

# Luviflex<sup>®</sup> Soft

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**Film-forming agent for hair-styling mousses**

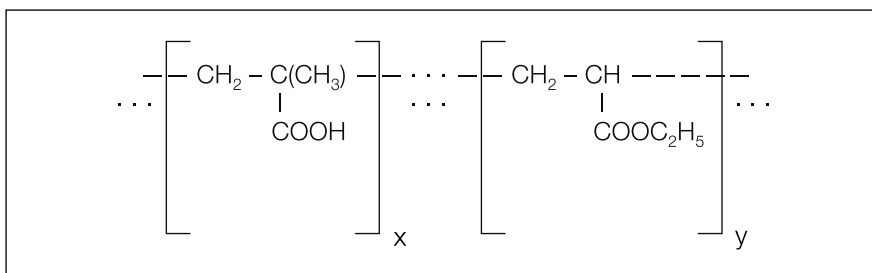
## Cosmetic Solutions

- Hair Care
- Skin Care
- Oral Care

**Description** Luviflex Soft is a milky-white liquid with a weak, characteristic odor. It is an anionic polymer for hair-styling mousses. It is supplied as a 30% dispersion in water.

**Chemical nature** Luviflex Soft is a copolymer of ethyl acrylate and methacrylic acid.

**Structural formula**



**INCI name:** Acrylates Copolymer

**CAS No.** 25212-88-8

**Physicochemical properties:**

**Appearance** Milky-white liquid

**Odour** Weak, characteristic odour

**Solubility:** Luviflex Soft is soluble in ethanol. If it is at least 50% neutralized, it is soluble in water.

**Compatibility with other polymers**

Luviflex Soft can be combined with *nonionic polymers*, e. g. PVP/VA or Polyvinylcaprolactam.

Combinations with other *anionic polymers* are not recommended in water-based formulations because they may precipitate if they are not adequately neutralized.

There are no technical objections to combinations with *cationic polymers*, but existing patents must be respected.

Incompatibility reactions can occur when Luviflex Soft is combined with cationic compounds of high charge density, depending on the degree of neutralization.

**Molecular weight** Approx. 500,000 g/mol

**Glass transition temperature** 128°C

**Specification**

	<b>Specification</b>	<b>Method</b>
Solids content, %	28.5-31.5	02/0033.00
Acid value, mg KOH/g	85-105	02/0035.00
Viscosity, mPas, Brookfield	20-30	02/0093.00
pH	2.0-3.5	02/0092.00
Residual monomer content, mg/kg	max. 100	02/0036.00

**Specification**

Luviflex Soft is a film-former that gives the hair volume, a particularly soft feel and good dry combability, as well as having a certain setting effect. These properties are especially useful in mousses that impart body to the hair.

## Technical properties

Luviflex Soft is a film-forming agent that gives the hair volume, a particularly soft feel and good dry combability, together with a certain degree of hold. Compared with other polymers commonly used in hair mousses, Luviflex Soft provides better curl retention with less tack.

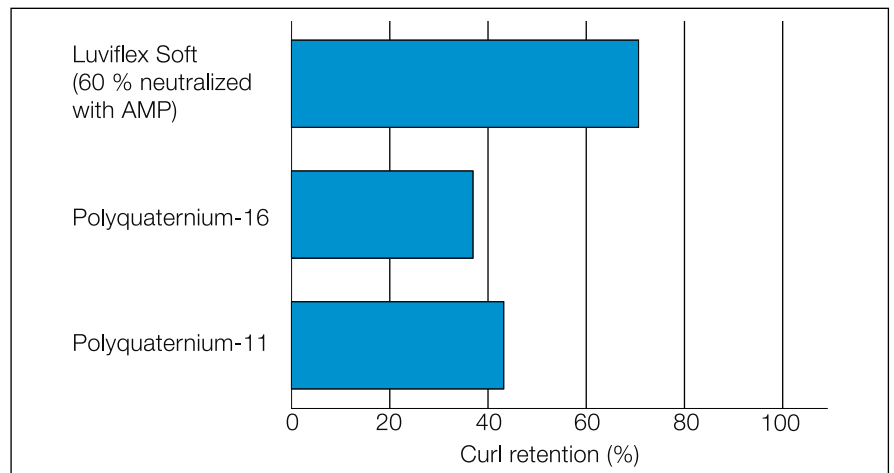


Fig.1: Curl retention:  
Hair mousse method, 75% r. h., 20°C

Luviflex Soft is recommended for pump mousses and aerosol mousses. An optimum combination of washing-out properties and curl retention is obtained at 60% neutralization and pH value of 6.3. AMP (2-amino-2-methylpropan-1-ol) is recommended as neutralizing agent.

A further advantage of Luviflex Soft for mousse applications compared with other anionic polymers is its solubility and good washing-out behaviour when it is only partly neutralized.

The quantity, N of neutralizing agent required is calculated with the following formula:

$$N = \frac{x \cdot y \cdot z \cdot A}{100}$$

where

x = Quantity of Luviflex Soft in kg

y = Acid value

z = Degree of neutralization required

A = Factor for AMP = 1.59

DEPA = 2.32

TIPA = 3.41

Example:

To 60 % neutralize 1 kg of Luviflex Soft with an acid value of 90 requires the following quantity of AMP:

$$N = \frac{1 \cdot 90 \cdot 60 \cdot 1.59}{100} = 85.9 \text{ g AMP}$$

## Typical formulations

## Pump mousses

## Pump-Mousse with Luviflex® Soft and Luviquat® Hold

No. 02/00411

	%	Ingredients	Supplier	INCI name
A	2.00	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	91.80	Water dem.		Aqua
C	3.40	Luviflex Soft	(1)	Acrylates Copolymer
	0.30	AMP	(56)	Aminomethyl Propanol
	2.50	Luviquat Hold	(1)	Polyquaternium-46
	q.s.	Preservative		

**Production:**

Weigh out the components of phase A and mix them. Add phase B and stir until the mixture is homogenous. Add the components of phase C and stir until dissolved.

**Properties:**

pH value: 6.0

## Pump-Mousse with Luviflex® Soft and Luviquat® PQ 11 PN

No. 02/00406

	%	Ingredients	Supplier	INCI name
A	2.00	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	3.40	Luviflex Soft	(1)	Acrylates Copolymer
	0.30	AMP	(56)	Aminomethyl Propanol
	2.00	Luviquat® PQ 11	(1)	Polyquaternium-11
	q.s.	Preservative		
	ad 100.0	Water dem.		Aqua

**Production:**

Mix the components of phase A. Weigh out phase B and dissolve it clearly. Stir phase B into phase A.

**Properties:**

pH value: 6.0

## „Invisible hold“ Pump mousse

No. 02/00407

	%	Ingredients	Supplier	INCI name
A	1.50	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	90.80	Water dem.		Aqua
	0.30	AMP	(56)	Aminomethyl Propanol
	3.40	Luviflex® Soft	(1)	Acrylates Copolymer
	4.00	Luviquat® Hold	(1)	Polyquaternium-46
	q.s.	Preservative		

**Production:**

Mix the components of phase A. Add the components of phase B one after another and dissolve them clearly.

**Properties:**

pH value: 6.0

**Hair mousses with a propellant****Styling-Mousse with Luviflex® Soft and Panthenol****No. 02/00417**

	%	Ingredients	Supplier	INCI name
A	2.00	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	6.70	Luviflex Soft	(1)	Acrylates Copolymer
	0.60	AMP	(56)	Aminomethyl Propanol
	0.20	D-Panthenol USP	(1)	Panthenol
	0.20	Cremophor® A 25	(1)	Cetareth-25
	0.10	Uvinul® P 25	(1)	PEG-25 PABA
	0.20	Natrosol 250 HR	(4)	Hydroxyethylcellulose
	10.00	Ethanol 96%		Alcohol
	70.00	Water dem.		Aqua
C	10.00	Propane/butane 3.5 bar (20°C)		Propane/Butane

**Production:**

Mix the components of phase A.  
Add the components of phase B one after another and dissolve them clearly. Fill into appropriate containers and charge with phase C.

**Properties:**

pH value: 6.0

**Styling-Mousse with Luviflex® Soft and Luviquat® Hold****No. 02/00412**

	%	Ingredients	Supplier	INCI name
A	1.50	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	3.40	Luviflex Soft	(1)	Acrylates Copolymer
	0.30	AMP	(56)	Aminomethyl Propanol
	2.50	Luviquat Hold	(1)	Polyquaternium-46
	q.s.	Preservative		
	82.30	Water dem.		Aqua
C	10.00	Propane/butane 3.5 bar (20°C)		Propane/Butane

**Production:**

Mix the components of phase A. Weigh out phase B and dissolve it clearly. Stir phase B into phase A. Fill into appropriate containers and charge with phase C.

**Properties:**

pH value: 6.0

**Styling-Mousse with Luviflex® Soft and Luviquat® PQ 11 PN****No. 02/00414**

	%	Ingredients	Supplier	INCI name
A	1.50	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	3.40	Luviflex Soft	(1)	Acrylates Copolymer
	0.30	AMP	(56)	Aminomethyl Propanol
	2.00	Luviquat PQ 11 PN	(1)	Polyquaternium-11
	q.s.	Preservative		
	ad 100.0	Water dem.		Aqua
C	10.00	Propane/butane 3.5 bar (20°C)		Propane/Butane

**Production:** Mix the components of phase A. Weigh out phase B and dissolve it clearly. Stir phase B into phase A. Fill into appropriate containers and charge with phase C.

**Properties:** pH value: 6.0

**„Natural Hold“ Styling Mousse****No. 02/00418**

	%	Ingredients	Supplier	INCI name
A	2.00	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	70.10	Water dem.		Aqua
	0.60	AMP	(56)	Aminomethyl Propanol
	6.70	Luviflex® Soft	(1)	Acrylates Copolymer
	0.20	Cremophor®A 25	(1)	Ceteareth-25
	0.20	D-Panthenol USP	(1)	Panthenol
	0.10	Uvinul® P 25	(1)	PEG-25 PABA
	0.10	Natrosol 250 HR	(4)	Hydroxyethylcellulose
	10.00	Ethanol 96%		Alcohol
C	10.00	Propane/Butane 3.5 bar (20°C)		Propane/Butane

**Production:** Mix the components of phase A. Add the components of phase B one after another and dissolve them clearly. Fill into appropriate containers and charge with phase C.

**Properties:** pH value: 6.0

**Styling-Mousse with Luviflex® Soft and Luviskol® Plus****No. 02/00416**

	%	Ingredients	Supplier	INCI name
A	2.00	Luviquat® Mono LS	(1)	Cocotrimonium Methosulfate
	q.s.	Perfume		
B	6.70	Luviflex Soft	(1)	Acrylates Copolymer
	0.60	AMP	(56)	Aminomethyl Propanol
	2.50	Luviskol Plus	(1)	Polyvinylcaprolactam
	0.20	D-Panthenol USP	(1)	Panthenol
	0.20	Cremophor® A 25	(1)	Ceteareth-25
	0.10	Uvinul® P 25	(1)	PEG-25 PABA
	0.20	Natrosol 250 HR	(4)	Hydroxyethylcellulose
	8.50	Ethanol 96%		Alcohol
	69.00	Water dem.		Aqua
C	10.00	Propane/butane 3.5 bar (20°C)		Propane/Butane

**Production:**

Mix the components of phase A.  
Add the components of phase B one after another and dissolve them clearly. Fill into appropriate containers and charge with phase C.

**Properties:**

pH value: 6.0

**Suppliers**

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Telex: 46499-9 bas d  
Telefax: (06 21) 60-42525
  
4. **Hercules Inc.**  
Aqualon Division  
1313 North Market Street  
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USA  
Tel. 1 302 594-5000
  
56. **Angus Chemical Company**  
1500 E. Lake Cook Road  
Buffalo Grove, Illinois 60089,  
USA  
Tel.: 708-215-8600  
Telex: 275422 ANGUS UR  
Telefax: 708-808-3702

**Shelf life/Storage**

The shelf life of Luviflex Soft in the original unopened containers at 25°C is 18 months. The product has been subjected to the DAB/Ph. Eur. bacterial challenge test. It was found to be adequately resistant to attack.

**Toxicology**

An investigation of the raw material gave no indication of harmful effects to health if the substance is used for the stated applications and concentrations. Due to the large variety of applications and possible combinations with other products, users are responsible for their own safety assessment of their products.

**Safety Data Sheet**

A Safety Data Sheet is available for Luviflex Soft.

**Note**

„While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use.  
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May 2005