

Durosoft PG4-O

A Detailed Overview of Durosoft PG4-O

Durosoft PG4-O is a 100% natural emulsifier and emollient made from oil. It's dual functionality offers stability and a luxurious skin feel in formulations. It's palm-free and PEG-free, perfect for brands looking to enhance moisturisation and active delivery in eco-conscious, oil-based products.

Durosoft PG4-O is a naturally derived, non-ionic emulsifier and emollient from sustainable sunflower oil. It offers a PEG-free alternative to traditional emulsifiers, making it ideal for formulations focused on natural ingredients and environmental responsibility. Its ability to create stable water-in-oil emulsions with low-energy processing supports hot and cold formulations, offering flexibility to cosmetic developers.

This multifunctional ingredient is particularly effective in skin and hair care products due to its mildness, low inter-facial tension and emollience. Its compatibility with a wide range of

oils and oil-based actives adds to its versatility, creating elegant, non-greasy formulations.

As the personal care industry moves towards more sustainable solutions, Durosoft PG4-O provides brands with a reliable, eco-friendly ingredient that maintains product stability without compromising performance. It is an excellent choice for formulators looking to meet growing consumer demands for cleaner, more conscious beauty products.

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| » INCI: Polyglyceryl-4 Oleate | » Non-ionic W/O emulsifier for oil rich products |
| » Appearance: Amber syrup | » Emollient to improve skin feel and slip |
| » HLB: 4-6 | » Safe for use in oral care products (3% inclusion) |
| » Average molecular weight: 467.5 g/mol | » Dermatologically tested |
| » Usage Level: Emulsifier 1-5% / Emollient 5-12% | » Paediatrician approved |
| » Inter-facial Tension: <1 mN/m | |



The Benefits of Formulating With Durosoft PG4-O

Lipophilic

Due to its lipophilic nature, Durosoft PG4-O integrates seamlessly into the oil phase of formulations. This characteristic ensures that it blends well with other oils, enhancing the overall stability and consistency of the product. By being part of the oil phase, Durosoft aids in creating formulations that are smooth, effective, and visually appealing.

High Levels of Oil + Glycerine

Durosoft PG4-O contains high levels of oil + glycerine, renowned for their hydrating and moisturising properties. This combination ensures the skin retains moisture, providing long-lasting hydration and leaving it feeling soft and supple. Products formulated with Durosoft offer significant benefits for maintaining healthy, hydrated skin.

Made from Sunflower Oil

Durosoft PG4-O is derived from sunflower oil, known for its anti-oxidant properties and long-

lasting moisture retention. This natural oil helps maintain the skin's moisture balance, protecting against oxidative stress and preventing dryness. Additionally, sunflower oil has anti-inflammatory properties making it an effective ingredient for treating dryness and promoting healthy, hydrated skin.

Low Surface Tension

One of Durosoft PG4-O's stand out benefits is its low surface tension, which allows for better dispersion of active ingredients and improved spreadability. This means that products glide more easily over the skin, providing a more pleasant application experience and ensuring that active ingredients are evenly distributed, maximising their efficacy.

Tetraglycerol Chain

Durosoft PG4-O features a tetraglycerol chain, which enhances its moisturising and mildness properties. This unique structure ensures that products formulated with Durosoft PG4-O...

are gentle on the skin, making them suitable for sensitive skin types. The moisturising properties provide long-lasting hydration, improving personal care products overall effectiveness and appeal.

Diverse Fatty Acid Content

The diverse fatty acid content in Durosoft PG4-O contributes to forming stable micro-structures within formulations. This diversity helps create robust and resilient formulations that maintain their structure and effectiveness under various conditions. Stable micro-structures are vital to ensuring the longevity and performance of the final product.

Delivery Enhancer

Due to the low surface tension, Durosoft PG4-O aids in the delivery of actives, improving the delivery of active ingredients into the skin. This ensures that the beneficial ingredients in your formulations are effectively absorbed, maximising their impact and efficacy. Products formulated with Durosoft can offer enhanced performance benefits for the end user.

Palm Free

In line with our commitment to sustainability and ethical sourcing, Durosoft PG4-O is palm free. This means it is free from ingredients derived from palm oil, a common but environmentally friendly contentious ingredient. Choosing Durosoft PG4-O allows formulators to create products that are both high performing and aligned with ethical and sustainable practices.



Application Possibilities



Application Possibilities

Durosoft PG4-O

Anti Frizz Oil	Shower Oil
Beard Oil	Oil Cleanser
Lip Liner	Massage Bar
Mascara	Foot Mask
Eye Liner	SPF Cream
Cream Blusher	Oil Rich Cream
Concealer	Body Oil
Lubricant	Baby Oil
Massage Oil	Nappy Cream

Durosoft PG4-O

Key Features

Made from natural oils

- » Oils have fantastic claims e.g. anti-oxidant
- » Palm Free
- » 100% Natural
- » Mild
- » Certified COSMOS Organic, Natrue, China Compliance

Emollient & Emulsifier properties

- » Dual function
- » Clean INCI
- » Cost effective

Luxurious skin feel, increased slip & moisturisation

- » Low surface tension = increased spreadability, helps with the delivery of actives in skincare & shows good emulsification
- » Lipophilic - protects against dehydration

Non-ionic surfactant

- » Compatible with a wide range of additives & actives
- » Can be used in many applications

PEG-Free

- » No petrochemicals
- » Free from nasties
- » Ethoxylate free
- » Non-synthetic - 100% natural

Liquid

- » Easier to handle than more typical solids
- » Can be hot or cold processed

Comparing the Polyglyceryl-4 Oleate Market

The following graph provides a comprehensive comparison of Durosoft PG4-O against various alternatives in the emulsifier market.

Features	Durosoft PG4-O	Competitor PG4-O	Natural Alternative	Synthetic Alternative
100% Natural	✓	✓	✓	✗
COSMOS Organic	✓	✗	✗	✗
Palm Free	✓	✓	✗	✗
Natrue	✓	✗	✗	✗
Emulsifier	✓	✓	✓	✓
Emollient	✓	✗	✗	✗
Liquid	✓	✓	✗	✗
Cold-processable	✓	✓	✗	✗
Non-ionic	✓	✓	✓	✓
PEG Free	✓	✓	✓	✗
Ethoxylate	✓	✓	✓	✗
Biodegradable	✓	✓	✓	✓
Vegan	✓	✓	✓	✓
China Approved	✓	✗	✓	✗
HLB	4	8	2.5	4.9

This analysis highlights the advantages of Durosoft PG4-O, focusing on key features like its 100% natural origin, COSMOS organic certification, and being palm-free and vegan-friendly. Notably, it outperforms competitors with its versatility, cold-processability, and biodegradability.

By comparing these attributes, the graph illustrates how Durosoft PG4-O meets the growing demand for sustainable, effective emulsifiers, particularly in natural and environmentally conscious personal care formulations.