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# Polyolprepolymer-2

Patented Delivery and Deposition Technology  
Holds Active Ingredients in "Reservoirs" in Upper Layers of the Skin  
Increases Active Efficacy and Reduces Irritation

## DESCRIPTION

Polyolprepolymer-2 forms a long-lasting liquid reservoir in the stratum corneum and epidermis. It significantly influences the deposition of skin care and actives on the skin; yet, because of its high molecular weight, Polyolprepolymer-2 remains within the top layer of the skin.

## PHYSICAL CHARACTERISTICS

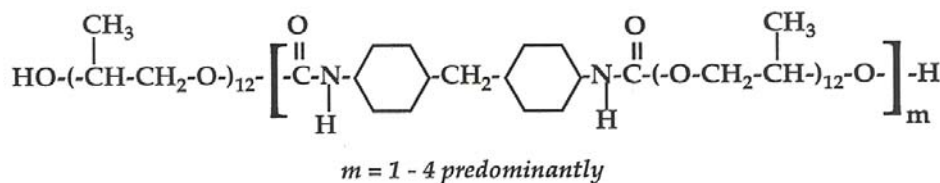
APPEARANCE: Clear viscous liquid  
SOLUBILITY: Oil, Ethanol (50%)

## PROPERTIES

- Increases efficacy of active ingredients by improving delivery
- Reduces irritation by preventing irritants to penetrate into the dermis
- Improves water resistance
- Improves the efficacy of sunscreens while reducing irritation
- Tested to improve the efficacy of Salicylic Acid, Vitamins, Anti-Microbial Actives, Sunscreens and much more
- Easy formulation, unaffected by pH
- Clear and Colorless
- Emollient and imparts soft smooth texture to formulations
- Non-sticky and non greasy in finished formulations
- Improves Deposition on Hair
- Enhances wearability of pigmented systems

## WHAT IS POLYOLPREPOLYMER-2?

Polyolprepolymer-2 is a polyalkylene glycol-based polyurethane polymer. It is composed of oligomers ranging in molecular weight from 1,500 - 10,000 with an average of 4,000. Due to the molecular weight distribution of the oligomers and its chemical structure, a concentration gradient is formed within the stratum corneum.



## LEGISLATION

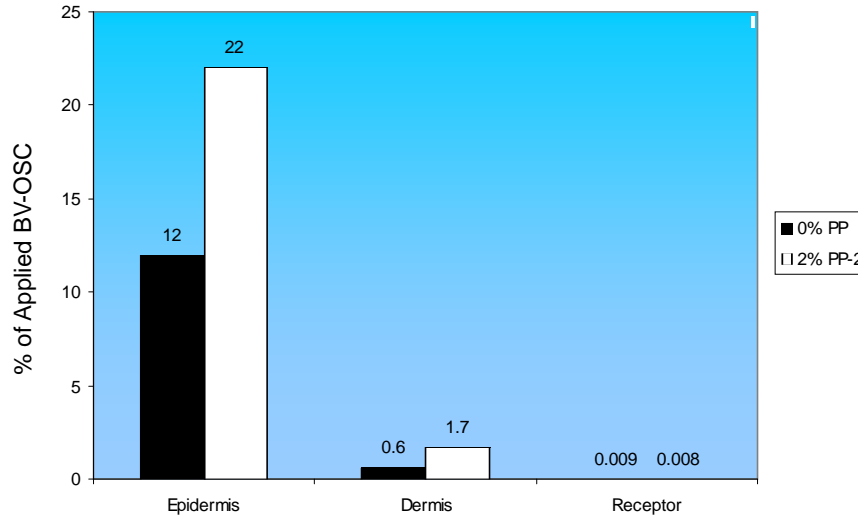
INCI Name: PPG-12 SMDI Copolymer  
CAS: 9042-82-4  
EINECS: 532198

# Polyolprepolymer-2

## TEST DATA

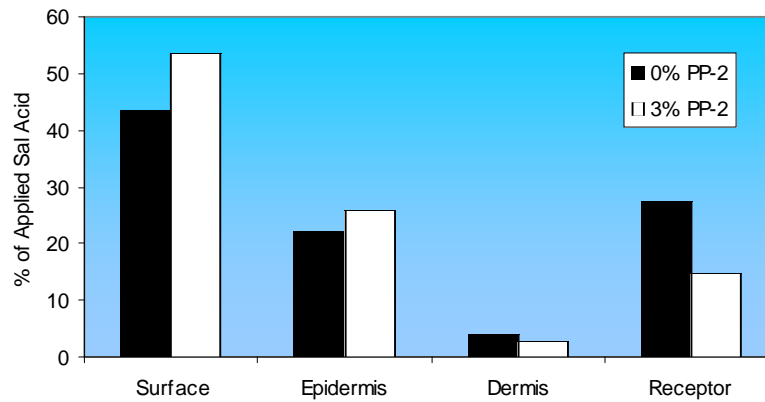
### Deposition of BV-OSC with PP-2

A study was conducted using human skin comparing the percutaneous absorption of topically applied BV-OSC from cream formulations containing 2% PP-2 and 0% Polyolprepolymer following a 24-hour exposure. The results showed an increase presence of BV-OSC in the epidermis; compared to the cream without Polyolprepolymers.



### Deposition of Salicylic Acid with PP-2

The Study showed that a greater amount of Salicylic Acid was retained on and in the upper layers of the skin from the formulation containing 3% PP-2, while there was a significantly less in the dermis and significantly less penetration through the skin (see receptor level).

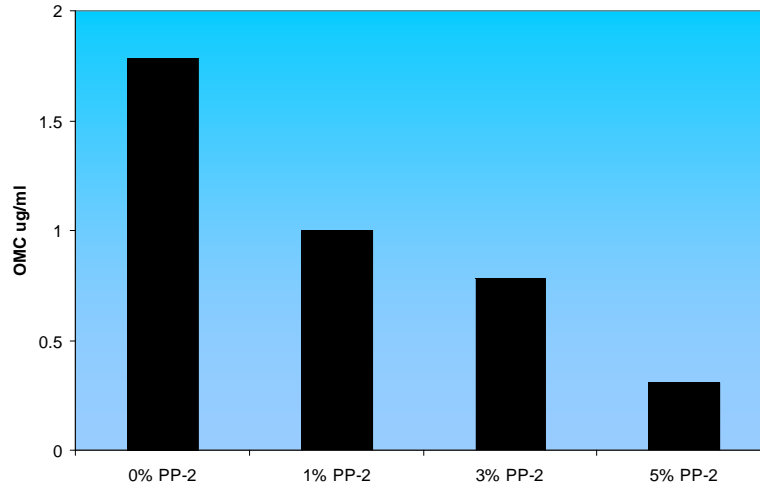


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## TEST DATA

### In Vitro Skin Penetration Evaluation of Octymethoxycinnamate (OMC) With and Without PP-2

A study was performed using excised human stratum corneum to evaluate the effect of PP-2 on the in vitro penetration of OMC. The evaluated concentrations of PP-2 were 0, 1, 3 and 5%. The results of this study show a statistically significant decrease in OMC penetration through stratum corneum with increasing PP-2 concentration (unpaired t-test vs. 0% PP-2). The relative effect of PP-2 on OMC penetration provides the potential for increased duration of UV absorbancy on the skin's surface as well as reduced irritation.



### Human Test Data Comparing Degree of Skin Irritation of Vitamin A Acid Gels With and Without PP-2

A Vitamin A Acid Gel containing 10% PP-2 reduced retinoid-induced dermal irritation compared to the Vitamin A Acid Gel without PP-2 by almost five-fold after one application. After three applications, the cumulative difference increased to nine-fold.

