ERYTHROMYCIN AND BENZOYL PEROXIDE- erythromycin and benzoyl peroxide
Oceanside Pharmaceuticals

Erythromycin-Benzoyl Peroxide Topical Gel

DESCRIPTION

Erythromycin-Benzoyl Peroxide Topical Gel contains erythromycin [(3R*,4S*,5S*,6R*,7R*,9R*,11R*,12R*,13S*,14R*)-4-[(2,6-Dideoxy-3-*C*-methyl-3-*O*-methyl-α-L-*ribo*-hexopyranosyl)-oxy]-14-ethyl-7,12,13-trihydroxy-3,5,7,9,11,13-hexamethyl-6-[[3,4,6-trideoxy-3-(dimethylamino)-β-D-*xylo*-hexopyranosyl]oxy] oxacyclotetradecane-2,10-dione]. Erythromycin is a macrolide antibiotic produced from a strain of *Saccharopolyspora erythraea* (formerly *Streptomyces erythreus*). It is a base and readily forms salts with acids.

Chemically erythromycin is $C_{37}H_{67}NO_{13}$. It has the following structural formula:

Erythromycin has the molecular weight of 733.94. It is a white crystalline powder and has a solubility of approximately 1 mg/mL in water and is soluble in alcohol at 25°C. Erythromycin-Benzoyl Peroxide Topical Gel also contains benzoyl peroxide for topical use. Benzoyl peroxide is an antibacterial and keratolytic agent.

Chemically benzoyl peroxide is $C_{14}H_{10}O_4$. It has the following structural formula:

Benzoyl peroxide has the molecular weight of 242.23. It is a white granular powder and is sparingly soluble in water and alcohol and soluble in acetone, chloroform and ether.

Each gram of Erythromycin-Benzoyl Peroxide Topical Gel contains, as dispensed, 30 mg (3%) of erythromycin and 50 mg (5%) of benzoyl peroxide in a base of purified water USP, Carbomer Homopolymer Type C, alcohol 20%, sodium hydroxide NF, docusate sodium and fragrance.

CLINICAL PHARMACOLOGY

The exact mechanism by which erythromycin reduces lesions of acne vulgaris is not fully known; however, the effect appears to be due in part to the antibacterial activity of the drug.

Benzoyl peroxide has a keratolytic and desquamative effect which may also contribute to its efficacy. Benzoyl peroxide has been shown to be absorbed by the skin where it is converted to benzoic acid.

MICROBIOLOGY

Erythromycin acts by inhibition of protein synthesis in susceptible organisms by reversibly binding to 50 **S** ribosomal subunits, thereby inhibiting translocation of aminoacyl transfer-RNA and inhibiting polypeptide synthesis. Antagonism has been demonstrated *in vitro* between erythromycin, lincomycin, chloramphenicol and clindamycin. Benzoyl peroxide is an antibacterial agent which has been shown to be effective against *Propionibacterium acnes*, an anaerobe found in sebaceous follicles and comedones. The antibacterial action of benzoyl peroxide is believed to be due to the release of active oxygen.

INDICATIONS AND USAGE

Erythromycin-Benzoyl Peroxide Topical Gel is indicated for the topical treatment of acne vulgaris.

CONTRAINDICATIONS

Erythromycin-Benzoyl Peroxide Topical Gel is contraindicated in those individuals who have shown hypersensitivity to any of its components.

WARNINGS

Pseudomembranous colitis has been reported with nearly all antibacterial agents, including erythromycin, and may range in severity from mild to life-threatening. Therefore, it is important to consider this diagnosis in patients who present with diarrhea subsequent to the administration of antibacterial agents.

Treatment with antibacterial agents alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of "antibiotic-associated colitis."

After the diagnosis of pseudomembranous colitis has been established, therapeutic measures should be initiated. Mild cases of pseudomembranous colitis usually respond to drug discontinuation alone. In moderate to severe cases, consideration should be given to management with fluids and electrolytes, protein supplementation and treatment with an antibacterial drug clinically effective against *C. difficile* colitis.

PRECAUTIONS

General:

For topical use only; not for ophthalmic use. Concomitant topical acne therapy should be used with caution because a possible cumulative irritancy effect may occur, especially with the use of peeling, desquamating or abrasive agents. If severe irritation develops, discontinue use and institute appropriate therapy.

The use of antibiotic agents may be associated with the overgrowth of nonsusceptible organisms including fungi. If this occurs, discontinue use and take appropriate measures.

Avoid contact with eyes and all mucous membranes.

Information for Patients:

Patients using Erythromycin-Benzoyl Peroxide Topical Gel should receive the following information and instructions:

1. This medication is to be used as directed by the physician. It is for external use only. Avoid contact with the eyes, nose, mouth, and all mucous membranes.
2. This medication should not be used for any disorder other than that for which it was prescribed.
3. Patients should not use any other topical acne preparation unless otherwise directed by their

physician.

4. Patients should report to their physician any signs of local adverse reactions.
5. Erythromycin-Benzoyl Peroxide Topical Gel may bleach hair or colored fabric.
6. Keep product refrigerated and discard after 3 months.

CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY

Data from a study using mice known to be highly susceptible to cancer suggests that benzoyl peroxide acts as a tumor promoter. The clinical significance of this is unknown.

No animal studies have been performed to evaluate the carcinogenic and mutagenic potential or effects on fertility of topical erythromycin. However, long-term (2-year) oral studies in rats with erythromycin ethylsuccinate and erythromycin base did not provide evidence of tumorigenicity. There was no apparent effect on male or female fertility in rats fed erythromycin (base) at levels up to 0.25% of diet.

Pregnancy:

Teratogenic Effects

Animal reproduction studies have not been conducted with Erythromycin-Benzoyl Peroxide Topical Gel or benzoyl peroxide.

There was no evidence of teratogenicity or any other adverse effect on reproduction in female rats fed erythromycin base (up to 0.25% diet) prior to and during mating, during gestation and through weaning of two successive litters.

There are no well-controlled trials in pregnant women with Erythromycin-Benzoyl Peroxide Topical Gel. It also is not known whether Erythromycin-Benzoyl Peroxide Topical Gel can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Erythromycin-Benzoyl Peroxide Topical Gel should be given to a pregnant woman only if clearly needed.

Nursing Women:

It is not known whether Erythromycin-Benzoyl Peroxide Topical Gel is excreted in human milk after topical application. However, erythromycin is excreted in human milk following oral and parenteral erythromycin administration. Therefore, caution should be exercised when erythromycin is administered to a nursing woman.

Pediatric Use:

Safety and effectiveness of this product in pediatric patients below the age of 12 have not been established.

ADVERSE REACTIONS

In controlled clinical trials, the incidence of adverse reactions associated with the use of Erythromycin-Benzoyl Peroxide Topical Gel was approximately 3%. These were dryness and urticarial reaction.

The following additional local adverse reactions have been reported occasionally: irritation of the skin including peeling, itching, burning sensation, erythema, inflammation of the face, eyes and nose, and irritation of the eyes. Skin discoloration, oiliness and tenderness of the skin have also been reported.

To report SUSPECTED ADVERSE REACTIONS, contact Oceanside Pharmaceuticals, at 1-800-321-4576 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DOSAGE AND ADMINISTRATION

Erythromycin-Benzoyl Peroxide Topical Gel should be applied twice daily, morning and evening, or as

directed by a physician, to affected areas after the skin is thoroughly washed, rinsed with warm water and gently patted dry.

How Supplied and Compounding Directions:

Size (Net Weight)	**NDC 68682-**	**Benzoyl Peroxide Gel**	**Active Erythromycin Powder (In Plastic Vial)**	**70% Ethyl Alcohol To Be Added**
23.3 grams (as dispensed)	900-23	20 grams	0.8 grams	3 mL
46.6 grams (as dispensed)	901-46	40 grams	1.6 grams	6 mL

Prior to dispensing, tap vial until all powder flows freely. Add indicated amount of room temperature 70% ethyl alcohol to vial (to the mark) and immediately shake to completely dissolve erythromycin. Add this solution to gel and stir until homogeneous in appearance (1 to 1½ minutes). Erythromycin-Benzoyl Peroxide Topical Gel should then be stored under refrigeration. Do not freeze. Place a 3-month expiration date on the label.

NOTE: ***Prior to reconstitution,*** **store at room temperature between 15° to 30°C (59° to 86°F).**

After reconstitution, **store under refrigeration between 2° to 8°C (36° to 46°F).**

Do not freeze. Keep tightly closed. Keep out of reach of children.

Distributed by:
Oceanside Pharmaceuticals, a division of
Bausch Health US, LLC
Bridgewater, NJ 08807 USA

Manufactured by:
Bausch Health Companies Inc.
Laval, Quebec H7L 4A8, Canada

PLEASE READ COMPLETE COMPOUNDING DIRECTIONS

NOTE: TAP VIAL UNTIL ALL POWDER FLOWS FREELY. ADD ROOM TEMPERATURE 70% ETHYL ALCOHOL TO VIAL (TO THE MARK) AND **IMMEDIATELY** SHAKE/DISSOLVE **COMPLETELY.**

Rev. 06/19

9437503

PRINCIPAL DISPLAY PANEL - 46.6 gram Carton

NDC 68682-901-46

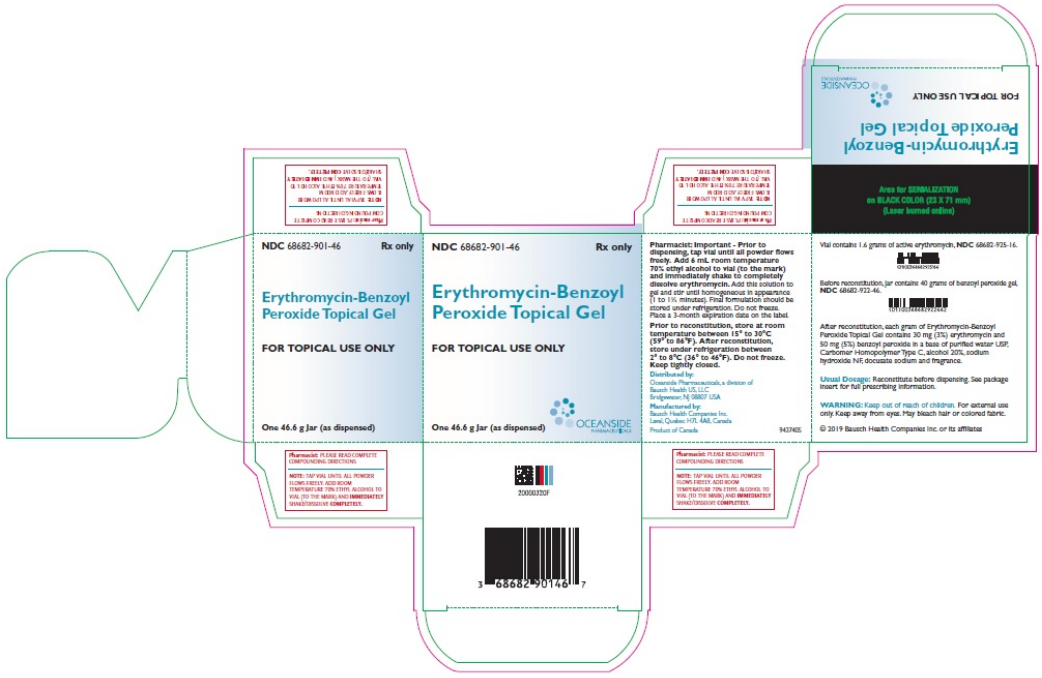
Rx only

Erythromycin-Benzoyl Peroxide Topical Gel

FOR TOPICAL USE ONLY

One 46.6 g Jar (as dispensed)

OCEANSIDE
PHARMACEUTICALS



PRINCIPAL DISPLAY PANEL - 23.3 gram Carton

NDC 68682-900-23

Rx only

Erythromycin-Benzoyl
Peroxide Topical Gel

FOR TOPICAL USE ONLY

One 23.3 g Jar (as dispensed)

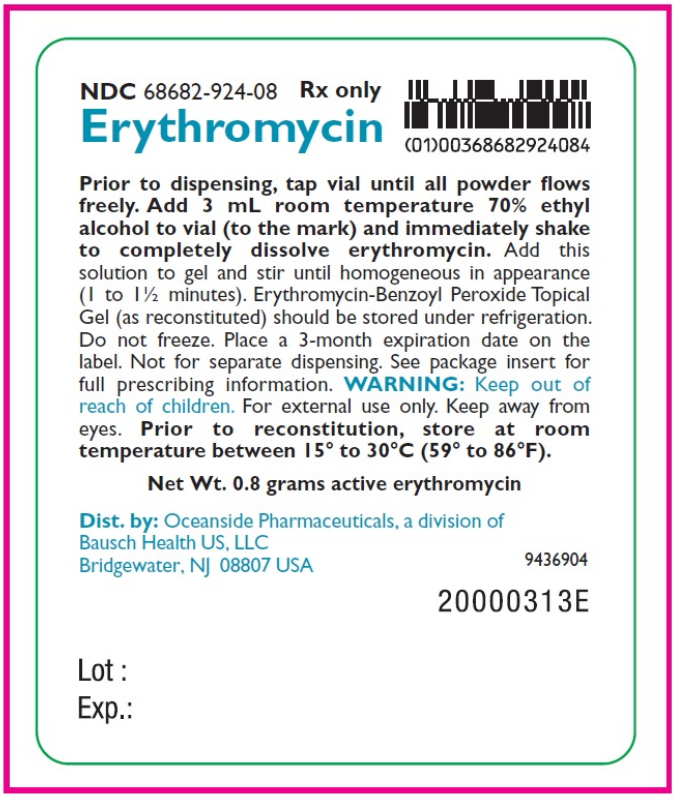
OCEANSIDE
PHARMACEUTICALS

PRINCIPAL DISPLAY PANEL -

NDC 68682-924-08

Rx only

Erythromycin



Package/Label Display Panel

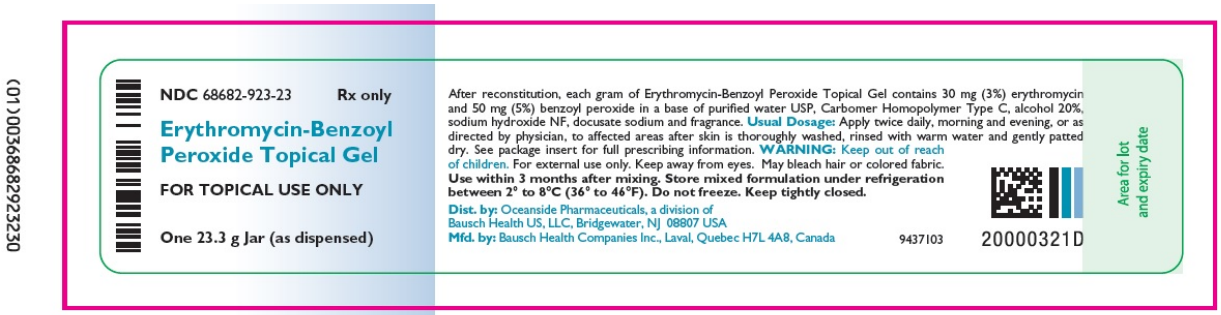
NDC 68682-923-23

Rx only

Erythromycin-Benzoyl Peroxide Topical Gel

FOR TOPICAL USE ONLY

One 23.3 g Jar (as dispensed)

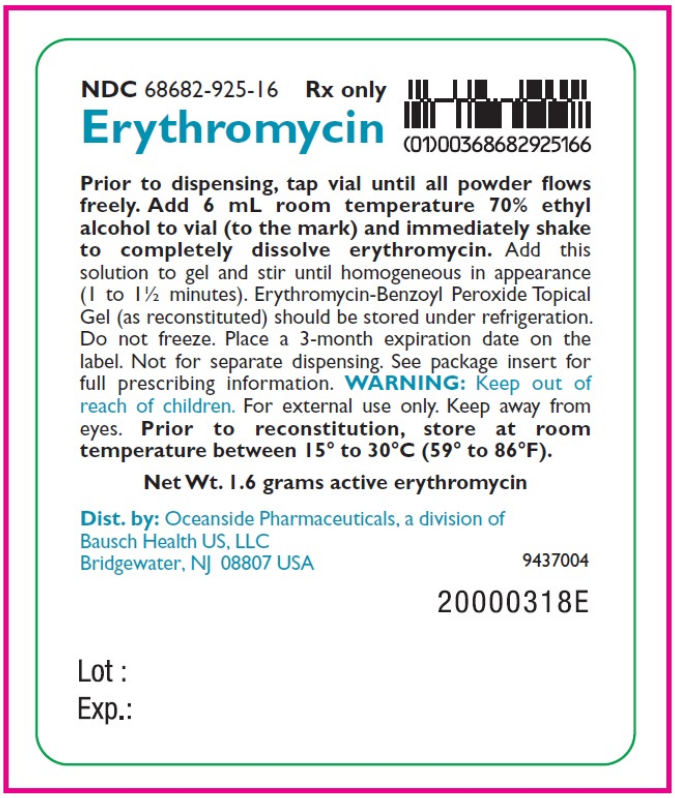


Package/Label Display Panel

NDC 68682-925-16

Rx only

Erythromycin



Package/Label Display Panel

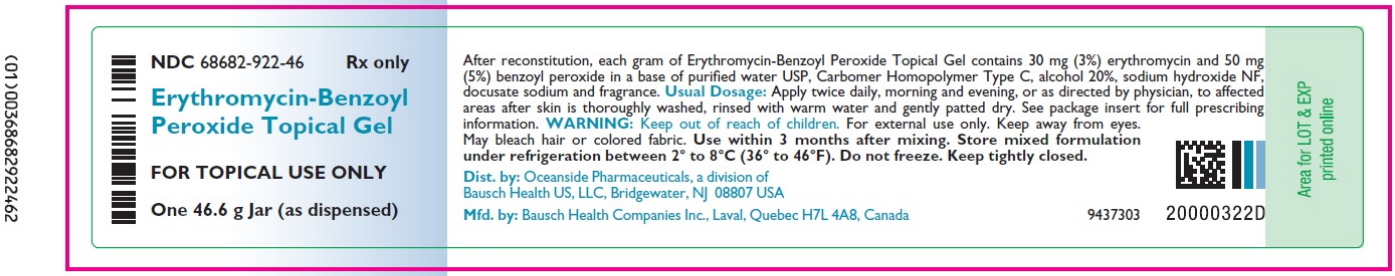
NDC 68682-922-46

Rx only

Erythromycin-Benzoyl Peroxide Topical Gel

FOR TOPICAL USE ONLY

One 46.6 g Jar (as dispensed)



ERYTHROMYCIN AND BENZOYL PEROXIDE

erythromycin and benzoyl peroxide kit

Product Information

Product Type	HUMAN PRESCRIPTION DRUG	Item Code (Source)	NDC:68682-900

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:68682-900-23	1 in 1 CARTON; Type 0: Not a Combination Product	10/26/1984	

Quantity of Parts

Part #	Package Quantity	Total Product Quantity
Part 1	1 VIAL, PLASTIC	0.8 g
Part 2	1 JAR	20 g

Part 1 of 2

ERYTHROMYCIN

erythromycin gel

Product Information	
Item Code (Source)	NDC:68682-924
Route of Administration	TOPICAL

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
ERYTHROMYCIN (UNII: 63937KV33D) (ERYTHROMYCIN - UNII:63937KV33D)	ERYTHROMYCIN	30 mg in 1 g

Packaging				
#	**Item Code**	**Package Description**	**Marketing Start Date**	**Marketing End Date**
1	NDC:68682-924-08	0.8 g in 1 VIAL, PLASTIC; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

Part 2 of 2

BENZOYL PEROXIDE

benzoyl peroxide gel

Product Information	
Item Code (Source)	NDC:68682-923
Route of Administration	TOPICAL

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
BENZOYL PEROXIDE (UNII: W9WZN9A0GM) (BENZOYL PEROXIDE - UNII:W9WZN9A0GM)	BENZOYL PEROXIDE	50 mg in 1 g

Inactive Ingredients	
Ingredient Name	**Strength**
ALCOHOL (UNII: 3K9958V90M)	

CARBOMER HOMOPOLYMER TYPE C (ALLYL PENTAERYTHRITOL CROSSLINKED) (UNII: 4Q93RCW27E)	
SODIUM HYDROXIDE (UNII: 55X04QC32I)	
DOCUSATE SODIUM (UNII: F05Q2T2JA0)	
WATER (UNII: 059QF0KO0R)	
LIMONENE, (+)- (UNII: GFD7C86Q1W)	

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:68682-923-23	20 g in 1 JAR; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

ERYTHROMYCIN AND BENZOYL PEROXIDE

erythromycin and benzoyl peroxide kit

Product Information

Product Type	HUMAN PRESCRIPTION DRUG	**Item Code (Source)**	NDC:68682-901

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:68682-901-46	1 in 1 CARTON; Type 0: Not a Combination Product	10/26/1984	

Quantity of Parts

Part #	Package Quantity	Total Product Quantity
Part 1	1 VIAL, PLASTIC	1.6 g
Part 2	1 JAR	40 g

Part 1 of 2

ERYTHROMYCIN

erythromycin gel

Product Information	
Item Code (Source)	NDC:68682-925
Route of Administration	TOPICAL

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
ERYTHROMYCIN (UNII: 63937KV33D) (ERYTHROMYCIN - UNII:63937KV33D)	ERYTHROMYCIN	30 mg in 1 g

Packaging				
#	**Item Code**	**Package Description**	**Marketing Start Date**	**Marketing End Date**
1	NDC:68682-925-16	1.6 g in 1 VIAL, PLASTIC; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

Part 2 of 2

BENZOYL PEROXIDE

benzoyl peroxide gel

Product Information	
Item Code (Source)	NDC:68682-922
Route of Administration	TOPICAL

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
BENZOYL PEROXIDE (UNII: W9WZN9A0GM) (BENZOYL PEROXIDE - UNII:W9WZN9A0GM)	BENZOYL PEROXIDE	50 mg in 1 g

Inactive Ingredients	
Ingredient Name	**Strength**
ALCOHOL (UNII: 3K9958V90M)	
CARBOMER HOMOPOLYMER TYPE C (ALLYL PENTAERYTHRITOL CROSSLINKED) (UNII: 4Q93RCW27E)	
SODIUM HYDROXIDE (UNII: 55X04QC32I)	
DOCUSATE SODIUM (UNII: F05Q2T2JA0)	
WATER (UNII: 059QF0KO0R)	
LIMONENE, (+)- (UNII: GFD7C86Q1W)	

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:68682-922-46	40 g in 1 JAR; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA authorized generic	NDA050557	10/26/1984	

Labeler - Oceanside Pharmaceuticals (832011691)

Establishment

Name	Address	ID/FEI	Business Operations
Bausch Health Companies Inc		245141858	MANUFACTURE(68682-900, 68682-924, 68682-923, 68682-901, 68682-925, 68682-922) , LABEL(68682-900, 68682-924, 68682-923, 68682-901, 68682-925, 68682-922) , PACK(68682-900, 68682-924, 68682-923, 68682-901, 68682-925, 68682-922)

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