

PureSyn™ polyalphaolefins (PAO)

Synthetic personal care product



Energy lives here

PureSyn™ 2, 4 and 6 hydrogenated isoparaffinic hydrocarbon fluids — **INCI hydrogenated poly (c6-c14) olefins** — are ideal for use in formulations for personal care products.

They're a unique class of premium, high-purity fluids with features that set them apart from other hydrocarbon fluids such as mineral oils, petrolatum and polybutene.

PureSyn PAO products are bright and clear, and characterized as:

- Non-comedogenic
- Non-irritating
- Odorless
- Stable in high and low pH systems

When combined with other personal care ingredients, PureSyn PAO may impart a non-greasy or non-oily feel. Formulations can have an oil-free distinction.

Key benefits



Broad spreadability range that can be used to customize skin feel



Stable over broad pH range



Easy formulation of acidic alpha- and beta-hydroxy acid creams as well as very high pH hair relaxers



Compatible with wide range of personal care ingredients



Solubility profiles allow significant formulation flexibility



Oil- and silicone-free



Non-comedogenic, will not clog pores

Wide solubility parameter range:

7.9-8.2

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Applications

Well-suited for use as:

- Emollients/lubricants
- Water resistant agents
- Occlusive barrier for moisturization
- Film formers
- Stable carrier fluids
- Solubilizers
- Glossing agents

PureSyn PAO fluids blend and bind well with a wide range of commonly used personal care and cosmetic ingredients. They provide excellent emollient and moisturizing characteristics in numerous product formulations, including:

- Cosmetics
- AHA/BHA products
- Hair relaxers
- Antiperspirant/deodorants

- Lotions and creams
- Sunscreens
- Moisturizers
- Gels
- Water-in-oil emulsions

Typical properties

Properties	Method	PureSyn™ 2	PureSyn™ 4	PureSyn™ 6
Sp.Grav. @ 15.6°C	D-4052	0.798	0.82	0.827
Pour Point, °C	D97	-66	-66	-57
Flash Point, °C	D-92	157	220	246
Hydrophile-Lipophile	No-unit	10	10	10
Color, APHA	D-1500	<0.5	<0.5	<0.5
Molecular wt.	GPC	280	450	530
Refractive index @25°C	D1218	1.44	1.45	1.46
Surface tension @24°C	28-30 Dynes/cm	-	-	-

Compatibility

Soluble(S) = one phase; Insoluble(I) = two phases

Ingredient (90%)	PureSyn™ 2, 4, 6
Water	I
Mineral oil 65/75	S
Propylene glycol	I
Glycerin, 96%	I
Ethanol, 100%	I
Ethanol, 75%	I
Ethanol, 50%	I
Sorbitol, 70%	I
Isopropyl palmitate	S
Octyl palmitate	S
C12-C15, alkylbenzoate	S
Safflower oil	S
Sunflower oil	S
Castor oil	I
Cyclomethicone (pentamer)	S
Dimethicone 100 cSt	S(*)

The products were blended at 10 wt% at 20-300°C

(*) = PureSyn™ 2 only.

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