



*Rheology Modifiers*

*UV-Filters*

*Conditioners*

**COSMETIC  
DIVISION**

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## Advanced Solution for Personal Care

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3V Sigma's Cosmetic Division provides a comprehensive range of specialties for the personal care industry. Our raw materials are developed through an intensive research and development policy that is constantly supported by the company's commitment to invest in new technology and state-of-the-art production facilities. Our effort to develop new products has culminated in the patenting and commercialisation of new UV-filters and acrylic based rheology modifiers that meet all the different environmental, quality and legislative requirements.



## RHEOLOGY MODIFIERS

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Rheology modifiers are a key ingredient in the personal care industry. They serve the purpose of not just altering the viscosity of the formulation but also of providing specific functionality to the product. This could range from improving body texture, suspendability to increasing stability.



*Oral Care*

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*Skincare*

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*Toiletries*

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*Suncare*

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*Haircare*

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*Colour Cosmetic*

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**Synthalen K, L and M** (INCI: Carbomer) are produced through a proprietary manufacturing technique, which guarantees a practically solvent free polymers. Thanks to their high purity and chemical/physical characteristics, this Synthalen range fully complies with EU and US Pharmacopoeia and thus can be used both for cosmetic and pharmaceutical applications.

All the three grades show high pseudoplastic behaviour with yield value (Ellis plastic). The main performance differences among the three grades are: viscosity, clarity, resistance to electrolytes and suspending ability. **Synthalen K** delivers high viscous and clear gels with an exceptional performance in hydroalcoholic formulations with high level of ethanol. **Synthalen L** is characterized by a different rheology delivering more fluid formulation with high clarity and Yield Value. **Synthalen M** is the more versatile carbomer from the viscosity point of view of this range.

**Synthalen E80 and E83** series (INCI: Carbomer) are synthetic crosslinked polyacrylate polymers that offer performance properties similar to the standard Synthalen K & M. Synthalen E80 & E83 are preferred since they are polymerized in a cosolvent system, more toxicologically acceptable. All the two grades show high pseudoplastic behaviour with yield value (Ellis plastic). The main performance differences between the two grades are: viscosity, clarity, resistance to electrolytes and suspending ability.



**EasyGel DO** (INCI: Carbomer) is produced through a proprietary manufacturing technique. Easygel polymer is specifically designed to provide easily made dispersions that are less susceptible to lumping as well as easier to pump and handle in processing due to their low dispersion viscosity before neutralization. Such a dispersion performance is derived from their ability to wet quickly and hydrate slowly.

**EasyGel SOL** is a polymer of the 3V's Carbomer family characterized by improved dispersion properties. EasyGel SOL offers a wide range of performance as thickener and suspending agent thanks to its safety and versatility. These dispersing properties make EasyGel SOL an easy-to-process product and the usage of this polymer, in spite of a traditional carbomer, can also lead to time savings in production.

**PNC 400** (INCI: Sodium Carbomer) is a pre-neutralized derivative of Carbomer. It has the same performance profile and applications of the correspondent acidic polymer with the same advantages. PNC is less dusty and easier to disperse without the neutralization step and allows an easy manufacturing process with a constant pH across all the production.

**Polygel HP** (INCI: Carbomer) dispersions are characterized by high viscosity and clarity in a large range of pH. Therefore it is very suitable to formulate sparkling and clear gels as well as to stabilize emulsions for cosmetic applications. It is also recommended for hydroalcoholic gels with high levels of Ethanol.

**Stabylen 30** (INCI: Acrylates/Vinyl Isodecanoate Crosspolymer) is a crosslinked acrylic copolymer obtained by introducing lipophilic groups into a hydrophilic chain. The combination of the traditional thickening efficacy of crosslinked acrylic polymers with the enhanced lipophilic characteristics leads to a very versatile polymer that can be used in different applications. The Stabylen 30 is a very and effective polymeric emulsifier allowing the reduction of emulsifying/co-emulsifying agents and using a cold or hot/cold process.



**Synthalen W400** (INCI: Acrylates Copolymer) is an anionic acrylic copolymer supplied as low viscosity aqueous emulsion designed to thicken, suspend and stabilize cosmetic compositions especially when they contain high levels of surfactants. Synthalen W400 displays its best performance in terms of thickening, suspending, stabilizing and clarity with improved flow characteristics also at low pH, unusual in liquid acrylic polymers working with both associative and not associative mechanism.

**Synthalen W2000** (INCI: Acrylates/Palmeth-25Acrylates Copolymer) is an anionic acrylic copolymer supplied as fluid emulsion. The main characteristic of Synthalen W2000 containing water dispersions is the improved rheological properties compared to traditional associative thickeners, coupled with a good suspending ability, both in water and in surfactant systems, as well as high clarity. When used as rheology modifier of o/w emulsions, it is a strong stabilizer able to confer, in the meantime, excellent sensorial properties to the finished cosmetic.

**Synthalen W800** (INCI: Acrylates Copolymer) is an anionic acrylic copolymer supplied as fluid emulsion. Synthalen W800 is able to thicken clear fluid gel as well as for stabilizing oil-in-water emulsions containing high amount of pigments. It is characterized by shear thinning properties, excellent suspending ability and high surfactant compatibility.

## Performance of Synthalen W series in Surfactant Systems

W400	Medium Viscosity High Clarity (at high polymer %) High Suspending Effect	Medium Viscosity High Clarity (at low polymer %) Low Suspending Effect				
	Medium Viscosity Low Clarity High Suspending Effect	Medium Viscosity High Clarity High Suspending Effect				
W800	Low Viscosity Low Clarity High Suspending Effect	High Viscosity High Clarity Low Suspending Effect				
W2000						
pH	4	4.5	5	5.5	6	6.5
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**Synthalen CR** (INCI: Polyquaternium-37) is a cationic polymer that can be successfully used as thickening, suspending and conditioning agent both in water and hydroalcoholic systems. Its dispersions are characterized by good viscosities in a broad range of pH. Its effectiveness is particularly evident at low pH. It is an easy way to disperse powder that does not require neutralization, it is stable across a wide range of pH and temperature and characterised by a high compatibility with all cosmetic non-ionic, anionic and cationic ingredients.



## Rheology Modifiers Technical Data

Product	INCI	pH Range	Electrolytes Tolerance	Clarity	Use Levels	Viscosity Range (0.5%)
Synthalen K	Carbomer	5-11			0,1 – 1,5%	40000 60000
Synthalen L	Carbomer	5-11			0,1 – 1,5%	6000 9000
Synthalen M	Carbomer	5-11			0,1 – 1,5%	30000 40000
Synthalen E80	Carbomer	5 - 11			0,1 – 1,5%	40000 60000
Synthalen E83	Carbomer	5 - 10			0,1 – 1,5%	20000 42000
Easygel DO	Carbomer	5 - 12			0,1 – 1,5%	45000 65000
Easygel SOL	Carbomer	5 – 11			0,1 – 1,5%	45000 65000
Polygel HP	Carbomer	4,5 - 11			0,1 – 1,5%	55000 90000
Stabylen 30	Acrylates/ Vinyl Isodecanoate Crosspolymer	4 – 12			0,1 – 1,5%	6000 15000
PNC 400	Sodium Carbomer	6,5 -12			0,1 – 1,5%	35000 55000
Synthalen W 400 Liquid act. 30%	Acrylates Copolymer	6,5 – 12*			1 – 10%	4000 7000 (5%)
Synthalen W 800 Liquid act. 30%	Acrylates Copolymer	6,5 - 12*			1 – 10%	4000 7000 (3,3%)
Synthalen W 2000 Liquid act. 30%	Acrylates/ Palmeth-25 Acrylate Copolymer	6 -11,5*			1 – 10%	4000 7000 (4%)
Synthalen CR	Polyquaternium-37	2,5 – 11,5			0,1 – 1,5%	8000 16000 (1%)



\*Different pH behaviour in Surfactant Systems

## UV FILTERS

Sun care is every day more important and today the hazards resulting from unprotected exposure to the sunlight are well known.

3V Sigma has a great and long experience in the field of organic UV-light absorbers culminated in patenting superior efficient molecules. Then, it is able to provide its customer with a range of complementary organic UV filters with the trade name “Uvasorb®”, which complies in a high degree with all the demands of effectiveness and product reliability. They are suitable for different application areas and the best basis for optimal sunscreen products. .



*Colour Cosmetic*



*Skincare*



*Suncare*



*Toiletries*



**UVASORB® HEB** (INCI: Diethylhexyl Butamido Triazone) is a highly effective UV-B filter, characterised by very high extinction value, excellent photostability, high solubility in the majority of cosmetic oils, alcohols and a very good toxicological profile. HEB is an easy-to-formulate powder with a very low skin penetration profile and with an excellent compatibility with all UV-light absorbers used in sunscreen products. UV filter designed to be used in all product with SPF claims, sun care, daily skin care and colour cosmetic.

Uvasorb HEB is EU approved to be used at 10% level.

**UVASORB® ET** (INCI: Ethylhexyl Triazone) is an effective UV-B sunscreen characterized by very high extinction and excellent photostability. It is used in combination with other UV-filters to achieve a high SPF value. Ideal for all personal care SPF formulations.

Uvasorb ET is EU approved to be used at 5% level.

**UVASORB® MET** (INCI: Benzophenone-3) is an oil-soluble powder UV-filter widely used in sun care and skin care products to protect skin from sun light radiation. Major advantages of Uvasorb MET are its broad spectrum of absorption, its good photostability, a high solubility in all polar cosmetic oils and alcohols and its ability to photostabilise avobenzene. Uvasorb MET is globally accepted at level of 10% max.



**UVASORB® 2OH/G** (INCI: Benzophenone-1) is a broad spectrum UV-filter widely used as product protectant to improve the light stability of cosmetics. Uvasorb 2OH/G is an easy-to-formulate powder ethanol soluble.



**UVASORB® S5** (INCI: Benzophenone-4) is a broad spectrum UV-filter. Thanks to its water and alcohol solubility, it is used in a wide range of cosmetics either as product or skin protectant .

TRADE NAME	INCI	SOLUBILITY		UV ABSORPTION			APPLICATION	
		WATER-SOLUBLE	OIL-SOLUBLE	UV-B	UV-A – UV-B	UV-A	SKIN PROTECTION	PRODUCT PROTECTION
Uvasorb® HEB	Diethylhexyl Butamido Triazone		•	•			•	
Uvasorb® ET	Ethylhexyl Triazone		•	•			•	
Uvasorb® 2OH/G	Benzophenone-1	•			•			•
Uvasorb® MET	Benzophenone-3		•		•		•	•
Uvasorb® S5	Benzophenone-4	•			•			•



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## CONDITIONING POLYMERS

Conditioner P6, Conditioner P7 and Conditioner P10 are well known conditioning agents, widely used in hair and skin care products thanks to their high substantivity without build up.

In hair care, they confer excellent conditioning properties improving wet and dry combing without affecting set holding and alleviating the potential damage on hair fibres due to cosmetic treatments.

In dyeing formulations, they enhance dispersion and substantivity of dyes on hair.



*Haircare*

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*Skincare*

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*Toiletries*

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When used in toiletry products intended for the body as well as in skin care formulations such as shaving lotions and creams, they impart a soft and velvety long-lasting feel.

**Conditioner P6** (INCI: Polyquaternium 6) is an aqueous solution of a highly cationic polymer. It is compatible with non-ionic and amphoteric ingredients but not with anionics. Thus, toiletry products where it is intended to be used, must not contain anionic surfactants.

**Conditioner P7** (INCI: Polyquaternium 7) is an aqueous solution of a high molecular weight copolymer. Due to its particular distribution of non-ionic and cationic monomers, it shows a high compatibility with non-ionic, amphoteric and anionic ingredients.

**Conditioner P10** (INCI: Polyquaternium 10) is free flowing powder that can be readily dissolved in water and shows very good compatibility with a wide variety of both anionic and amphoteric surfactants. Because of its cationic nature, Conditioner P10 is substantive to protein substrates. This makes it an excellent conditioning agent that can be used both in hair-care and skin-care products.

