VARISOFT® PATC

Multifunctional hair conditioning additive

- good conditioning properties
- excellent thickening properties in surfactant formulations, suitable for clear highly viscous products
- reduces hair dye fading when used in a shampoo
- improves the performance of conditioning shampoos
- easy handling (dilutable in cold water)
- vegetable based

Goldschmidt Personal Care

INCI Name (CTFA Name)

Palmitamidopropyltrimonium Chloride

Chemical and physical properties (not part of specifications)	
Appearance (25 °C)	white paste

Properties

- Good conditioning properties
- Reduces the fading of hair dyes when used in a shampoo formulation
- Good thickening in formulations
- Compatible with anionic, amphoteric and non-ionic surfactants
- Suitable for formulating clear high viscous systems
- Mild to skin and hair
- Biodegradable
- Vegetable based
- Contains 1,2-propylene glycol

Wash Fastness

The effect of various conditioning agents on the wash fastness of a hair dye has been tested with shampoo formulations based 32.0% SLES (28%), 8% TEGO® Betain F 50.
The conditioning agents and the test concentrations:

- 0.3 % Polyquaternium-10
- 2.0 % VARISOFT® PATC,
- 2.0 % ABIL® B 9950 (Dimethicone Propyl PG-Betaine),
- 2.0 % ABIL® SOFT AF 100 (Methoxy PEG/PPG-7/3 Aminopropyl Dimethicone) and
- 2.0 % ABIL® Quat 3272 (Quaternium-80).

The CIE-L*a*b* - colour values of European hair swatches, coloured with a semipermanet red hair dye, have been measured before and after a 10 times shampoo treatment (done by an independent institute). The results are shown in Fig. 1. VARISOFT® PATC showed the lowest colour fading caused by shampoo treatments.

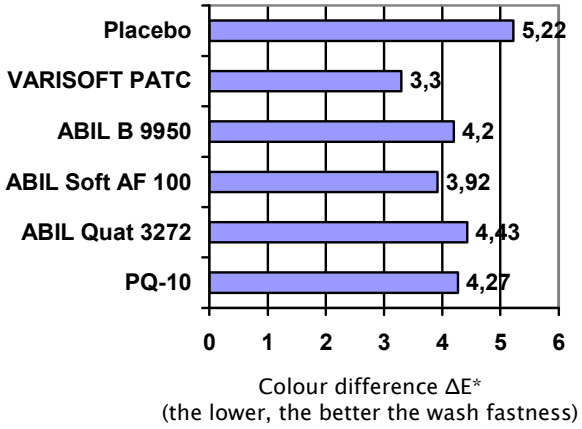

Figure 1: wash fastness results

Phase behavior

VARISOFT® PATC is better compatible with anionic surfactants compared to Cetrimonium Chloride (CTAC). The ternary phase diagrams of VARISOFT® PATC or CTAC with Sodium Laureth Sulfate and Cocamidopropyl Betaine in 10% aqueous solutions are shown in Figure 2.

1. VARISOFT® PATC provides a much smaller two phase region than CTAC.
2. VARISOFT® PATC has two very viscous regions while CTAC has none.
3. The high viscous regions in the VARISOFT® PATC phase diagram are clear.

Due to its phase behaviour it is possible to use VARISOFT® PATC as a thickener in a shampoo or shower gel formulation.

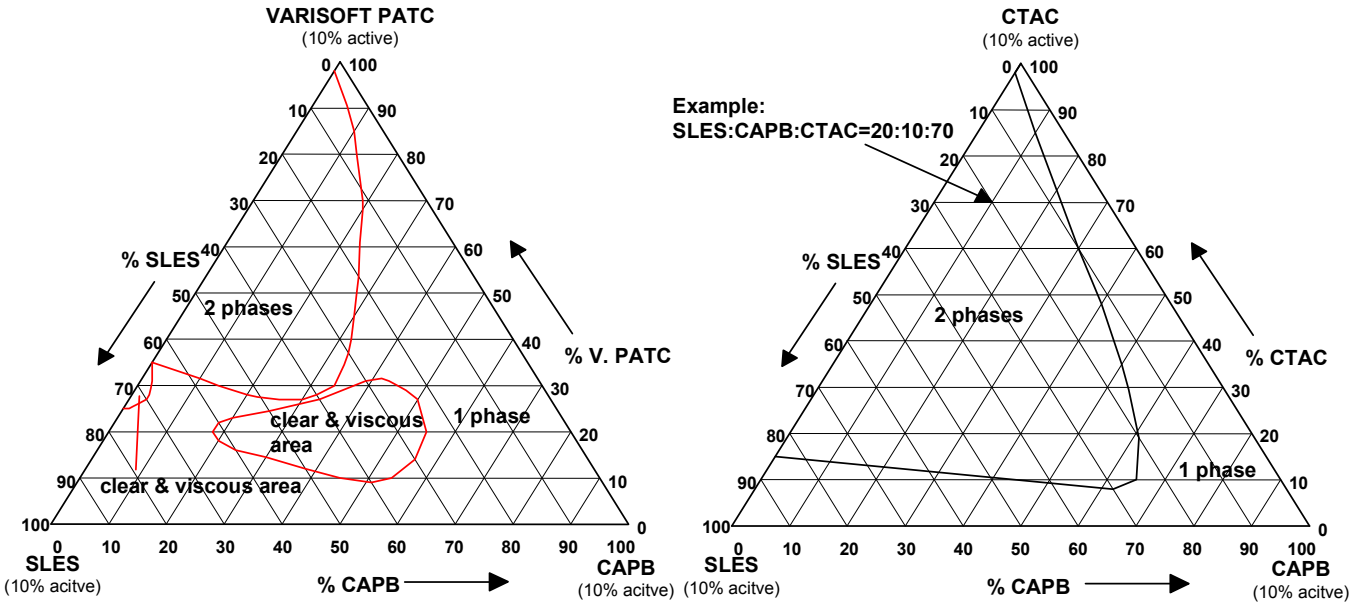

Figure 2: phase diagrams of VARISOFT® PATC and Cetrimonium Chloride

Application

- Clear conditioning shampoos
- Conditioning body washes and gels
- Clear liquid hand soaps
- Hair conditioners

Suggested usage concentration

1 – 10 % VARISOFT® PATC

Packaging

772 kg pallet (4 x 193 kg drums)

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

Guide Line Formulations

Conditioning Shampoo, PEG-free **FM 11127**	
REWOTERIC® AM C (Sodium Cocoamphoacetate)	15.0 %
REWOPOL® SB F 12 P (Disodium Lauryl Sulfosuccinate)	3.8 %
Water	67.9 %
TEGO® Betain F 50 (Cocoamdopropyl Betaine)	10.0 %
VARISOFT® PATC	2.3 %
REWOMID® SPA (Isostearamide MIPA)	1.0 %
Preparation: Mix the ingredients in the given order at ~ 45°C. Adjust the pH value with Citric Acid to 5.7. Finally add preservatives as required. Remarks: Viscosity at 20 °C: 2 500 mPas	

Moisturizing Body Wash **FM 11023**	
Phase A	
Sodium Laureth Sulfate, 28%	38.0 %
TEGOSOFT® PC 31 (Polyglyceryl-3 Caprate)	0.5 %
Water	27.8 %
REWOTERIC® AM C (Sodium Cocoamphoacetate)	20.0 %
VARISOFT® PATC	2.5 %
ABIL B 8832 (Bis-PEG/PPG-20/20 Dimethicone)	0.4 %
Luviquat Hold (Polyquaternium-46, BASF)	0.5 %
Phase B	
Water	10.0 %
Acusol OP 301 (Styrene/Acrylates Copolymer, Rohm and Haas)	0.3 %

Preparation:
Blend phases A and B separately in the given order (A ~ 40°C) while stirring. Add B to A. Adjust the pH value with Citric Acid to 5.7 - 5.9. Finally add preservatives as required.
Remarks: for use with puff, viscosity at 20°C: 5 000 mPas.

Conditioning Rinse for strongly damaged Hair **UW 147.2**	
Phase A	
TEGINACID® C (Ceteareth-25)	0.50 %
TEGO® Alkanol 1618 (Cetearylalcohol)	1.50 %
TEGIN® M (Glyceryl Stearate)	1.00 %
ABIL® Wax 9801 (Cetyl Dimethicone)	2.00 %
TEGOSOFT® liquid (Cetearyl Ethylhexanoate)	2.00 %
Phase B	
VARISOFT® PATC	2.00 %
ABIL® B 8852 (PEG/PPG-4/12 Dimethicone)	1.00 %
Glycerin	2.00 %
TEGO® COSMO C 100 (Creatine)	1.00 %
Water	87.00 %
Perfume, Preservative	q.s.

Preparation:
Adjust pH of phase B to pH=4.0. Heat phases A and B separately to approx. 70°C. Add A to B with stirring (important: if A has to be charged into the vessel first, B must added without stirring).Homogenize. Cool down with gentle stirring to 30°C.

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Evonik Goldschmidt GmbH Goldschmidtstrasse 100 45127 Essen, Germany
P.O. Box 45116 Essen **TELEFON** +49 201 173-2854 **TELEFAX** +49 201 173-1828
personal-care@evonik.com www.evonik.com/personal-care

EVONIK INDUSTRIES