



PureSyn™ PAOs and Esters for Personal Care Products Covering Formulators' Needs from Head to Toe

PureSyn synthetic fluids are a result of our extensive experience in researching and meeting formulators' needs. These fluids incorporate the characteristics that chemists and formulators have told us they look for in the ideal cosmetic ingredient. They are proven effective and reliable in a broad range of formulations. **PureSyn** fluids are efficient, versatile, cost-effective and, most importantly, provide the safety and aesthetic qualities that consumers demand.

The broad line of **PureSyn** esters and polyalphaolefins (PAO) offers emollience and moisturizing characteristics. They are compatible in numerous personal care formulations.

Ideal PureSyn Applications

- AHA/BHA Products
- Lotions and Creams
- Moisturizers
- Cosmetics
- Sunscreens
- Antiperspirants/Deodorants
- Water-in-Oil Emulsions
- Hair Relaxers
- Self-tanning Lotions
- Gels
- After-bath Spray
- Hair-polisher Spray

What You Should Know about PureSyn PAO

- Cost-effective
- High-purity synthetic hydrocarbons
- Bright and Clear
- Non-greasy, with good skin feel
- Viscosity grades of 5-60,000 cPs
- Good compatibility with personal care ingredients
- Stable in extreme pH environments
- Excellent oxidation and thermal stability
- Non-irritating to skin
- Non-comedogenic

These fluids are available in the broadest viscosity range in the industry, 5 cPs to 60,000 cPs at ambient temperature. ExxonMobil Chemical's work in this technology arena produced a patented chemical process that raises the upper viscosity grade available to 60,000 cPs.

PureSyn Polyalphaolefins

Polyalphaolefins are polymerized alphaolefins (such as 1-decene), which are then hydrogenated and distilled into various molecular weight distributions. This distribution determines the specific viscosity (measured in cPs) of a synthetic fluid. Depending on the raw materials used, the base fluids are classified (INCI) as either hydrogenated polydecenes or hydrogenated C6-C14 olefin polymers.

PureSyn™ Low Viscosity PAO and Ester

Description

ExxonMobile PureSyn™ PAO (Polyalphaolefin) and Ester are unique classes of premium fluids whose features set them apart from other fluids such as silicones, mineral oils, petrolatum and polybutene. PureSyn™ PAO and Ester are bright and clear, high purity fluids that can be characterized as non-comedogenic and non-irritating. PureSyn™ PAO are exceptionally stable in high and low pH systems.

Applications

PureSyn™ PAO and Ester can be used as component co-solvents or can be readily incorporated into formulations to impart a non-greasy or non-oily feel varying from dry to silky products such as:

Sunscreen/Suntan
Hair Care

Skin Cleanser/Body Wash

Skin Care/Moisturizer

PureSyn	2	4	6	3E20
INCI Name	Hydrogenated Poly (C6-14 Olefin)			Trimethylolpropane Tricaprylate/ Tricaprate
Specific Gravity @ 15.6°C/15.6°C	0.789	0.820	0.827	0.945
Brookfield Viscosity, estimated @ 25°C, cP	8	26	47	32
Kinematic Viscosity @ 100°C, cSt	2	4.1	5.7	4.3
@ 40°C, cSt	6.5	18	30	19
Flash point, °C	154	221	243	257
Color, ASTM	< 0.5	< 0.5	< 0.5	< 0.5
Total Acid Number, mg KOH/g	< 0.01	< 0.01	< 0.01	< 0.02
Refractive Index @ 25°C (*)	1.4418	1.4535	1.4565	1.4521
Calculated Solubility Parameter, (cal/cc) ^{0.5}	7.99	8.09	8.14	9.07
Surface Tension @ 24°C, Dynes/cm (*)	28.0	29.1	29.7	30.9
Hydrophile-Lipophile Balance (Required) (*)	10	10	10	9
(*) = results of single determinations				

PureSyn™ High Viscosity PAO

Description

ExxonMobile PureSyn™ High Viscosity PAO (Polyalphaolefin) is a unique class of highly premium fluids whose features set them apart from other high viscosity fluids such as silicones, mineral oils, petrolatum and polybutene. PureSyn™ High Viscosity PAO fluids are bright and clear, high purity fluids that can be characterized as non-comedogenic, non-irritating and exceptionally stable in high and low pH systems.

Applications

PureSyn™ High Viscosity PAO can be used as component co-solvents or can be readily incorporated into formulations to customize skin feel and sensory performance in products such as:

Sunscreen/Suntan
Hair Care

Skin Cleanser/Body Wash

Skin Care/Moisturizer

PureSyn	150	300
INCI Name	Hydrogenated Polydecene	Hydrogenated Polydecene
Specific Gravity @ 15.6°C/15.6°C	0.850	0.852
Brookfield Viscosity, estimated @ 25°C, cP	2900	5940
Kinematic Viscosity @ 100°C, cSt	150	300
@ 40°C, cSt	1500	3100
Flash point, °C	> 265	> 265
Color, ASTM	< 0.5	< 0.5
Total Acid Number, mg KOH/g	< 0.01	< 0.01
Refractive Index @ 25°C (*)	1.4695	1.4707
Calculated Solubility Parameter, (cal/cc) ^{0.5}	8.38	8.38
Surface Tension @ 24°C, Dynes/cm (*)	30.7	30.4
Hydrophile-Lipophile Balance (Required) (*)	9	9
(*) = results of single determinations		