

# Glycaci<sup>®</sup> L

## Highly Effective Fungicide



INCI Name: Iodopropynyl Butylcarbamate

### Key Product Benefits:

- Highly effective fungicide; remarkably efficient in inhibiting growth of yeast and mold
- Has a wide range of global regulatory approvals
- Temperature stable
- Compatible with commonly used ingredients such as cationic, anionic, nonionic surfactants, emulsifiers and proteins
- Low use levels for efficacy
- Convenient liquid form provides easier handling

### Recommended Use Level

0.1–0.3%

### Description

Glycaci<sup>®</sup> L is comprised of Iodopropynyl Butylcarbamate and is an effective preservative system that has been used in the personal care industry for years. Offering strong efficacy against yeasts and molds, this chemistry is highly desirable amongst many cosmetic formulators.

## Compositional Breakdown

INCI Designation	Cas No.	EINECS No.
3-Iodo-2-propynylbutylcarbamate	55406-53-6	259-627-5
PEG-4 laurate	9004-81-3	618-396-4
PEG-4 dilaurate	9005-02-1	618-406-7
Polyethylene glycol	25322-68-3	500-038-2

Ingredient Composition	%
3-Iodo-2-propynylbutylcarbamate	9.1-10.3%
Polyethylene glycol cocoate	39-41%
Polyethylene glycol dicocoate	39-40%
Polyethylene glycol	9.1-10.3%

## Applications

- Anhydrous
- Baby care (rinse-off only)
- Body wash
- Conditioner
- Cream
- Deo / Anti-perspirant
- Eye creams/gels
- Eye shadow
- Face lotion
- Face wipes
- Facial cream
- Foundation
- Hair gel
- Hand soap
- Lotion
- Make up remover
- Mascara
- Oil in Water
- Powder
- Shampoo
- Toner
- Water in Oil

## Efficacy

### Microbiological Challenge Studies

Studies were run using various concentrations of GlycaciL® L in various formulations to see efficacy on a mixed inoculum of fungi. All samples were inoculated at the beginning of the study, sampled at 24 hours, 3, 7, 14, 21 and 28 days.

## Shampoo Formula

Ingredient	% wt/wt
Sodium laurylthethersulfate	35.0%
Triethanol laurylsulfate	25.0%
Cocodiethanolamide	3.0%
Water, DI	36.0%
Anhydrous protein	1.0%
Preservative	q.s.
Total	100%

Efficacy Shampoo	Mixed inoculum—fungi—CFU	Contact time (days)						
		0	1	3	7	14	21	28
GlycaciL® L 0.3%	10 <sup>6</sup>	10 <sup>5</sup>	10 <sup>3</sup>	<10	<10	<10	<10	
GlycaciL® L 0.2%	10 <sup>6</sup>	10 <sup>5</sup>	10 <sup>3</sup>	<10	<10	<10	<10	
GlycaciL® L 0.1%	10 <sup>6</sup>	10 <sup>5</sup>	10 <sup>3</sup>	<10	<10	<10	<10	
Control	–	10 <sup>6</sup>	10 <sup>5</sup>	10 <sup>3</sup>	10 <sup>5</sup>	10 <sup>5</sup>	10 <sup>4</sup>	

## Formulation Recommendations

- Readily soluble in the presence of water and a polar organic compound
- Can also be pre-solubilized in the surfactant component
- Should be added below temperatures of 40 °C
- It can be pre-solubilized in a combination of water and polar organic component
  - Some of the commonly used polar organic compounds are as follows:
    - Anionic surfactants
    - Nonionic surfactants
    - Cationic surfactants
    - Alcohols
    - Glycols
    - Glycol Ethers
- Can be used between pH 2–10, although end user should confirm the stability and efficacy in each specific system
- Can be inactivated by strong reducing agents, acids and bases
- Typically needs to be used in combination with a bactericide
  - DMDMH (Glydant® products), phenoxyethanol, CMI/MI (Isocil® products) or other bactericide can be used
  - Formulator to confirm that there are no patent issues

# Global Regulatory

## Europe

- Approved under Annex V to Regulation EC/1223/2009
- Allowed in rinse-off products up to 0.02% IPBC and up to 0.01% IPBC in leave-on products except in creams and lotions aimed to be applied on a large part of the body
- Allowed for use in antiperspirants/deodorants up to 0.0075% IPBC
- Not allowed for oral hygiene and lip products or in preparations for children under the age of 3 except in rinse-off applications

## Japan

- Listed in the positive list. Can be used at a level up to 0.02% IPBC in leave-on and rinse-off products

## United States

- Approved by CTFA for both rinse-off and leave-on applications. Maximum use level of 0.1% for IPBC

Typical Properties	
Appearance	Liquid
Color (Gardner)	Yellow
Odor	Characteristic

#### **USA**

Lonza Consumer Care  
70 Tyler Place  
South Plainfield, NJ 07080  
Tel +1 908 561 5200

#### **Switzerland**

Lonza Ltd  
Muenchensteinerstrasse 38  
4002 Basel  
Tel +41 61 316 81 11

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