

# Conditioning Agent

## Activsoft C-14

INCI Name: Guar Hydroxypropyltrimonium Chloride

CAS No.: 65497-29-2 EINECS No.: Exempt Polymer

Activsoft C-14 is a naturally derived cationic polymer that is commonly used as a conditioning agent in shampoos, cream rinse conditioners, shower gels, body washes, and skin cleanser formulas.

Derived from the guar bean, the backbone of the polymer is a Mannose-Galactose Polysaccharide that has been quaternized to enhance substantivity to hair and skin. Typically used in formulations at 0.10% to 0.50% concentration levels, Activsoft C-14 is completely compatible with most common anionic, cationic and amphoteric surfactants and is ideally suited for use in two-in-one conditioning shampoos and moisturizing skin cleansing products. When used in personal cleansing formulations, Activsoft C-14 imparts a soft, elegant after-feel to the skin and also enhances wet comb and dry comb properties to shampoos and hair conditioning systems. Other performance benefits of Activsoft C-14 are identified below.

Activsoft C-14 is naturally derived from the guar bean plant.

### Applications

- Two-in-one shampoos
- Styling gels and mousses
- Shower gels and body washes
- Bar soaps and syndet bars
- Cream rinse conditioners
- Facial cleansers
- Liquid hand soaps

### Performance Properties

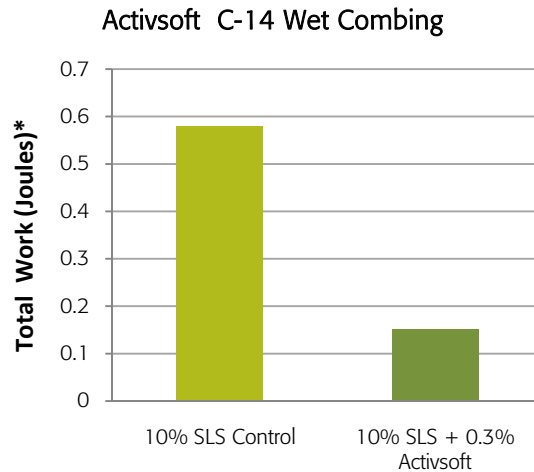
- Enhanced ease of wet hair combing
- Improved hair manageability
- Increase active delivery of silicone From personal cleansing formulations
- Enhanced ease of dry hair combing
- Improved foam quality, stability and texture
- Impart soft, elegant after-feel to the skin



### TYPICAL PROPERTIES

Not intended for use in preparing specifications

Appearance	Yellow, Free Flowing Powder
Odor	Slight Amine
Particle Size Thru 100 Mesh:	100%
Particle Size: Thru 200 Mesh:	80%
% Moisture	6.0 – 10.0
pH (1% Aqueous):	9.0 – 11.0
% Nitrogen (Extracted)	1.2 – 1.6
Viscosity (cps), 2 Hours	3,000 – 4,000
Plate Count, cfu/g:	50 max (<10 typical) tentative
Mold, cfu/g	50 max (<10 typical) tentative
Yeast, cfu/g	50 max (<10 typical) tentative



**Activsoft C-14**

\* Differences are statistically significant at  $p < 0.01$  (two-tailed test)

**Recommended Use Directions for Aqueous dispersions/solutions**

Activsoft C-14 is a quaternized guar polymer that is readily dispersible in room temperature water. Aqueous dispersions can easily be prepared by slowly blending the Activsoft C-14 powder into the water, while maintaining moderate agitation. Once the Activsoft polymer is completely dispersed in water, an acidic pH adjustment (4.5-5.5) is required to hydrate and solubilize the cationic guar. Any commonly used acid such as citric, phosphoric, or hydrochloric acid, may be used for this purpose. With pH adjustment, the system will clear slightly, and an increase in viscosity will be noticed. For best results, it is recommended that smooth, moderate agitation be used during this pH adjustment process. Slightly warming (35-40°C) of the system will facilitate the hydration process. After the Activsoft polymer has been hydrated, the system may be adjusted to the desired pH range without loss of viscosity. The resulting aqueous systems will appear slightly hazy when used at typical formulation use levels (0.1-0.5%).

**Formulated Systems**

While Activsoft C-14 is easily dispersed and hydrated in water, special techniques are recommended for its use in formulated systems. For best results, it is suggested that the Activsoft powder be dispersed in water with moderate agitation. Once the Activsoft polymer is completely dispersed, blend the remaining surfactant ingredients into the system and mix until uniform. Next, adjust the pH of the system to 5.0 – 5.5 with any common acid (citric, phosphoric, hydrochloric, etc.), as needed.

Following this pH adjustment, warm the system to 40-50°C with moderate agitation. As the system is warmed, it should clear slightly. Once the system is uniform, the pH of the system may be adjusted to the desired range (pH 4-10) without loss of viscosity.

It is important to note that it is not recommended that the Activsoft polymer be hydrated via pH adjustment prior to the addition of the surfactant ingredients. If it is hydrated prior to the surfactant additions, undesirable gelling may occur.

## Conditioning Lotion AC105

	INCI Ingredients	Tradename (Supplier)	% w/w
A	Water		q.s
	Trisodium Ethylenediamine Disuccinate	Natrlquest E30 (Innospec)	0.14
B	Guar Hydroxypropyltrimonium Chloride	Activsoft C-14 (Innospec)	0.35
C	Phosphoric acid	Oristar PPA (Orient Stars LLC)	0.15
D	Glycerin	Glycerine (Rita Corporation)	3.75
	Xanthan Gum	Xanthan Gum CG-SFT (CP Kelco)	0.25
E	Hydroxypropyl Starch Phosphate	Structure XL (National Starch)	1.50
F	Steareth-21	Brij 721 (Uniqema)	3.50
	Steareth-2	Brij 72 (Uniqema)	2.50
	Polyglyceryl-3 Methylglucose Distearate	Tegocare 450 (Degussa)	2.00
	Glyceryl Stearate and Laureth-23	Cerasynt 945 (ISP)	1.50
	C12-15 Alkyl Benzoate (and) Dipropylene Glycol Dibenzoate (and) PPG-15 Stearyl Ether Benzoate	Finsolv® TPP (Innospec)	4.75
	Dimethicone PEG/PPG-20/23 Benzoate	Finsolv® SLB-101 (Innospec)	3.00
	Ethylhexyl Benzoate	Finsolv® EB (Innospec)	2.75
	Dimethicone	DC 200-100cps (Dow Corning)	1.50
	Phenyl Trimethicone	DC 556 Cosmetic Grade (Dow Corning)	3.75
	G	Tocopherol	Vitamin E (DMS Nutritional)
H	Preservative		q.s.
I	Methyl Gluceth-20 Benzoate	Finsolv® EMG-20 (Innospec)	2.00
	Fragrance	PF 55143 White Tea (Phoenix Fragrance)	0.10
J	Triethanolamine	Triethanolamine 90% Care (BASF)	0.25

### Preparation Procedure

1. Start to heat to 75-80 °C and add and mix ingredients of phase A in deionized water
2. Sprinkle and mix ingredient B
3. Add and mix ingredient C
4. Add and mix blend of phase D into the water phase at 75 °C
5. Sprinkle and mix ingredient E
6. Melt to 75-80 °C the oil phase (Ingredients of phase F) and add and mix to the water phase
7. Homogenize for 2 minutes at 3500rpm until smooth and glossy
8. Start to cool down and add and mix ingredients G and H and blend I, one at a time below 50 °C
9. Add and mix ingredient J
10. Continue to mix until below 25 °C.

### Properties

Appearance	White lotion
pH	6.0-6.7
Viscosity*	5,000 - 10,000 cps
Stability	Passed 1 month at 45°C

\* Brookfield DV-E @20rpm, 25°C, #4 spindle



## Pearlescent conditioning shampoo AC007a featuring Activsoft C-14

	INCI Ingredients	Trade Name (Supplier)	% w/w
A	Trisodiummethylenediamine Disuccinate	Natrlquest E30 (Innospec)	0.10
	Deionized water		48.60
B	Guar Hydroxypropyltrimonium Chloride	Activsoft C-14 (Innospec)	0.30
C	Sodium Lauryl Sulfate (30% soln)	Calfoam SLS-30 (Pilot)	30.00
	Cocamidopropyl Betaine (35% soln)	Mirataine BET C-30 (Rhodia)	12.00
D	Cocamide MEA	Cocamide MEA (Cedar)	5.00
E	Ethylene Glycol Monostearate	EGDS (Cedar)	2.00
F	DMDM Hydantoin		0.50
G	50% Citric acid		Adjust pH 5.5 – 6.0
H	Sodium Chloride		1.00 – 1.50
I	Deionized water		Q.S. to 100%

### Preparation Procedure

1. Dissolve Natrlquest E30 in deionized water.
2. With smooth mechanical agitation, slowly bend Activsoft C-14 into system.  
Mix unit completely dispersed.
3. Slowly blend in Sodium Lauryl Sulfate and Cocamidopropyl Betaine and mix until uniform. Warm system to ~50°C.
4. Blend in Cocamidopropyl Betaine. Mix until uniform.
5. Blend in Cocamide MEA. Warm to 70°C.
6. Cool with mixing. When temperature reaches 30 - 35°C, add DMDM Hydantoin and mix until uniform.
7. Adjust pH of system to 5.5 – 6.0.
8. Cool to room temperature and add Sodium Chloride incrementally as needed to achieve viscosity of 3,000 – 5,000 cps.
9. Q.S. system to 100% with deionized water as needed.

### Properties

Appearance	Pearlescent solution
pH	5.5 - 6.0
Viscosity*	3,000 - 5,000 cps
Stability	Passed 1 month at 45°C, 3 cycles freeze/thaw

\* Brookfield DV-E @ 10 rpm, 25°C, #3 spindle

For further information, please email your region:

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