

Synthalen® W2000

Thickening agent

Chemical and physical characteristics (*)

Chemical Name	Acrylic copolymer in emulsion
INCI NAME	Acrylates/Palmeth-25 Acrylate Copolymer
Appearance	white emulsion
Polymer content (%)	30-32
pH (as is)	2.0-3.0
Viscosity as is (mPa·s) (Brookfield RV, 20 rpm, 25°C)	max 100
Viscosity (mPa·s) of neutralized dispersions (Brookfield RV, 20 rpm, 25°C)	

% Dispersion	Viscosity		Spindle
	Min.	Max	
2.0	1,000	5,000	4
4.0	20,000	40,000	6

(*) Typical values not qualified for quality control purpose

Applications

SYNTHALEN W2000 is an anionic acrylic copolymer supplied as a low viscosity emulsion.

Its water dispersions are characterized by high viscosity (see Fig. 1 and 2) and clarity, and by an improved rheology, unusual in polymers that work with associative mechanism. Therefore it is suitable for formulating clear gels as well as for stabilizing oil-in-water emulsions.

Its immediate dispersion, its clarity and its good compatibility with PVP make SYNTHALEN W2000 the ideal polymer for the formulation of hair gels.

SYNTHALEN W2000 also shows a good thickening and suspending efficacy with surfactants.

Thanks to its resistance to alkali, SYNTHALEN W2000 can be used in hair styling products and in any formulation where a high pH is required.

Normal percentage of use is between 0.5 and 7% depending on type of formulation and final desired viscosity.

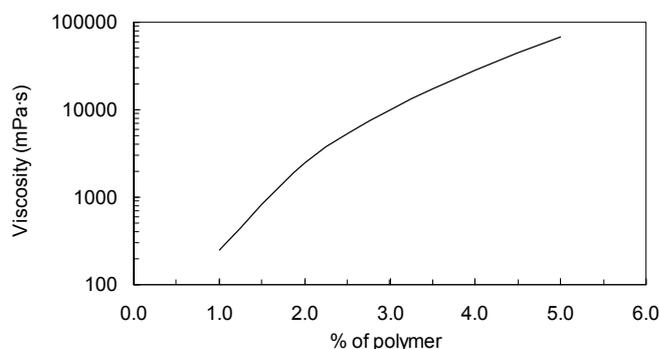
Use

When SYNTHALEN W2000 is added to water the dissolution is instantaneous and after neutralization with an appropriate base, a clear gel is formed.

Turbulent agitation should be avoided to prevent trapping of air which would be difficult to remove from the finished product.

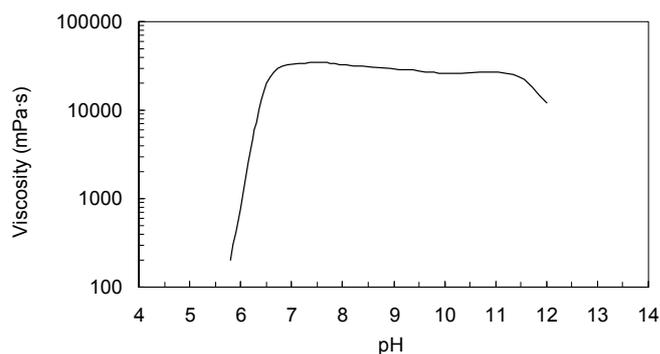
Suitable neutralizing agents are inorganic bases (such as NaOH, KOH, NH₄OH) or organic amines (such as TEA, AMP, AMPD). To neutralize 1 g of SYNTHALEN W2000 to pH 7, ca. 1.3 meq of base are required (e.g. 0.05 g of NaOH, 0.20 g of TEA). It is advisable to add strong bases previously diluted into water at a concentration not higher than 10%.

Figure 1 - Viscosity vs polymer concentration



Water dispersion neutralized to pH 7 with NaOH

Figure 2 - Viscosity vs pH of polymer dispersion



4% water dispersion

The information contained in this data sheet is based on our present and best knowledge. However we make no warranty, whether expressed or implied, including warranties of merchantability or of fitness for a particular use or purpose. Consequently the product must be tested by the user according to his needs and his production and application conditions and purposes. Neither do we assume any responsibility for infringement of third parties patent rights which may arise from the use of the product. For industrial use only.

In the case of emulsions SYNTHALEN W2000 can be added during any step of the production process, thanks to its superior handling and instantaneous dissolution.

The addition of electrolytes can cause a drop of viscosity; this is particularly evident with salts of bi- and trivalent cations.

In normal conditions, gels prepared with SYNTHALEN W2000 neither prevent nor promote the growth of micro-organisms; therefore the addition of a suitable preservative system is advisable.

UV rays can cause loss of viscosity in SYNTHALEN W2000 gels. The addition of water-soluble UV-absorbers, such as UVASORB S5 (Benzophenone-4), can help for preventing polymer degradation.

Toxicological information

Acute tox (oral, rat)	LD ₅₀ > 2000 mg/kg
Acute skin irritation (rabbit)	non irritant
Acute eye irritation (rabbit)	non irritant
Skin sensitization (Patch-test)	non sensitizing
Ames Test (with and without metabolic activation)	non mutagenic

Transport, storage and handling

Labelling: product not classified as hazardous according to international transport regulations.

Avoid contact with skin, eyes and mucous membranes. In case of contact, wash immediately with plenty of water. Store in the original closed containers at room temperature (5-30°C). Protect from frost.

Due to the characteristic phenomenon of a film formation over the surface of the product, it is advisable not to leave drums "open" after use.

For further information please refer to safety data sheet.



Cosmetic Division

3V SIGMA S.P.A.

P.O. Box 219 Via Torquato Tasso, 58 24121 Bergamo (Italy)
Tel.: +39 035 4165111 Fax: +39 035 239569 e-mail: 3vsigma@3vsigma.com
3V and logotype are registered trademarks of 3V Partecipazioni Industriali S.p.A. Milano - Italy