



# Preservatives

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# Custom<sup>®</sup> Parabens

We are partnered with the largest manufacturers of Parabens in India with a capacity to produce around 800 Tons of Parabens annually. We have a full fledged laboratory with indigenous technical know-how for manufacturing of Parabens that meet the specification of **BP/USP/NF**.

We are constantly doing R & D in our labs for improvement in manufacturing process. It has successfully reflected in unusual achievements like “Mixture of Parabens in Powder form”, “Mixture of Parabens in Liquid form”, “Sodium Salt of Propyl Paraben as per B.P. (moisture <5%)” and many more to come ...

## **Why us?**

That our products confirm to international standards like BP, EP, USP and NF is no a mere promise. It has been proven and found perfect by the quality standards of reputed multinationals in cosmetics and pharmaceuticals field.

If fact our preservatives are in demand in Europe, South Africa, Middle East, Latin America and the USA. That s proof enough of our stringent quality standards. Make it your standard too.

There are many products and formulations related to Pharmaceuticals, Cosmetics, Foods and other industries which are exposed to the act of micro-organisms. These products and formulations many times act as nutrient media for micro-organisms and this leads to degeneration of the products by bacterial decomposition, undesirable fermentations, fungus etc.

Micro-organisms not only destroy foodstuff/pharmaceuticals formulations, but also technical products. Due to this, the industries suffer huge losses. Also human beings and animals are affected by highly toxic micro-organisms products and formulations.

To prevent such toxicity and damage, the esters of para hydroxy benzoic acid are used by various industries. Parabens are preservatives and their efficacy and technical merits are established. Their use in Pharmaceuticals, Cosmetics, Food industries, Packaging materials etc., has proved to be of immense value and prevented colossal losses.

## Custom<sup>®</sup> Parabens

Specifications		Ethyl	Propyl
CAS No.	99-76-3	12-47-8	94-13-3
Empirical Formula	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>	C <sub>9</sub> H <sub>10</sub> O <sub>3</sub>	C <sub>10</sub> H <sub>12</sub> O <sub>3</sub>
Molecular Weight	152.2	166.2	180.2
Melting Range ( °C )	125-128 °C	115-118 °C	96-99 °C
Acidity	Passes per BP/USP/ NF	Passes per BP/USP/ NF	Passes per BP/USP/ NF
Chloride ( % Max)	Nil	Nil	Nil
Sulfate (% Max)	Nil	Nil	Nil
Ash ( % Max)	0,05	0,05	0,05
Loss on Drying (% Max)	0.5	0.5	0.5
Assay (% Max)	99	99	99

## Custom<sup>®</sup> Parabens

Specifications		Sodium Methyl	Sodium Propyl
CAS No.	99-26-8	5026-62-0	35285-69-9
Empirical Formula	C <sub>11</sub> H <sub>14</sub> O <sub>3</sub>	C <sub>8</sub> H <sub>7</sub> NaO <sub>3</sub>	C <sub>10</sub> H <sub>11</sub> NaO <sub>3</sub>
Molecular Weight	192.2	174.13	202.2
Melting Range ( °C )	68-72 °C	Not Tested	Not Tested
Acidity	Passes per BP/USP/ NF	No Test	No Test
Chloride ( % Max)	Nil	Less than 330 ppm	Less than 330 ppm
Sulfate (% Max)	Nil	Nil	Nil
Ash ( % Max)	0,05	No Test	No Test
Loss on Drying (% Max)	0.5	No Test	No Test
Assay (% Max)	99	99	99

# Custom<sup>®</sup> DMDM

## DMDM HYDANTION

CAS No.	:	6440-58-0
EINECS No	:	229-222-8
INCI Name	:	DMDM HYDANTOIN
Physical form	:	Clear, colorless liquid
Solubility	:	Freely soluble in water
Optimum pH	:	3.5- 10.0 of 55 % Solution: 6.5-7.5

### TECHNICAL SPECIFICATIONS

PRODUCT	:	Custom <sup>®</sup> DMDM
CAS No.	:	6440-58-0
Molecular weight	:	188
Formula	:	C <sub>7</sub> H <sub>12</sub> N <sub>2</sub> O <sub>4</sub>
Active matter	:	55%
Odour	:	Low, Characteristic
Appearance	:	Clear liquid
% Total Formaldehyde	:	17.0 - 18.0 %
% Free Formaldehyde	:	2.0 % max
Ph at 250 c	:	5 - 7.5
%Water content w/w	:	45 max
Arsenic	:	< 5 ppm
Heavy metals	:	< 15 ppm
Lead	:	< 5 ppm
Chromium	:	< 1 ppm
Cobalt	:	< 1 ppm
Mercury	:	< 1 ppm
Nickel	:	< 1 ppm

Custom<sup>®</sup> DMDM, is a 55 % solution in water

# Custom<sup>®</sup> DMDM

## DMDM HYDANTION

**BENEFITS OF Custom<sup>®</sup> DMDM** - can be used particularly effective in detergent based formulations which can have some inherent antimicrobial activity , but which are susceptible to growth of some types of micro-organisms. Custom<sup>®</sup> DMDM offers the following benefits:

- Broad spectrum activity against gram negative and gram positive bacteria, yeasts and moulds.
- Effective over the range pH 3.0-8.0
- Non -irritating to eyes, skin or mucous membranes at normal use concentrations of 0.15 % to 0.4 %.
- Retains activity in the presence of non ionic surfactants and most other common ingredients of personal care products.
- Highly soluble in water and readily incorporated into products.
- Excellent toxicity profile.

### APPLICATIONS

- Ideal for use in shampoos, hair conditioners, skin care preparations, bath products, hair sprays baby products, almost all water based cosmetics and toiletries. Ideal for high quality care-cosmetics like creams, emulsions ,lotions and gels.
- Custom<sup>®</sup> DMDM is an ideal preservative for bulk surfactants.
- Custom<sup>®</sup> DMDM is typically used at concentrations from 0.15 % to 0.4 %.

### FEATURES

Wide ranging anti microbial activity against gram negative and gram positive bacteria, yeast, mold and fungi Custom<sup>®</sup> DMDM is cost effective and compatible with cationic, anionic, nonionic surfactants and proteins.

# Custom<sup>®</sup> DMDM

## DMDM HYDANTION

### MINIMUM INHIBITORY CONCENTRATIONS

<b>Gram positive bacteria</b>	<b>mic ppm</b>
Bacillus cereus var. Mycoides	100
Bacillus subtilis	600
Corynebacterium ammoniagenes	100
Sarcina lutea	200
Staphylococcus aureus	600
Staphylococcus epidermidis	500
Streptococcus agalactiae	500

  

<b>Gram negative bacteria</b>	<b>mic ppm</b>
Alcaligenes faecalis	500
Enterobacter aerogenes	500
Enterobacter cloacae	1250
Eschericia coli	500
Aureobacterium esteraromaticum	500
Proteus vulgaris	500
Burkholderia cepacia	500
Pseudomonas fluorescens	500
Pseudomonas oleovorans	200
Pseudomonas aeruginosa	1200

  

<b>Fungi</b>	
Aspergillus niger	100
Candida albicans	1000
Saccharomyces cerevisiae	100

# Custom<sup>®</sup> DMDM

## DMDM HYDANTION

### USES

Custom<sup>®</sup> DMDM may be directly added to aqueous formulations. In hot process, such as emulsifications, it is advisable to add during the cooling stage at a temperature preferably below 60 deg C. The product should be stored in the original containers between 15-40 deg. C.

### TOXICOLOGICAL INFORMATION

Under the scope of the UK chip regulations -1997 and European directive DMDM hydantoin as supplied is classified as irritating to eyes, respiratory system and skin.

Acute oral toxicity [rat]	LD 50 =>2000mg/kg
Subacute oral toxicity [90day.rat]	600 mg /kg bodyweight/day gave no toxic effect.
Acute dermal toxicity [rabbit]	LD 50= 20,000mg/kg
Skin irritation [rabbit]	Mild irritating
Eye irritation [rabbit]	Mild irritating
Teratogenicity	No evidence
Mutagenicity	No evidence

# Custom® I-Urea

Safe antimicrobial for cosmetics and pharmaceuticals

## 1. CHEMICAL STRUCTURE

Empirical formula: C<sub>11</sub>H<sub>16</sub>N<sub>8</sub>O<sub>8</sub>

## 2. CODEX AND NAMES

CTFA/INCI name : Imidazolidinyl Urea  
NF name : Imidurea  
EINECS name : N, N'-Methylenebis [N'-[1-(hydroxymethyl)-2,5-dioxo-4-Imidazolidinyl]-urea]  
CAS number : [39236-46-9]  
EINECS number : 254-372-6

## 3. SPECIFICATIONS DATA

Appearance : Fine, free flowing powder  
Color : White  
Odor : None or mild typical  
Identification : Corresponds to C.T.F.A. IR spectrum  
Color and clarity : Clear and colorless  
(30% water solution)  
Nitrogen : 26.0% - 28.0%  
pH : 6.0 - 7.5  
(1% water solution)  
Loss on drying : 3.0% max  
Sulphated ash : 3.0% max  
Heavy metals(Pb): Less than 10 ppm  
Shelf life : 1 year in original packing

## 4. GENERAL DESCRIPTION

Imidazolidinyl Urea is a well established cosmetic and pharmaceutical preservative, highly effective against Gram-negative and Gram-positive bacteria over the period of storage and use of the product. Imidazolidinyl Urea has been available as cosmetic ingredient since 1973 and by 1977 had become, as reported by the FDA, the most frequently used preservative in cosmetics sold in USA, after parabens. Imidazolidinyl Urea is a fine white powder, odorless and very hygroscopic.

## 5. STABILITY

Imidazolidinyl Urea is stable in the range of pH from 3,5 to 8,5. Imidazolidinyl Urea slowly begin to release formaldehyde at temperatures over 10°C, this reaction is accelerated by heating over 50°C and it completely decomposes over 160°C. Temperature above 60°C may cause an early decomposition and a too fast release of formaldehyde, leaving an inadequate protection in the later stages of shelf life and creating excessive irritancy. Product breaks down at extended exposure (over 4 hours) to emulsification temperature.

Imidazolidinyl Urea is compatible with most cosmetic formulations and ingredients, it's not inactivated by non-ionic emulsifiers and proteins. Imidazolidinyl Urea does not absorb ultraviolet light.

## 6. SOLUBILITY

Imidazolidinyl Urea is very soluble in water, freely soluble in glycerin, ethylene glycol and propylene glycol, very slightly soluble in ethanol, methanol, dimethylisosorbide and isopropanol and practically insoluble in oils.

### Solubility (in gram percent of solvent) of Imidazolidinyl Urea in different solvents

Solvent	25°C	60°C
Water	>100	
Ethylene glycol		>100
Propylene glycol	30	>100
Glycerol	48	90
Dimethylisosorbide		0,05
Methanol	0.05	
Ethanol	0.01	
Isopropanol	0.05	
Mineral oil	<0.01	
Sesame oil	<0.01	



# Custom® I-Urea

*Safe antimicrobial for cosmetics and pharmaceuticals*

## 7. ANTIMICROBIAL ACTIVITY

The antimicrobial activity of Imidazolidinyl Urea versus a variety of bacteria and fungi was determined using the following methods:

- minimum inhibitory concentration (MIC) and minimum biocidal concentration (MBC) test method

### 3.1 Biostatic (MIC) and biocidal (MBC) activities of Imidazolidinyl Urea in ppm

<b>Gram-positive bacteria</b>		
Test Organisms (@ 10 <sup>6</sup> CFU/mL)	Minimum inhibitory concentration	Minimum biocidal concentration
Staphylococcus aureus	1000	2000
<b>Gram-negative bacteria</b>		
Test Organisms (@ 10 <sup>6</sup> CFU/mL)	Minimum inhibitory concentration	Minimum biocidal concentration
Escherichia coli	2000	8000
Pseudomonas aeruginosa	2000	8000
<b>Yeasts</b>		
Test Organisms (@ 10 <sup>6</sup> CFU/mL)	Minimum inhibitory concentration	Minimum biocidal concentration
Candida albicans	8000	8000
<b>Molds</b>		
Test Organisms (@ 10 <sup>6</sup> CFU/mL)	Minimum inhibitory concentration	Minimum biocidal concentration
Aspergillus niger	8000	8000

## 8. TOXICOLOGICAL DATA

Imidazolidinyl Urea is a toxicologically safe preservative. The expert panel of the Cosmetic Ingredient Review (CIR) evaluated Imidazolidinyl Urea in 1980 and concluded, in the Final Report on the Safety Assessment, that it's safe when incorporated in cosmetic products at the suggested level of use. Several studies have been conducted at extremely high levels in order to detect significant toxicological effects; the results of these toxicological tests permit to consider Imidazolidinyl Urea non irritating and non sensitizer.

# Custom<sup>®</sup>I-Urea

*Safe antimicrobial for cosmetics and pharmaceuticals*

## **9. USES AND TECHNICAL RECOMMENDATIONS**

Imidazolidinyl Urea is a very water soluble preservative and it can be used in all cosmetic products. CTFA reported its use in more than 50 product categories.

It can be incorporate in hydrolites, surfactants based formulas, and in every cold preparation, at any phase of the formulation.

In emulsions and in every hot process, its addition is recommended at temperature below 60°C during the cooling stage, after the fragrance.

For its high solubility in water and the very slight solubility in oils, an adequate preservative concentration is maintained in the water phase and the migration out of the water phase of emulsions, where microorganisms live and multiply, is limited.

Imidazolidinyl Urea should always be incorporated into the water phase. It may be added as a powder or as a 50%water concentrate.

Imidazolidinyl Urea is active over a wide range of pH.

The most common concentration used is 0,2-0,5%, alone or best in combinations with parabens. For a broad spectrum preservative system, Diazolidinyl Urea may be added with methylparaben and propylparaben: the combination with parabens takes advantages of a synergistic action and provides a generally applicable, wide-range, versatile system.

Imidazolidinyl Urea is not inactivated by non-ionic emulsifiers and proteins but where large quantities of these compounds are present in combination with parabens, Imidazolidinyl Urea content may have to be increased for the diminished contribution of the parabens.

Certain surfactants enhance the preservative potency of Imidazolidinyl Urea and may permit a reduction in the amount of product needed.

## Typical preservative combinations used in cosmetics

Product Categories	Imidazolidinyl Urea %	Methylparaben %	Propylparaben %
Creams	0.25	0.20	0.10
	0.40	0.15	0.10
	0.50	0.10	0.10
Eyeliners	0.20	0.25	0.05
	0.25	0.10	0.10
Hair conditioners	0.50	0.10	0.10
	0.25	0.20	0.10
Lotions	0.20	0.10	0.10
	0.40	0.20	0.10
	0.25	0.15	0.10
Mascara	0.50	0.10	0.10
	0.25	0.15	0.15
	0.30	0.20	0.10
Powders	0.50	0.30	0.20
	0.25	0.10	0.10
	0.20	0.15	0.15
Rouges	0.25	0.15	0.10
	0.20	0.10	0.10
Shampoos	0.50	0.10	0.10
	0.25	0.20	0.10
	0.20	0.20	0.10
Suntan lotions	0.50	0.20	0.10
	0.40	0.10	0.01
	0.25	0.10	0.05

### 12.STORAGE

The product is very hygroscopic, so it should be stored in tightly closed containers. At this conditions its guaranteed shelf-life is of 1 year from the manufacturing date.

# Custom<sup>®</sup>D-Urea

*Safe antimicrobial for cosmetics and toiletries*

## 1. CHEMICAL STRUCTURE

Empirical formula : C<sub>8</sub>H<sub>14</sub>N<sub>4</sub>O<sub>7</sub>  
Molecular weight : 278,22

## 2. CODEX AND NAMES

CTFA/INCI name : Diazolidinyl Urea  
EINECS name : N-[1,3-Bis(Hydroxymethyl)-2,5-Dioxo-4-Imidazolidinyl]-N,N'-Bis (Hydroxymethyl)-Urea  
CAS number : [78491-02-8]  
EINECS number : 278-928-2

## 3. SPECIFICATIONS DATA

Appearance : Powder or granular  
Colour : White  
Odour : Mild typical  
Nitrogen : 19.0% - 21.0%  
pH (1% water solution) : 6.0 - 7.5  
Loss on drying : 3.0% max  
Sulphated ash : 3.0% max  
Heavy metals (Pb) : Less than 10 ppm  
Shelf life : 1 year in original packing

## 4. GENERAL DESCRIPTION

Diazolidinyl Urea is a cosmetic preservative highly effective against Gram-negative and Gram-positive bacteria over the period of storage and use of the product, widely used for the prevention of bacterial contamination in personal care products.

Diazolidinyl Urea was developed from Imidiazolidinyl Urea, It has been available as cosmetic ingredient since 1981, and had become, as reported by the FDA, one the ten most frequently used preservatives in cosmetics sold in USA.

Diazolidinyl Urea is in form of fine white powder or granular, odorless and very hygroscopic.

## 5. STABILITY

Diazolidinyl Urea is stable in a range of pH from 2 to 9.

Diazolidinyl Urea slowly begin to release formaldehyde at temperatures over 10°C, this reaction is accelerated by heating over 50°C, temperature above 60°C may cause an early decomposition and a too fast release of formaldehyde, and it completely decomposes over 160°C. Diazolidinyl Urea should not exposed to temperature over 75° for more than one hour to prevent a lack of protection in the later stages of shelf life and an excessive irritancy. Diazolidinyl Urea is compatible with most typical cosmetic formulations and stable is not inactivated by non-ionic emulsifiers and proteins.

## 6. SOLUBILITY

Diazolidinyl Urea is very soluble in water, freely soluble in glycerin and propylene glycol, very slightly soluble in ethanol, methanol and practically insoluble in almost all organic solvents and oils.

### Solubility (in gram solute percent gram solvents) of Diazolidinyl Urea in different solvents

Solvent	25°C
Water	>100
Propylene glycol	70
Glycerol	60
Ethanol	0.01
Methanol	0.05
Mineral oil	<0.01

## 7. ANTIMICROBIAL ACTIVITY

The antimicrobial activity of Diazolidinyl Urea versus a variety of bacteria and fungi was determined using a minimum inhibitory concentration (MIC) and minimum biocidal concentration (MBC) test method.

### 3.1 Biostatic (MIC) and biocidal (MBC) activities of Diazolidinyl Urea in ppm

Test organisms (= 10 <sup>6</sup> CFU/mL)	Minimum inhibitory concentration	Minimum biocidal concentration
Staphylococcus aureus ATCC 6538	Gram-positive bacteria	
	250	1000
Escherichia coli ATCC 8739	Gram-negative bacteria	
	1000	4000
Pseudomonas aeruginosa ATCC 9027	1000	4000
Candida albicans ATCC 10231	Yeasts	
	8000	8000
Aspergillus niger ATCC 16404	Molds	
	4000	8000

***Diazolidinyl Urea has a good bacteriostatic and bactericidal activity against a broad spectrum of Gram-positive and Gram-negative bacteria at a concentration of 0.4%.***

- Diazolidinyl Urea at in-use concentrations of 0.2-0.5% has only a limited activity against yeasts and molds.
- The antimicrobial activity of Diazolidinyl Urea is much better than that of Imidazolidinyl Urea: twice active against all bacteria and a little bit better against molds.
- The combination with another antifungal agent is always required to ensure the complete spectrum protection.
- Diazolidinyl Urea act synergically with other preservatives, resulting in a preservative system which gives not only a wide range of protection, but also greater preservative capacity.
- A synergistic behavior has been observed in combination with parabens (methylparaben and propylparaben) and Iodopropynyl Butylcarbamate.

## 8. TOXICOLOGICAL DATA

Diazolidinyl Urea is a toxicologically safe preservative. The expert panel of the Cosmetic Ingredient Review (CIR) evaluated Diazolidinyl Urea in 1990 and concluded in the Final Report on the Safety Assessment that it's safe as a cosmetic ingredient up to a maximum concentration of 0,5%. Several toxicological studies have been conducted at extremely high levels in order to detect significant toxicological effects; the results of these tests permit to consider it non irritating and non sensitizer.

## 9. USES AND TECHNICAL RECOMMENDATIONS

Diazolidinyl Urea is a very water soluble preservative and it can be used in essentially all cosmetic products. CTFA reported its use in more than 50 product categories.

It can be incorporate in hydrolites, surfactants based formulas and in every cold process at any phase of the formulation.

In emulsions and in every hot process, its addition is recommended at temperature below 50°C during the cooling stage, after the fragrance.

For its high solubility in water and the very slight solubility in oils, an adequate preservative concentration is maintained in the water phase and the migration out of the water phase of emulsions, where microorganisms live and multiply, is limited. Diazolidinyl Urea should always be incorporated into the water phase. It may be added as a powder or as a water concentrate.

Diazolidinyl Urea is active over a wide range of pH, it is not inactivated by non-ionic emulsifiers and proteins. The most common concentration used is 0,2-0,5%, alone or best in combinations with parabens. Diazolidinyl Urea in combinations with parabens retains activity against yeasts and molds even when parabens effectiveness has been decreased by interaction with non-ionics emulsifiers or proteins, or by the migration into oil phase.

For a complete cosmetic preservative system, Diazolidinyl Urea may be added with methylparaben and propylparaben: the combination with parabens takes advantages of a synergistic action and provides a generally applicable, wide-range, versatile system.

### Typical combinations Diazolidinyl Urea-parabens used by in cosmetic products

Product categories	Diazolidinyl Urea %	Methylparaben %	Propylparaben %
Lotions	0.20	0.20	0.10
Shampoos	0.20	0.10	0.05
Creams	0.25	0.20	0.10
Conditioners	0.20	0.20	0.10
Liquid make -up	0.25	0.20	0.10
Eye area products	0.25	0.20	0.10

## 10. STORAGE

The product is very hygroscopic, so it should be stored in tightly closed containers. At this conditions its guaranteed shelf-life is of 1 year from the manufacturing date.

# Custom<sup>®</sup>PHENOCHEM

PHENOCHEM is an optimized blend of parabens esters in phenoxyethanol. PHENOCHEM is now one of the established and most popular preservative blends available to the cosmetics and toiletries industry. The choice of an antimicrobial solvent in addition to the most effective ratio of esters maximizes the spectrum of activity and minimizes use concentrations.

## BENEFITS OF PHENOCHEM

- Broad spectrum activity; effective against gram-negative and gram positive bacteria, yeast and moulds
- Readily incorporated into formulations
- Retains activity over the range pH 3-8
- Compatible with a wide range of cosmetic raw materials
- Non volatile - there is no loss of preservative due to volatility even on prolonged storage
- PHENOCHEM has an excellent toxicological profile and is non irritant to skin, eye and mucous membranes at normal concentrations.
- The components of PHENOCHEM are biodegradable at low concentrations found in effluent.
- PHENOCHEM has not been tested on animals for over 10 years.
- The components of PHENOCHEM occur naturally in a variety of plants and animals.

## ANTIMICROBIAL ACTIVITY

Organism	% phenochem
Pseudomonas Aeruginosa	0.225
Escherichia Coli	0.20
Proteus Vulgaris	0.225
Salmonella Enteritidis	0.225
Staphylococcus Aerus	0.20
Enterococcus Faecium	0.20
Bacillus Cereus	0.15
Candida Albicans	0.15
Saccharomyces Cerevisiae'	0.15
Aspergillus Niger	0.125

## APPLICATIONS

PHENOCHEM has been successfully used to protect most types of personal care products from microbial contamination. As with other preservatives, the correct use concentration depends upon several factors including the chemical and physical nature of the product, its ability to support microbial growth and the likelihood of recontamination during use. PHENOCHEM will preserve cosmetics and toiletries when incorporated at concentrations from 0.25 % to 1.0 %. Shampoos and foam baths may be preserved with PHENOCHEM at concentrations between 0.25- 0.65 %. Products with a high protein content may require levels from 0.5-1.0 %. Surfactants concentrates, liquid dishwashing detergents and fabric softeners are generally preserved over the range of 0.2-0.6 %. Emulsified systems, both olw and wlo types, may be effectively preserved by the addition of PHENOCHEM at 0.4 % to 0.7 %. PHENOCHEM can also be used to preserve emulsions based on non ionic surfactants but slightly increased concentrations may be required e.g. 0.5- 1.0 %.

## INCORPORATION OF PHENOCHEM

PHENOCHEM can be added to the aqueous phase readily up to its limit of solubility.

The relatively low aqueous solubility of PHENOCHEM means that if the water content of the formulations is low, it may not be convenient to add the preservative directly to water during manufacture. Heating the water to 60 to 70 deg C prior to PHENOCHEM addition will, in most instances, allow the appropriate quantity to be dissolved.

For aqueous systems, which cannot be heated, PHENOCHEM can be incorporated by preparing concentrate in a suitable solvent, e.g. Propylene glycol, and stirring this concentrate into the water to give a final PHENOCHEM concentrations below its maximum water solubility.

In emulsified systems, PHENOCHEM is readily dissolved in the lipid phase prior to emulsifications although it is good practice to divide the PHENOCHEM content between the aqueous and lipid phases during their preparation.

In surfactant and detergents based products, PHENOCHEM can be dissolved in the surfactant prior to the addition of water and other ingredients.

## CHEMICAL PROPERTIES

Appearance	-	Colorless liquid
Odor	-	Slight
Specific gravity	-	1.124
Solubility in water	-	Approx. 0.5 %solubility in organic solvents
Ethanol	-	Miscible
Ethanol/water	-	> 95.0
Isopropanol	-	Miscible
Acetone	-	Miscible
Propylene glycol	-	Miscible
Isopropylene myristate	-	Miscible
Peanut oil	-	25.0
Liquid paraffin	-	<0.1
Glycerol	-	10.0
Triethanolamine	-	Miscible
Polysorbate 80	-	Miscible
Lauryl sulphate 40 %	-	35

## REGULATORY STATUS

All the components are included in EC Cosmetics Directive Annex. V1 List of permitted preservatives. PHENOCHEM is also permitted for use as a preservative in the **USA AND JAPAN**.

The information given in this publication is based on our current knowledge and experience, and may be used at your discretion and risk. It does not relieve you from carrying out your own precautions and tests. We don't assume any liability in connection with your product or its use. You must comply with all applicable laws and regulations, and observe all third party rights.

# Custom<sup>®</sup> SALIGERM G II

## DESCRIPTION

Saligerm G II is a liquid preservative. It's a mixture of Parabens, Diazolidinyl urea in Propylene glycol.

## PROPERTIES

Saligerm G II is a clear viscous liquid with a characteristic mild odor. It is readily soluble at levels of 1.0% in both aqueous solutions and oil/water emulsions.

Saligerm G II is a convenient, ready-to-use complete antimicrobial preservative system with a broad spectrum of activity. The solubilized combination of Saligerm G II with methylparaben and propylparaben is effective against Gram-positive and Gram-negative bacteria and against yeasts and molds.

Saligerm G II can be used without additional co-preservatives and is compatible with essentially all cosmetic ingredients, including surfactants and proteins.

## PHYSICAL CHARACTERISTICS

Color	:	Pale to light yellow (APHA - 100 maximum)
Odor	:	Characteristically mild
Appearance	:	Clear viscous liquid
Nitrogen	:	5.8 - 6.4 %
Specific gravity	:	1.1731-1.1839
Total solids	:	42.5 - 45.5%
Residue on Ignition	:	0.50% maximum

## TOXICOLOGICAL DATA

The toxicity of Saligerm G II is consistent with the expected average of its component parts. Propylene glycol is low in toxicity, but it is known to cause minor eye and skin irritation. Methylparaben and propylparaben, alone or in combination, at concentrations >5.0% in propylene glycol are known to cause eye and skin irritation. The irritant effect of the Saligerm G II in this mixture is insignificant.

## TOXICITY PROFILE OF SALIGERM G II

Acute oral toxicity >2000 mg/kg

LD 50 (rats)

Acute dermal toxicity

LD 50 (rabbits) >2000 mg/kg

Primary skin irritation Moderate skin irritant.

(rabbits) ( However, a 1.0% aqueous solution of Saligerm G II is not a skin irritant

Eye irritant ( rabbits) Severe eye irritant at full strength.

(However, a 1.0% aqueous solution of Saligerm G II is not a eye irritant)

## APPLICATIONS

Saligerm G II is an ideal preservative system for shampoos, hair conditioners and emulsion products. Saligerm G II eliminates the problems associated with incorporation solid parabens. It dissolves completely in cosmetics formulations at a 1.0% concentration over a wide pH range.

Saligerm G II can be added at any stage of the manufacturing process. It can be conveniently incorporated into hot or cold processed shampoos and into creams and lotions at any stage of their manufacture. The preferred method of the product with good stirring just prior to the addition of the fragrance.

Saligerm G II has also been successfully used to preserve troublesome formulations containing non-ionic surfactants, proteins, soluble collagen, aloe vera extracts and herbal extracts. The broad spectrum of Saligerm G II with methylparaben and propylparaben provides the preservative protection necessary for sophisticated personal care products.

Saligerm G II is recommended to be used at a level of upto 1.0%. This level provides to the product: 0.30% Diazolidinyl Urea, 0.11% methylparaben, 0.03% propylparaben and 0.56% propylene glycol. Shampoos and liquid soaps generally require less than 1.0% Saligerm G II. Although Saligerm G II provides excellent antimicrobial preservation, very developed or modified product should be challenge tested to assure preservative efficacy.

# Custom<sup>®</sup> SALINIP

SALINIP is an optimized blend of esters of p-hydroxybenzoic acid and iso-butyl paraben dissolved in 2 phenoxyethanol. Total content of parabens is 29.5%. SALINIP is now one of the established and most popular preservative blends available to the cosmetics and toiletries industry. The choice of an antimicrobial solvent in addition to the most effective ratio of esters maximizes the spectrum of activity and minimizes use concentrations.

## BENEFITS OF SALINIP

- Broad spectrum activity; effective against gram-negative and gram positive bacteria, yeast and moulds
- Readily incorporated into formulations
- Retains activity over the range pH 3-8
- Compatible with a wide range of cosmetic raw materials
- Non volatile - there is no loss of preservative due to volatility even on prolonged storage
- SALINIP has an excellent toxicological profile and is non irritant to skin, eye and mucous membranes at normal concentrations.
- The components of SALINIP are biodegradable at low concentrations found in effluent.
- Some of the components of SALINIP occur naturally in a variety of plants and animals.

### ANTIMICROBIAL ACTIVITY

Organism	% Salinip
Pseudomonas Aeruginosa	0.225
Escherichia Coli	0.20
Proteus Vulgaris	0.225
Salmonella Enteritidis	0.225
Staphylococcus Aerus	0.20
Enterococcus Faecium	0.20
Bacillus Cereus	0.15
Candida Albicans	0.15
Saccharomyces Cerevisiae'	0.15
Aspergillus Niger	0.125

## APPLICATIONS

SALINIP has been successfully used to protect most types of personal care products from microbial contamination. As with other preservatives, the correct use concentration depends upon several factors including the chemical and physical nature of the product, its ability to support microbial growth and the likelihood of recontamination during use. SALINIP will preserve cosmetics and toiletries when incorporated at concentrations from 0.25 % to 1.0 %. Shampoos and foam baths may be preserved with SALINIP at concentrations between 0.25- 0.65 %. Products with a high protein content may require levels from 0.5-1.0 %. Surfactants concentrates, liquid dishwashing detergents and fabric softeners are generally preserved over the range of 0.2-0.6 %. Emulsified systems, both olw and wlo types, may be effectively preserved by the addition of SALINIP at 0.4 % to 0.7 %. SALINIP can also be used to preserve emulsions based on non ionic surfactants but slightly increased concentrations may be required e.g. 0.5-1-0 %.

### INCORPORATION OF SALINIP

SALINIP can be added to the aqueous phase readily up to its limit of solubility.

The relatively low aqueous solubility of SALINIP means that if the water content of the formulations is low, it may not be convenient to add the preservative directly to water during manufacture. Heating

the water to 60 to 70 deg C prior to SALINIP addition will, in most instances, allow the appropriate quantity to be dissolved.

For aqueous systems, which cannot be heated, SALINIP can be incorporated by preparing concentrate in a suitable solvent, e.g. Propylene glycol, and stirring this concentrate into the water to give a final SALINIP concentrations below its maximum water solubility.

In emulsified systems, SALINIP is readily dissolved in the lipid phase prior to emulsifications although it is often good practice to divide the SALINIP content between the aqueous and lipid phases during their preparation.

In surfactant and detergents based products, SALINIP can be dissolved in the surfactant prior to the addition of water and other ingredients.

## CHEMICAL PROPERTIES

Appearance	-	Colorless liquid
Odor	-	Slight
Specific gravity	-	1.124
Solubility in water	-	Approx. 0.5 %solubility in organic solvents
Ethanol	-	Miscible
Ethanol/water	-	> 95.0
Isopropanol	-	Miscible
Acetone	-	Miscible
Propylene glycol	-	Miscible
Isopropyl myristate	-	Miscible
Peanut oil	-	25.0
Liquid paraffin	-	<0.1
Glycerol	-	10.0
Triethanolamine	-	Miscible
Polysorbate 80	-	Miscible
Lauryl sulphate 40 %	-	35

## REGULATORY STATUS

All the components are included in EC Cosmetics Directive Annex. V1 List of permitted preservatives. SALINIP is also permitted for use as a preservative in the **USA AND JAPAN**.

*The information given in this publication is based on our current knowledge and experience, and may be used at your discretion and risk. It does not relieve you from carrying out your own precautions and tests. We don't assume any liability in connection with your product or its use. You must comply with all applicable laws and regulations, and observe all third party rights.*