A strong quality culture supports our efforts to deliver excellent quality. The culture is defined by our shared beliefs, values and behaviour patterns.

- High level of documentation and registration
- Standard product database
- FDA and world-wide registration of all products
- US and Canada Drug Master File
- Product registrations in Russia, China and the Ukraine
- Food approval

- Quality attitude and team work
- Continuous improvements
- Systematic problem solving
- Quality by design
- Stable, robust, reliable and validated processes
- Risk-based approach







### Success through constant innovation

- Cover your needs with wide product family
- Full solutions with less material and same properties
- Competitive advantage via product differentiation
- Solution provider to customer challenges
- Vision for identifying future customer needs



### Reliability through excellent quality

- Strong quality culture based on right first time
- Deliver best-in-class products and services and a high level of documentation
- Strong regulatory platform and conform with EP and USP
- Certified according to relevant ISO standards and operate in classified clean rooms
- Deep understanding of patient safety and customer requirements





# Understanding through technical competence

- Complete solution provider and partner for new projects
- Extensive experience and know-how
- Optimized processes with high quality molds and machines
- Support with auxiliary processes e.g., sterilization
- Excellent technical support in order to run your production smoothly



### Flexibility through global presence

- One supplier and one responsibility
- Understanding local market needs and regulations
- Uniform and state-of-the-art manufacturing conditions
- Global lean organization increasing the speed to market
- Easy transfer of production to another region



### Performance through commitment to sustainability

- We Rethink our processes and products for a more sustainable future
- We recycle our production waste 100%
- We design for recycling for over 20 years
- We challenge our suppliers social and economic impacts on carbon footprint
- We are standing for the healthy and social well-being of our employees

# Ophthalmic and nasal applications

Our products for ophthalmic and nasal applications include bottles and droppers in LDPE and nasal sprays with pumps.

Other materials, sizes and designs are available, as are closures with child-resistant or senior-friendly features.



# Ophthalmic and nasal applications



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Dropper bottles – System A Standard bottle



2

Accessories
System A
Caps with short droppers



3

**Dropper bottles – System B**Special bottle design



4

Accessories
System B
Caps with long droppers



5

Dropper bottles – System D Special bottle design



6

Accessories
System D
Caps with short droppers



7

Dropper bottles -System E/F Standard US bottle



8

Accessories
System E/F
Cap with fixed TE-ring
Sleeved cap

## Nasal



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Spray and pump systems: Snap-on bottles / Crimp bottles

# Dropper bottles - System A (LDPE / HDPE / PET)



specifications



### Dropper bottles - System A (LDPE / HDPE / PET)

Ref.#	ml	ml	<b>▶</b> mm ◀	au V	mm		
LDPE							
35034	2,0	3,0	17,0	34,5	11,0		
35036	5,0	7,7	21,2	42,4	14,0		
35035	10,0	12,5	24,1	51,8	14,0		
35048	10,0	12,2	24,1	51,8	14,0		
35037	15,0	18,5	25,3	63,0	14,0		
35225	25,0	26,4	30,7	65,3	14,0		
35030	25,0	28,5	30,7	65,3	14,0		
35038	30,0	34,9	30,8	75,0	14,0		
35080	50,0	62,0	39,1	81,4	14,0		
32266	60,0	68,5	39,0	87,8	14,0		
32293	110,0	120,0	45,3	107,0	14,0		
32295	120,0	140,0	45,0	120,5	14,0		
32271	280,0	317,0	60,0	147,5	14,1		
HDPE							
35046	5,0	8,0	21,2	42,5	14,0		
35003	10,0	13,2	24,1	51,8	14,0		
35032	15,0	18,5	25,3	63,0	14,0		
35041	30,0	34,9	30,6	75,0	14,0		
32333	50,0	61,5	39,1	81,2	14,0		
32334	60,0	68,3	39,1	87,8	14,0		
32331	110,0	125,0	45,3	107,5	14,0		
32327	285,0	301,0	58,2	147,5	14,0		
33067	360,0	382,0	58,2	181,0	14,0		
PP							
35047	5,0	7,7	21,2	42,4	14,0		
PET							
37010	10	13,2	24,1	51,8	14,0		

#### **Product features**

- 24 sizes ranging from 2 to 360 ml
- Material: bottle LDPE, HDPE, PP, PET
- Available in other materials, sizes and designs
- Accessories see page 12 and 13
- Gerresheimer offers full solution for irradiated products incl. validation
- ETO sterilization on request

- Bottles produced by injection blow molding / extrusion blow molding / injection stretch blow molding
- Manufactured under clean-room conditions

# Dropper bottles – System A

## Accessories







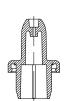




Dropper

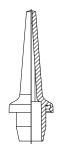
Nozzle



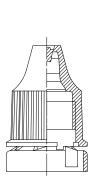


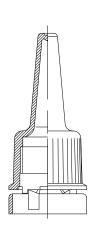




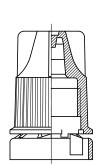


Tamper-evident screw cap

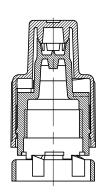




Tamper-evident wing screw cap



Child-resistant tamper-evident screw cap





### specifications

Drops +/- 30%

	Ref.#	$\bigcirc$
Dropper	14110	21
	14166	23
	14182	23
	14213	21
	14214	28
	14216	25
	14219	13
Nozzle	14180	_

	Ref.#	comments
Tamper-evident screw cap	15190	Available in white
	15197	Available in white, fits ref 14214
	15233	Available in colors
	15198	Available in colors, fits ref 14214
	15255	Fits ref 14216, 35034
Tamper-evident screw cap for nozzle	15207	Fits ref 14180
Tamper-evident wing screw cap	15250	Fits ref 14110, 14166, 14182, 14213, 14219
Child-resistant tamper-evident screw cap	91176	Fits ref 14110, 14166, 14182, 14213, 14219

### **Product features**

- Material: dropper LDPE, nozzle LDPE, tamper-evident screw cap HDPE, tamper-evident wing screw cap HDPE, child-resistant tamper-evident screw cap HDPE / PP
- Available in other materials, sizes and designs
- Droppers, nozzles and caps fit bottle sizes on page 10 and 11
- DropAid as an application that helps to open the bottle makes it easy and simple to positioning the dropper correctly above the eye

- Droppers, nozzle and caps produced by injection molding
- Manufactured under clean-room conditions

# Dropper bottles - System B



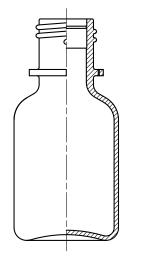
### specifications

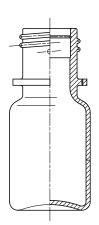
### **Product features**

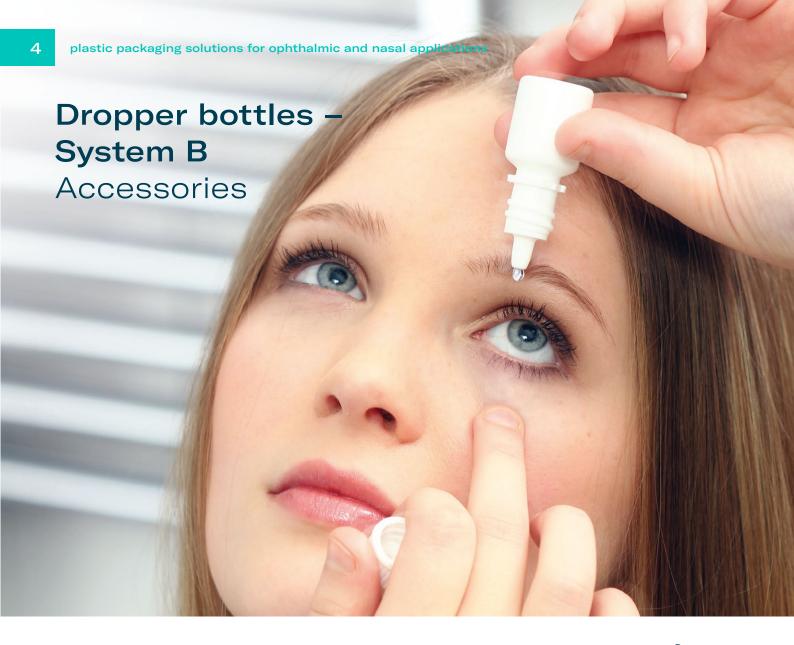
- 2 sizes ranging from 5 to 10 ml
- Material: bottle LDPE
- Available in other materials, sizes and designs
- Accessories see page 15
- Gerresheimer offers full solution for irradiated products incl. validation
- ETO sterilization on request

- Bottles produced by injection blow molding
- Manufactured under clean-room conditions

Ref.#	ml	ml	▶ mm ◀	au V	mm
38005	5	7,0	19,3	43,5	14,5
38010	10	14,4	25,0	53,0	14,5







### Tamper-evident screw cap

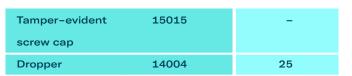


	N A	

### Dropper







### **Product features**

- Material: dropper LDPE, tamper-evident screw cap HDPE
- Available in other materials, sizes and designs
- Dropper and cap fit bottle sizes on page 14

- Dropper and cap produced by injection molding
- Manufactured under clean-room conditions

# **Dropper bottles - System D**



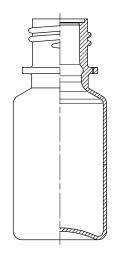
### specifications

### **Product features**

- 2 sizes ranging from 5 to 10 ml
- Material: bottle LDPE
- Available in other materials, sizes and designs
- Accessories see page 17
- Gerresheimer offers full solution for irradiated products incl. validation
- ETO sterilization on request

- Bottles produced by injection blow molding
- Manufactured under clean-room conditions

Ref.#	ml	ml	▶ mm ◀	B B B	mm
35083	5	7,6	20	43,5	14,7
35081	10	11,5	22	52,0	14,7



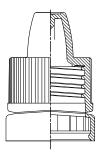
# Dropper bottles - System D

### Accessories



### specifications

Tamper-evident screw cap



Dropper



Ref.#

Tamper-evident	15020	-
screw cap		
Dropper	14015	20

### **Product features**

- Material: dropper LDPE, tamper-evident screw cap HDPE
- Available in other materials, sizes and designs
- Dropper and cap fit bottle sizes on page 16

#### **Technical features**

- Dropper and cap produced by injection molding
- Manufactured under clean-room conditions

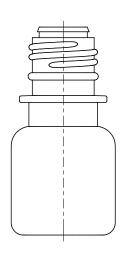
Drops

# Dropper bottles - System E/F





### specifications



Ref.#	ml	ml	<b>▶</b> mm ◀	A BE	mm
LDPE					
35178	5	7,2	21,2	42,4	14,0
35179	10	12,4	24,1	51,8	14,0
35180	15	18,2	25,3	63,0	14,0
35181	30	34,0	30,8	75,0	14,0
PP					
35182	5	7,5	21,2	42,4	14,0

#### **Product features**

- 5 sizes ranging from 5 to 30 ml
- Material: bottle LDPE, PP
- Accessories see page 19
- Gerresheimer offers full solution for irradiated products incl. validation
- ETO sterilization on request

- Bottles produced by injection blow molding
- Manufactured under clean-room conditions

# Dropper bottles - System E/F

### Accessories







System E Cap with fixed TE-ring



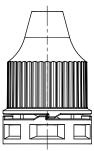








### specifications







System F Sleeved cap

Caps System E	Ref.#	Comments
Tamper-evident screw cap white	15033	
Tamper-evident screw cap colored	15035	
Tamper-evident screw cap white	15034	fits ref 14214
Tamper-evident screw cap colored	15036	fits ref 14214

#### Caps System F

Tamper-evident screw cap white	15009	
Tamper-evident screw cap colored	15031	
Tamper-evident screw cap white	15010	fits ref 14214
Tamper-evident screw cap colored	15032	fits ref 14214

### **Product features**

TE-ring

- Material: dropper LDPE, tamperevident screw cap and sleeved cap HDPE
- Caps and droppers fit bottle sizes on page 18

- Caps produced by injection molding
- Manufactured under clean-room conditions

Droppers System E/F	Ref.#	+/- 30%
	14166	23
	14182	23
	14110	21
	14219	13
	14214	28

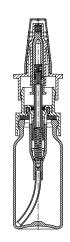
## Spray and pump systems:

Snap-on bottles / Crimp bottles





### Snap-on bottles



Crimp bottles

Ref.#	ml	mi	mm	<b>A</b> SEE ▼	mm
35022	10,0	16,3	24,0	52,7	19,85
35023	15,0	18,0	24,0	58,0	19,85
35014	20,0	23,0	29,0	53,0	19,85
35176	20.0	25.5	31.0	50.7	19.95

### **Product features**

- 4 sizes ranging from 10 to 20 ml
- Material: bottle HDPE
- Available int other materials, sizes and designs
- Reference to spray/pump supplier on request

### **Technical features**

- Bottles produced by injection blow molding
- Manufactured under clean-room conditions

Ref.#	ml	ml	<b>™</b> mm ◀	au V	mm	
35175	15,0	19,5	25,5	54,4	20,0	
35090	20,0	25,2	31,0	50,7	20,1	

### Product features

- 2 sizes ranging from 15 to 20 ml
- Material: bottle HDPE
- Dedicated for crimp pumps

- Bottles produced by injection blow molding
- Manufactured under clean-room conditions



### Gerresheimer worldwide



### Primary Packaging Plastics

### **North America**

### Centor Inc.

5091 County Road 120 44610 Berlin, OH (USA) Tel. +1 404 376 8157

### **South America**

### Gerresheimer Plásticos São Paulo Ldta

Rua Mario Regalo Pereira, Nr. 160 and 170 05550-060 Butantã, São Paulo (Brazil) Tel. +55 11 3783 83 50

### Gerresheimer Plásticos São Paulo Ltda

VP 3 E S/N. Qd 06 A Módulo 02 Barreiro do Meio – Distrito Agroindustrial 75132–100 Anápolis (Brazil) Tel. +55 62 3142–2555

### **Europe**

### Gerresheimer Vaerloese A/S

Walgerholm 2-8 3500 Vaerloese (Denmark) Strandgade 87 5683 Haarby (Denmark) Tel. +45 4477 7888

### Gerresheimer Bolesławiec S.A.

ul. Boleslawa Chrobrego 15 59-700 Boleslawiec (Poland) Tel. +48 75 735 04 00

### Gerresheimer Zaragoza S.L.U.

P.I. Valdemuel Camino del Sabinar, s/n 50290 Epila, Zaragoza (Spain) Tel. +34 976 817 408

#### Asia

### Triveni Polymers Pvt. Ltd.

Kundli Plant, Haryana G.T. Road, Piao Maniyari Kundli-131028 Distr. Sonepat Haryana (India) Tel. +91 130 2219070

### Triveni Polymers Pvt. Ltd.

Village Kunwarda, Taluka Mangrol Kosamba (R.S.), Distr. Surat 394120 Gujarat (India) Tel. +91 264 6270664

#### Gerresheimer Singapore Pte. Ltd.

1 Paya Lebar Link, Paya Lebar Quarter 1, 4th floor No.1 Singapore 408533 Tel. +65 6955 8639

## Gerresheimer Plastic Packaging (Changzhou) Co., Ltd.

No. 280, Fumin Road, Lucheng Street Changzhou City, Jiangsu Province (China)

Tel. +86 139 1530 6010

### More information:

info-plasticpackaging@gerresheimer.com

gerresheimer.com

Pharmaceutical Plastic Packaging and Systems for South America is to be found in a separate catalogue