



## PolyMac ProGel

PolyMac ProGel employs a smooth, anhydrous silicone gel enriched with humectants, antioxidants, and other specialty ingredients. Its hydrophobic properties make it an excellent choice for barrier protection of scars and other skin conditions.

PolyMac ProGel contains ingredients that can be a vehicle for delivery of topical skin treatments. The silicon compounds can improve absorption into the skin and also be used as a building agent and emollient for skin care solutions.

### Benefits:

- Enhances delivery of skin conditioning agents
- Offers protective qualities against UV radiation
- Helps nutrients absorb into the skin

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# PolyMac ProGel

## Ingredient List

### Caprylic/Capric Triglycerides

As a microemulsion base, caprylic/capric triglycerides were used in combination with other microemulsions to find it improved skin penetration of a topical skin medications.<sup>1,2,3</sup> It has also been used to increase the delivery of lycopene through the skin and improve antioxidant activity in the tissue.<sup>4</sup>

### Carthamus Tinctorius

Safflower seed oil (Carthamus Tinctorius) is often used in cosmetics and personal care products and is known as an antioxidant among many other benefits.<sup>5</sup> It has been shown to have protective qualities against UV radiation that can cause skin photoaging.<sup>6</sup> It even helps to promote hair growth by stimulating hair follicles.<sup>7</sup>

### Dimethicone

Dimethicone is a form of silicone that is the most common in personal care formulas. As an emollient, dimethicone has properties that can effectively spread over the skin with a light, silky feel.<sup>8</sup>

### Isodecyl Neopentanoate (and) Dimethicone/Bis-Isobutyl PPG 20-Crosspolymer

Isodecyl neopentanoate is a silky emollient ester that has a low molecular weight and has been shown to improve bioavailability of substances.<sup>9</sup> In combination with other bases, a retinol facial moisturizer containing isodecyl neopentanoate was shown to effectively reduce photodamage without irritation.<sup>10</sup>

Dimethicone crosspolymer ingredients are often used in personal care products as absorbents, bulk-ing agents, and emollient skin conditioning agents.<sup>11</sup> Dimethicone/Bis-Isobutyl is known for its oil phase flexibility.<sup>12</sup>

### Dicaprylyl Ether

As a skin conditioning emollient, dicaprylyl ether is used as a vehicle for the delivery of skin care solutions.<sup>13,14</sup> It has also been shown to benefit hair conditioning by reducing the friction between hair and combing.<sup>15</sup>

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<sup>1</sup> Cavalcanti AL, Reis MY, Silva GC, et al. Microemulsion for topical application of pentoxifylline: In vitro release and in vivo evaluation. International journal of pharmaceutics, 2016;506(1):351-360.

## PolyMac ProGel

### Ingredient List *cont'd*

- <sup>2</sup> Savić V, Todosijević M, Ilić T, et al. Tacrolimus loaded biocompatible lecithin-based microemulsions with improved skin penetration: structure characterization and in vitro/in vivo performances. *International Journal of Pharmaceutics*. 2017 Jul 12.
- <sup>3</sup> Djekic L, Primorac M. The influence of cosurfactants and oils on the formation of pharmaceutical microemulsions based on PEG-8 caprylic/capric glycerides. *International Journal of Pharmaceutics*, 2008;352(1):231-239.
- <sup>4</sup> Lopes LB, VanDeWall H, Li HT, et al. Topical delivery of lycopene using microemulsions: enhanced skin penetration and tissue antioxidant activity. *Journal of pharmaceutical sciences*, 2010;99(3):1346-1357.
- <sup>5</sup> Hiramatsu M, Takahashi T, Komatsu M, et al. Antioxidant and neuroprotective activities of Mogami-benibana (safflower, *Carthamus tinctorius* Linne). *Neurochemical Research*, 2009;34(4):795-805.
- <sup>6</sup> Kong SZ, Shi XG, Feng XX, et al. Inhibitory effect of hydroxysafflor yellow A on mouse skin photoaging induced by ultraviolet irradiation. *Rejuvenation Research*. 2013;16(5):404-413.
- <sup>7</sup> Junlatat J, Sripanidkulchai B. Hair Growth Promoting Effect of *Carthamus tinctorius* Floret Extract. *Phytotherapy research*, 2014;28(7):1030-1036.
- <sup>8</sup> Dayan N. *Handbook of Formulating Dermal Applications: A Definitive Practical Guide*. John Wiley & Sons. 2016.
- <sup>9</sup> Sweetlove C, Chenèble JC, Barthel Y, et al. Evaluating the ready biodegradability of two poorly water-soluble substances: comparative approach of bioavailability improvement methods (BIMs). *Environmental Science and Pollution Research*. 2016 Sep 1;23(17):17592-602.
- <sup>10</sup> Zedayko T, Miller D, Warren Wallo MS. A stabilized 0.1% retinol facial moisturizer improves the appearance of photodamaged skin in an eight-week, double-blind, vehicle-controlled study. *Journal of drugs in dermatology*. 2009 Oct;8(10).
- <sup>11</sup> Becker LC, Bergfeld WF, Belsito DV, et al. Safety assessment of dimethicone crosspolymers as used in cosmetics. *International Journal of Toxicology*, 2014;33(2):655-1155.
- <sup>12</sup> Van Reeth I, Bao XR, Kaneta et al. Silicone Emulsifiers: Understanding Formulation Parameters for Efficient and Innovative Development, *Cosmetics & Toiletries*. October 2011.
- <sup>13</sup> Schulz JH, Hohenberg F. et al. Distribution of sunscreens on skin. *Advanced drug delivery reviews*. 2002;(54): S157-S163.
- <sup>14</sup> Guglielmini G. Nanostructured novel carrier for topical application. *Clinics in dermatology* 26, no. 4 (2008): 341-346.
- <sup>15</sup> Boonme P, Pakpayat N, Yotmanee K, et al. Evaluation of Shampoos Containing Silicone Quaternary Microemulsion. *J of Applied Pharma Science*. 2011;(1):59-63.