

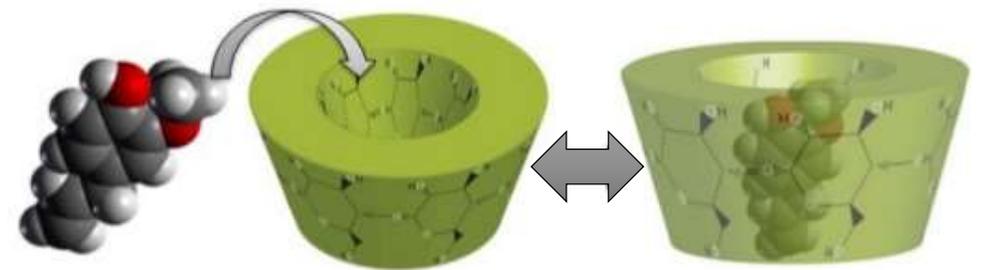
# GETTING THE BEST OUT OF CYCLODEXTRINS

**Cyclodextrins  
in cosmetics and  
in household toiletries**



## What are cyclodextrins?

- Composed of sugars
- Cyclic molecules
- Naturally occurring compounds
- Used in food, pharmaceuticals, drug delivery, chemical industries, agriculture, etc.
- **Sub-nanometer** sized molecular containers with hydrophilic outer phase and hydrophobic interior properties
- Reversible inclusion complex formation



# Why use cyclodextrins in cosmetics?

## CDs as solubilizing agents

- Stable aqueous solutions of insoluble compounds can be prepared without the use of organic co-solvents or surfactants and the rate of dissolution can be enhanced.

## Flavor and odor coverage by encapsulation

- CDs may be useful in covering the unfavorable organoleptic characteristics of some cosmetic products due to the presence of a particular active.

## Liquid or oily materials can be transformed into powder forms

- Some active ingredients in cosmetic preparations, such as  $\alpha$ -tocopherol and vitamin A, occur in oily form and thus are difficult to handle. This problem can be easily solved by preparing a CD inclusion complex in solid state.



# Why use cyclodextrins in cosmetics?

## Controlled/extended release of fragrances

- CDs can be used to complex different fragrances, included in personal care products such as shampoos, deodorants, detergents and absorbent powders such as bath- and baby-powder products.

## Protecting agents against light, heat, and oxidation:

- CDs can increase the physical and chemical stability of guest molecules by protecting them against oxidation, decomposition, hydrolysis or loss by evaporation.

## Preventing skin irritation

- CDs alleviate local irritation and reduce side effects. CDs have advantages over other conventional penetration enhancers, such as fatty acids and surfactants.

## Stabilization of emulsions and suspensions

- Incompatible compounds can be mixed and used together in complexed form.



## CDs in cosmetics

Water / Aqua, Butylene Glycol, Biosaccharide Gum-1, **Cyclodextrin**, Salicylic Acid, Panicum Miliaceum Glycoprotein Extract, Aloe Barbadensis (Aloe Vera) Extract, Arginine, PEG-10 Soya Sterol, Ceteth-20, Dimethicone, Ceteth-2, Dimethicone Copolyol, Hexadecanol, Methylparaben, Green 5 / CI 61570, Yellow 10 / CI 47005



Olive Fruit Oil, Vaseline, Mineral Oil, Diisostearyl Malic Acid, Ceresin, Hydrogenated Kokoguriseriru, Hexahydroxy Stearic Acid Dipentaerythryl, Tri(Caprylic/Capric Acid) Glyceryl, Ethylhexyl Methoxycinnamate, **Cyclodextrin**, Polyethylene, Dimethicone, Squalane, Tocopherol Acetate, Isotridecyl Isononanoate, Microcrystalline Wax, Fragrance, Silica, t-Butylmethoxydibenzoylmethane, BHT, (+/-) 4 Yellow, Blue 1, Red 201

## CDs in cosmetics



Peg-115M, PVP, Peg-100,  
**Cyclodextrin**, Tocopherol,  
Aloe Barbadensis (Aloe Vera),  
Maltodextrin



Alcohol Denat., Water / Aqua, Parfum / Fragrance,  
Methyl **Cyclodextrin**, BHT, Butylphenyl  
Methylpropional, Citral, Citronellol, Diethylamino  
Hydroxybenzoyl Hexyl Benzoate, Ethylhexyl  
Methoxycinnamate, Eugenol, Geraniol, Limonene,  
Linalool

# CDs in cosmetics



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**(54) Title:** USE OF CYCLODEXTRINE AS A PEARLY-LUSTRING AGENT AND PEARLY LUSTRED COMPOSITIONS

**(54) Titre :** UTILISATION D'UNE CYCLODEXTRINE EN TANT AGENT NACRANT ET COMPOSITIONS NACREES

**(57) Abstract:** The invention relates to the use of at least one cyclodextrine as a pearly-lustring agent in a cosmetic composition in an aqueous physiologically acceptable medium. The invention also relates to pearly-lustred compositions comprising at least one cyclodextrine and at least one surfactant in an aqueous physiologically acceptable medium. The invention further relates to pearly-lustred compositions comprising at least one cyclodextrine, at least one surfactant and at least one conditioning agent in an aqueous physiologically acceptable medium. The invention also relates to the use of said cyclodextrine as a suspension agent for insoluble conditioning agents. The inventive compositions are used in particular as rinsed products for washing and/or conditioning keratin materials.

# CDs in cosmeceuticals (cosmetics with pharmacological effect)

## Diseases targeted:

- Psoriasis
- Acne
- Dermatitis
- Microbial skin diseases
- Wound healing
- Skin cancer
- Diseases of nail

## Cosmeceuticals:

- Sunscreen
- Anti-aging
- Deodorant and antiperspirant
- Shampoo
- Nail lacquer



Deodorant body soap with  
**HPBCD**



Antibacterial bar soap with  
**HPBCD**



Nail lacquer  
with **HPBCD**

## CDs in household toiletries

**P&G has been awarded over 200 patents on the application of CDs in fabric, homecare and health, beauty care**



Simply spray Febreze Fabric Refresher evenly onto the fabric until it becomes slightly damp.



Febreze molecules penetrate into the fabric to clean away odors.



As Febreze dries, the odor is cleaned away and a fresh scent is left in its place.



## CDs in household toiletries



**Cussons Carex - Alcohol Free -  
Refreshing Soft Cleansing Wipes for  
Hands Face & Body containing  $\beta$ -CD**

Who are we at CycloLab?



The world's only all-round **CYCLODEXTRIN** company with experience in **CD-technology** since 1991

in pharmaceutical-, cosmetics-, food-, environmental- and analytical applications

### Experience

Over 540 technical/scientific papers and 950 technical reports to customers

200 different cyclodextrin derivatives

130 patents/applications

40 products on the market

Drug Master Files (USA type IV) and eCTD

Over 20,000 citations to CYCLOLAB's papers

### Expertise & Technology

Custom synthesis

Drug solubilization and stabilization

Further industrial applications

Cyclodextrin-related analytics

Stability testing

GMP-conform manufacturing

Feasibility studies



## CDs in cosmetics

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