



**ISP**



ISP  
PERSONAL CARE

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# Mild Preservatives

*for Personal Care*

## Introduction

International Specialty Products (ISP) is a leading supplier of preservatives to the personal care industry. The problem of how to maintain pure and unspoiled cosmetics has been with us for thousands of years. Indeed, the development of cosmetics is believed to have begun up to ten thousand years ago in China; and in Egypt, we find the earliest records of cosmetic substances and their application. The need to ensure the long life and safety of cosmetics has been a concern since ancient times.

The difficulty in developing successful cosmetic preservatives lies in the requirement to find a substance which is non-toxic and non-irritating to the user, but which, at the same time, is able to destroy or inhibit the growth of micro-organisms such as bacteria, yeast, and mold, which could render the cosmetic product useless, or even dangerous. The problem is compounded by the requirement to provide stability over a broad range of pH and temperature conditions while remaining compatible with the chemical composition of the final product.

ISP's work in the development and formulation of preservatives and preservation systems dates back to 1955 and the Company now boasts a range of products compatible with most cosmetic ingredients, which are non-toxic and non-sensitizing to the user and provide safe microbiological protection for cosmetic products. ISP's Germall®, Germaben®, Suttocide®, LiquaPar®, Optiphen®, LiquaGard®, Conarom™, and Rokonsal™ products offer safe preservative solutions for cosmetics.

ISP also provides worldwide technical expertise to its personal care customers through its technical centers around the globe. By working closely with the industry, ISP is able to offer unrivaled technical and product development services for this important sector.

Preservative research is carried out in the microbiological research laboratory at ISP's corporate headquarters in Wayne, New Jersey, USA and at its R&D center in Memmingen, Germany.

Manufacturing is based in Chatham, New Jersey and Memmingen, Germany. The plants employ state-of-the art bulk storage for receiving and handling chemicals and all manufacturing processes are computer controlled.

## Positioning of Mild Preservatives

Modern markets are increasingly demanding more environmentally acceptable preservatives. Eco-oriented consumers want to use nature-identical ingredients and are therefore looking for mild, non-formaldehyde donor and non-halogen containing preservative solutions.

ISP's range of mild preservatives conforms to this philosophy and can therefore be recommended as effective mild alternatives to more traditional preservative systems.

## About ISP

International Specialty Products (ISP) is recognized globally for its development, manufacture, and supply of innovative specialty chemical ingredients which are used to enhance the performance of products made and used around the world.

With 160 years of experience, we now boast over 6,000 customers in more than 90 countries serving a diverse range of industries including personal care; food and beverage; pharmaceuticals and oral care; coatings and adhesives; household, industrial and institutional cleaning; and agriculture.



It must be emphasized that every cosmetic formulation needs a tailor-made preservative system to meet its specific requirements. Every developed or modified product should be challenge tested to assure preservative efficacy.

## Aromatics with Antimicrobial Properties

### Conarom™ P

INCI: Phenethyl Alcohol (and) Caprylyl Glycol (and) Trideceth-8

#### Properties

Conarom™ P is a blend of Phenylethanol, Caprylyl Glycol, and Emulsifier. It is a nature-identical fragrance additive in glycolic solution. Conarom™ P is effective against Gram-positive and Gram-negative bacteria, yeast, and mold and can render the use of additional preservatives or perfumes unnecessary.

The aroma component is found in a variety of plants and is extracted from their essential oils.

The mild rose-like aroma of Conarom™ P complements the aroma of the final product.

The ingredients can be labeled either according to INCI or as perfume or aroma.

#### Applications

Conarom™ P is recommended for use in leave-on and rinse-off applications at pH 4-8. Optimal activity will be achieved at pH around 5.

#### Formulation Guidelines

Strong oxidants and strong alkalis lead to decomposition of the active ingredients. Nonionic surfactants, e.g., Polysorbate 80, may cause deactivation.

In emulsions, Conarom™ P can be added to the aqueous phase at up to 80°C with adequate mixing.

Conarom™ P should be used at concentrations in the range 0.3% to 2.0%.

### Conarom™ H-3

INCI: PPG-2 Methylether (and) Piperonal (and) Phenylpropanol

#### Properties

Conarom™ H-3 is a glycolic blend of Piperonal and Phenylpropanol. It is effective on its own against Gram-positive and Gram-negative bacteria, yeast, and mold. The aldehydic and one of the glycolic components are found in a variety of plants and are extracted from their essential oils.

The vanilla-like aroma of Conarom™ H-3 means that it should only be added to perfumed formulations. In some cases the existing aroma is intensified or complemented.

The ingredients can be labelled according to INCI or as perfume or aroma.

#### Applications

Conarom™ H-3 is recommended for use in leave-on and rinse-off applications, including creams, lotions, shampoos, and conditioners.

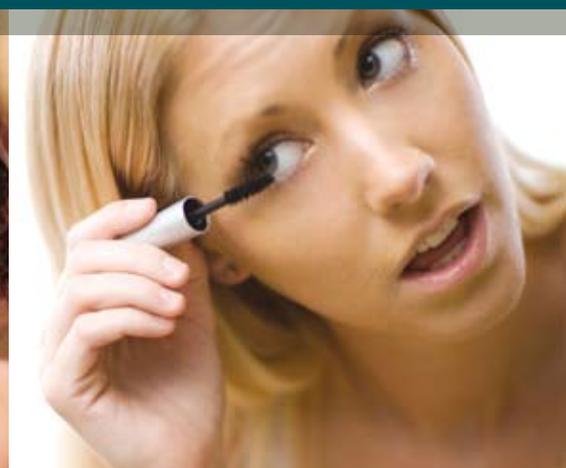
#### Formulation Guidelines

For emulsions, Conarom™ H-3 can be added to the aqueous phase up to temperatures of 80°C.

In aqueous products with low levels of emulsifiers, intensive mixing is recommended to achieve a uniform dispersal of the active ingredient.

Strong oxidants and strong alkalis lead to decomposition of the actives.

Conarom™ H-3 should be used at concentrations in the range 0.3% to 2.0% and in the pH range 4-8.



## Optiphen® Range

### Optiphen®

INCI: Phenoxyethanol (and) Caprylyl Glycol

#### Properties

Optiphen® is a liquid preservative formulation featuring an innovative blend of Phenoxyethanol and Caprylyl Glycol, an emollient base that is ideal for personal care products requiring broad spectrum protection.

The combination of these ingredients provides protection against microbial growth from bacteria and yeast while giving the finished product exceptional feel. It can be used alone but also functions synergistically with other preservatives.

#### Applications

Optiphen® is applicable for use in a variety of personal care preparations such as aqueous and anhydrous systems, as well as emulsions.

#### Formulation Guidelines

Optiphen® is a clear liquid preservative that can be easily added to the formulation during pre- or post-emulsification at or below 80°C.

Optiphen® can be used over a broad pH range of 4-8. Optiphen® is compatible with most ingredients used in the personal care industry.

Recommended use levels: 0.75%-1.5%.

### Optiphen® Plus

INCI: Phenoxyethanol (and) Caprylyl Glycol (and) Sorbic Acid

#### Properties

Optiphen® Plus is a patent-pending liquid preservative formulation featuring an innovative blend of Phenoxyethanol and Sorbic acid in an emollient base of Caprylyl Glycol. It is ideal for slightly acidic personal care products requiring broad spectrum protection.

The combination of all three ingredients offers effective protection against bacteria, yeast, and mold growth while imparting emolliency.

#### Applications

Optiphen® Plus can be used in a wide range of aqueous and emulsion-type personal care formulations, such as creams, lotions, shampoos, conditioners, mousses, and wet wipes.

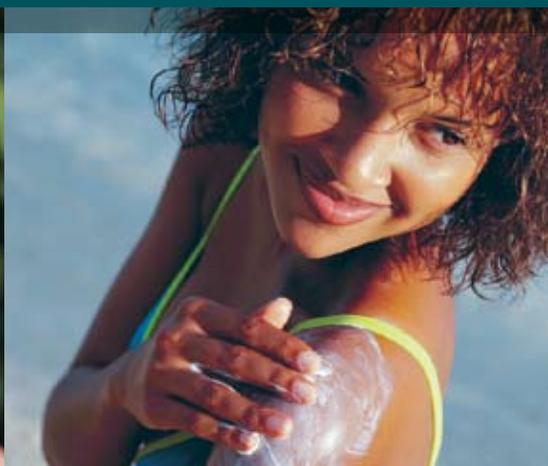
#### Formulation Guidelines

Optiphen® Plus may be added to the formulation during pre- or post-emulsification at or below 80°C.

It performs best in formulations at pH below 6; depending on the formulation, Optiphen® Plus may also be used at >pH 6.

Optiphen® Plus is effective both as a stand-alone system and in combination with other preservatives. It is compatible with most raw materials in the personal care industry.

Recommended use levels: 0.75%-1.5%.



## Optiphen® ND/Rokonsal™ ND\*

INCI: Phenoxyethanol (and) Benzoic Acid (and) Dehydroacetic Acid

### Properties

Optiphen® ND/Rokonsal™ ND is a combination of Benzoic acid and Dehydroacetic acid in Phenoxyethanol. Optiphen® ND/Rokonsal™ ND does not contain halo-organic components, formaldehyde or any formaldehyde-releasers.

It is effective against Gram-positive and Gram-negative bacteria, yeast, and mold.

Due to the organic acids, Optiphen® ND/Rokonsal™ ND can be classified as a “mild preservative,” provided the pH of the final product is not higher than 6.

### Applications

Optiphen® ND/Rokonsal™ ND has proven to be an effective preservative system for rinse-off products such as shampoos, shower gels, and foam baths.

Optiphen® ND/Rokonsal™ ND is recommended for use in creams, emulsions, lotions, and gels with acidic pH. Suitable for oil/water and water/oil emulsions.

### Formulation Guidelines

Optiphen® ND/Rokonsal™ ND can be added at any stage during production up to temperatures of 80°C

In aqueous products with low emulsifier levels, intensive mixing is recommended to achieve a uniform dispersal of the active ingredients. Strong oxidizing agents, strong acids, and alkalis lead to decomposition of the active ingredients.

Recommended use levels: 0.2%-1.2%.

\* Sold under the Rokonsal™ name in Europe

## Optiphen® BSP/Rokonsal™ BSP\*

INCI: Benzoic Acid (and) Sorbic Acid (and) Phenoxyethanol

### Properties

Optiphen® BSP/Rokonsal™ BSP is a combination of Benzoic and Sorbic acids in Phenoxyethanol. Optiphen® BSP/Rokonsal™ BSP conforms to the recommendations for Natural Cosmetic Products including Conseil de l'Europe.

Due to the organic acids, Optiphen® BSP/Rokonsal™ BSP may be classified as a “mild preservative,” provided the pH of the final product is not higher than 5. It is effective against Gram-positive and Gram-negative bacteria, yeast, and mold.

### Applications

Optiphen® BSP/Rokonsal™ BSP is recommended for use in shampoos, conditioners, shower gels, and foam baths. It can also be used in styling applications such as mousses and styling gels.

Optiphen® BSP/Rokonsal™ BSP is recommended for use in creams, emulsions, lotions, and gels with acidic pH. Suitable for oil/water and water/oil emulsions.

### Formulation Guidelines

Optiphen® BSP/Rokonsal™ BSP can be added to the aqueous phase at temperatures up to 80°C.

In aqueous products with low emulsifier content, intensive mixing is recommended to achieve a uniform dispersal of the components.

Strong oxidants will lead to decomposition of the active ingredients.

Recommended use levels: 0.3%-1.0%.

For simple surfactant products, 0.2% may be sufficient.



## **Optiphen® BSB-N/Rokonsal™ BSB-N\***

**INCI: Benzyl Alcohol (and) Glycerin (and) Benzoic Acid (and) Sorbic Acid**

### **Properties**

Optiphen® BSB-N/Rokonsal™ BSB-N is a combination of Benzoic and Sorbic acids in Benzyl alcohol.

The ingredients of Optiphen® BSB-N/Rokonsal™ BSB-N conform to the German BDIH-recommendation for Natural Cosmetic Products and the recommendations of the Conseil de l'Europe.

Due to the organic acids, Optiphen® BSB-N/Rokonsal™ BSB-N may be classified as a “mild preservative,” provided the pH of the final product is not higher than 5. It is effective against Gram-positive and Gram-negative bacteria, yeast, and mold at acid pH values.

### **Applications**

Optiphen® BSB-N/Rokonsal™ BSB-N is recommended for shampoos, conditioners, shower gels, and foam baths. It can also be used in styling applications including mousses and gels.

Optiphen® BSB-N/Rokonsal™ BSB-N is recommended for use in creams, emulsions, lotions, and gels with acidic pH. Suitable for oil/water and water/oil emulsions.

### **Formulation Guidelines**

Optiphen® BSB-N/Rokonsal™ BSB-N can be added to the aqueous phase at temperatures up to 80°C.

In aqueous products with low emulsifier content, intensive mixing is recommended to achieve a uniform dispersal of the preservative.

Strong oxidizing agents and strong acids will lead to decomposition of the active ingredients.

Recommended use levels: 0.3%-1.0%.

For simple surfactant products, 0.2% may be sufficient.

\* Sold under the Rokonsal™ name in Europe

All preservatives contained herein passed the CTFA (Cosmetic, Toiletry, and Fragrance Association) method 28 day challenge test and the Modification of the Pharm Europe method challenge test in selected personal care formulations.





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