
Technical Information

July 2005
Supersedes issue dated May 2005

MEMC 050411e-00/Page 1 of 12

Luvimer[®] 100 P

Luvimer[®] 36 D

Luvimer[®] 30 E

® = Registered trademark
of BASF Aktiengesellschaft

Acrylic terpolymer products for hair-setting preparations with a strong, long-lasting effect

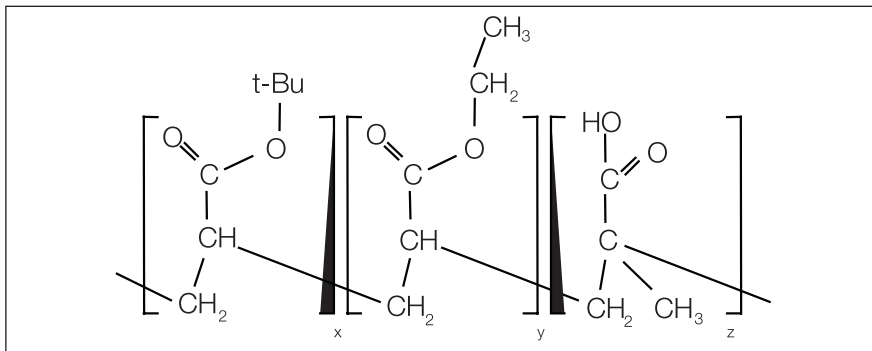
cosmetic
SOLUTIONS

- Hair Care
- Skin Care
- Oral Care

 **BASF**
The Chemical Company

Chemical nature

Terpolymer of tert-butyl acrylate, ethyl acrylate and methacrylic acid

Formula**INCI-name**

Acrylates copolymer

Physical form

Luvimer® 100 P: white powder.
 Luvimer® 36 D: approx. 36% dispersion in water
 Luvimer® 30 E: approx. 30% solution in ethanol.

Specifications

	Method	Luvimer® 100 P	Luvimer® 36 D	Luvimer® 30 E
Solids content (%)	02/0033.00	≥ 97	35.0 – 39.0	28.0 – 32.0
K value	02/0034.00	34.0 – 40.0	39.0 – 45.0	34.0 – 40.0
Acid value	02/0035.00	140.0 – 160.0	50.0 – 58.0	42.0 – 48.0
t-Butyl acrylate (mg/kg)	02/0036.00	max. 100	max. 100	max. 100
Ethyl acrylate (mg/kg)	02/0036.00	max. 100	max. 100	max. 100
Methacrylic acid (mg/kg)	02/0036.00	max. 100	max. 100	max. 100

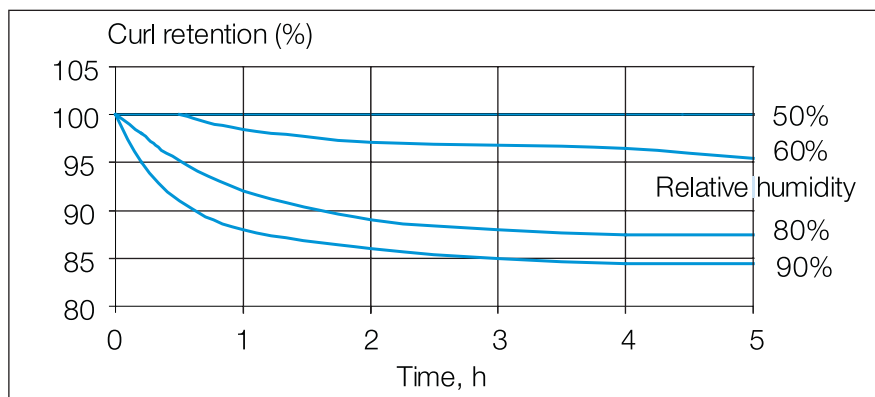
Technical properties

In neutralized form, Luvimer® is an anionic film-forming agent for hair setting products.

It is available in the form of a powder, an aqueous dispersion and an ethanolic solution, allowing the formulator to select the most suitable form for his product.

Setting effect

Even in small quantities, Luvimer® provides an excellent setting effect. As can be seen from the curl retention curve, Luvimer® provides a prolonged setting effect even under extreme conditions.

Curl retention at 25°C - effect of humidity

Hydrocarbon tolerance

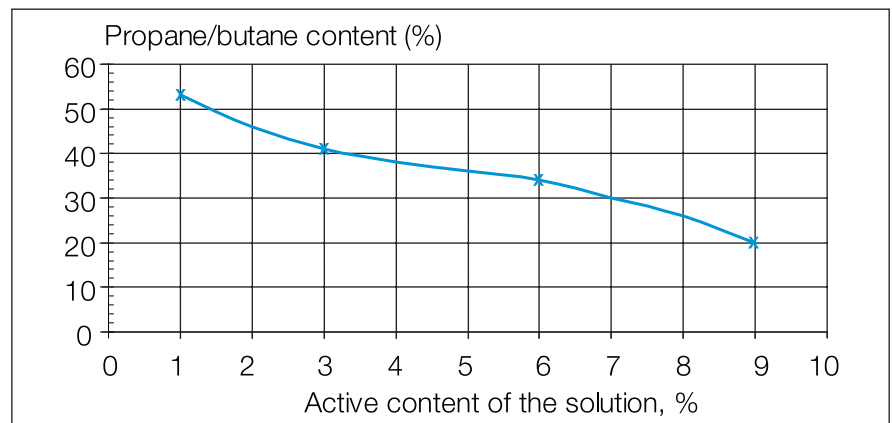
Ethanolic solutions of Luvimer® (100 P, 30 E) are tolerant to propane/butane or dimethyl ether (DME) or mixtures of these propellants over a wide range of concentrations. Ethanolic solutions containing 3 % (solids) of Luvimer® completely neutralized with 2-aminomethylpropanol (AMP) tolerate a maximum of 50 % propane/butane or a maximum of 70 % DME, depending on the particular formulation.

The following graphs show the tolerance of Luvimer® to propane/butane at different concentrations in

- ethanol absolute and
- 96 % ethanol.

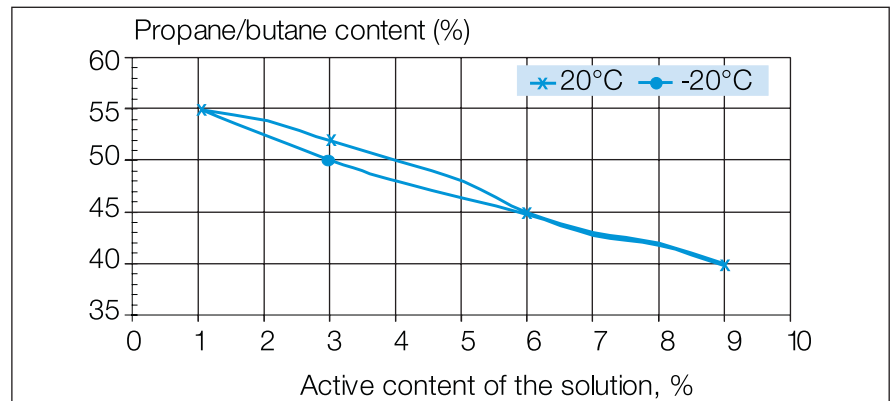
Propane/butane (25 : 75) - tolerance in 96% ethanol at -20°C

Luvimer 100 P (Batch No. 99-5921)



Propane/butane (25 : 75) - tolerance in ethanol absolute at room temperature and at -20 °C

Luvimer 100 P (Batch No. 99-5921)



We recommend that DME be used with Luvimer 36 D.

Solubility

Luvimer 100 P is soluble in ethanol. When it has been completely neutralized, it is also soluble in water.

Ethanolic solutions of Luvimer 100 P of higher concentration can become slightly turbid. However, this is merely an opalescence effect that, in our experience, does not lead to any precipitation of the polymer.

Processing

Neutralization

For best results, Luvimer® should be completely neutralized, preferably with AMP.

If the neutralizing agent is added directly to Luvimer 36 D or Luvimer 30 E, a highly viscous solution that is difficult to handle is obtained. It is therefore recommended to mix the necessary quantity of neutralizing agent with the solvent, before slowly adding Luvimer 36 D or Luvimer 30 E.

The usual amino alcohols, e.g. AMP (2-amino-2-methylpropan-1-ol), DEPA (diethylaminopropylamine) or TIPA (triisopropanolamine) can be used as neutralizing agents. The quantity required is calculated as follows:

$$N = x \cdot y \cdot z \cdot A / 100$$

where

N = Quantity of neutralizing agent, g
 x = Weight of Luvimer 100 P, kg
 y = Acid value
 z = Degree of neutralization, %

A = Factor for

AMP = 1.59

DEPA = 2.32

TIPA = 3.41

Example:

For 1 kg of Luvimer 100 P with an acid value of 148, the following quantity of AMP is required for 100 % neutralization:

$$N = 1 \cdot 148 \cdot 100 \cdot 1.59 / 100 = 235.4 \text{ g APM}$$

Compatibility

Luvimer® is compatible with anionic hair setting polymers, e.g. Luviset® CA 66, Luviset CAN, Ultrahold® 8 and Ultrahold Strong. PVP and copolymers or terpolymers with vinylpyrrolidone or the Luviskol® K grades, the Luviskol VA grades or Luviskol Plus can be added to Luvimer 100 P. Luvimer® is also compatible with many other commercially available hair-setting polymers.

Equivalent suggested formulations for our three grades of Luvimer® can be found under the following formulation numbers.

Luvimer®	100 P	30 E	36 D
Formulation No.	01/01131	01/00829	01/01064
	01/01130	01/00831	
	01/00979	01/00835	
	01/00826	01/00837	
	01/00830		
	01/00695		
	01/00717		
	01/00718		

Suggested formulations for Luvimer® 100 P:**Hair sprays (without water)****Hairspray with Luvimer® 100 P; excellent hold, pleasant feel****No. 01/01131**

	%	Ingredients	Supplier	INCI name
A	0.95	AMP	(56)	Aminomethyl Propanol
	0.10	Dow Corning 190 Surfactant	(16)	PEG/PPG-18/18 Dimethicone
	0.03	Dowanol TPM	(16)	PPG-3 Methyleneether
	0.10	D-Panthenol USP	(1)	Panthenol
	q.s.	Perfume		
	49.82	Ethanol		Alcohol
B	4.00	Luvimer® 100 P	(1)	Acrylates Copolymer
C	45.00	Propane/Butane		Propane/Butane

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Add phase B and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Pressure: 3.7 bar (20°C)
 Density: 0.7466 g/ml
 Cloud point: -30°C clear

Hairspray with Luvimer® 100 P, strong hold**No. 01/01130**

	%	Ingredients	Supplier	INCI name
A	0.95	AMP	(56)	Aminomethyl Propanol
	0.10	Dow Corning 190 Surfactant	(16)	PEG/PPG-18/18 Dimethicone
	0.10	Luvitol® EHO	(1)	Cetearyl Ethylhexonate
	0.10	D-Panthenol USP	(1)	Panthenol
	q.s.	Perfume		
	54.75	Ethanol		Alcohol
B	4.00	Luvimer® 100 P	(1)	Acrylates Copolymer
C	40.00	Propane/Butane		Propane/Butane

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Add phase B and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Pressure: 3.6 bar (20°C)
 Density: 0.6961 g/ml
 Cloud point: -30°C clear

**Hairspray with Luvimer® 100 P, D-Panthenol USP,
UV-Filter; normal hold****No. 01/00979**

	%	Ingredients	Supplier	INCI name
A	0.47	AMP	(56)	Aminomethyl Propanol
	0.10	D-Panthenol USP	(1)	Panthenol
	0.10	Uvinul® MS 40	(1)	Benzophenone-4
	0.10	Abil B 8843	(44)	PEG-14 Dimethicone
	q.s.	Perfume		
	47.23	Ethanol		Alcohol
B	2.00	Luvimer® 100 P	(1)	Acrylates Copolymer
C	50.00	Propane/Butane 3,5 bar (20°C)		Propane/Butane

Production:

Weigh out the components of phase A and mix them. Add phase B to phase A and stir until a clearly solution is obtained. Fill into appropriate containers and charge with phase C.

Hairspray with Luvimer® 100 P**No. 01/00826**

	%	Ingredients	Supplier	INCI name
A	0.93	AMP	(56)	Aminomethyl Propanol
	50.07	Ethanol		Alcohol
	q.s.	Perfume		
B	4.00	Luvimer® 100 P	(1)	Acrylates Copolymer
C	45.00	Propane/Butane		Propane/Butane

Production:

Weigh out the components of phase A and mix them. Add phase B and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Pressure: 3.6 bar (20°C)
Density: 0.8036 g/ml
Cloud point: -35°C clear

Hair sprays (80 % VOC)**Hairspray VOC 80 with Luvimer® 100 P, normal hold****No. 01/00830**

	%	Ingredients	Supplier	INCI name
A	0.46	AMP	(56)	Aminomethyl Propanol
	17.54	Water dem.		Aqua
	40.00	Ethanol		Alcohol
	q.s.	Perfume		
B	2.00	Luvimer® 100 P	(1)	Acrylates Copolymer
C	40.00	Dimethyl Ether		Dimethyl Ether

Production:

Weigh out the components of phase A and mix them. Add phase B and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Pressure: 3.2 bar (20°C)
 Density: 0.8152 g/ml
 Cloud point: -35°C clear

Polymer combinations**Hair spray with Luvimer® 100 P and Luviskol® VA 37 E****No. 01/00695**

	%	Ingredients	Supplier	INCI name
A	1.20	Luviskol® VA 37 E	(1)	VP/VA Copolymer
	55.84	Ethanol		Alcohol
	q.s.	Perfume		
B	2.40	Luvimer® 100 P	(1)	Acrylates Copolymer
	0.56	AMP	(56)	Aminomethyl Propanol
C	40.00	Dimethyl Ether		Dimethyl Ether

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Add phase B into phase and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Cloud point: still clear at -35°C
 Pressure: 3.2 bar
 Density: 0.7648 g/ml

Setting formulations for pump sprays**Pump Setting Spray with Luvimer® 100 P****No. 01/00717**

	%	Ingredients	Supplier	INCI name
A	1.39	AMP	(56)	Aminomethyl Propanol
	92.61	Ethanol 96%		Alcohol
	q.s.	Perfume		
B	6.00	Luvimer® 100 P	(1)	Acrylates Copolymer

Production:

Weigh out the components of phase A and mix them.

Add phase B and stir until a homogeneous solution is obtained.

Pump setting spray VOC 80 with Luvimer® 100 P, strong hold**No. 01/00718**

	%	Ingredients	Supplier	INCI name
A	1.39	AMP	(56)	Aminomethyl Propanol
	12.61	Water dem.		Aqua
	80.00	Ethanol		Alcohol
	q.s.	Perfume		
B	6.00	Luvimer® 100 P	(1)	Acrylates Copolymer

Production:

Weigh out the components of phase A and mix them.

Add phase B and stir until a homogeneous solution is obtained.

Suggested formulations for Luvimer® 30 E:**Hairspray with Luvimer® 30 E****No. 01/00829**

	%	Ingredients	Supplier	INCI name
A	6.70	Luvimer® 30 E	(1)	Acrylates Copolymer
	0.46	AMP	(56)	Aminomethyl Propanol
	42.84	Ethanol		Alcohol
	q.s.	Perfume		
B	50.00	Propane/Butane		Propane/Butane

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase B.

Properties:

Cloud point: still clear at -35°C

Pressure: 4.0 bar

Density: 0.6744 g/ml

Hairspray with Luvimer® 30 E in 80 VOC**No. 01/00831**

	%	Ingredients	Supplier	INCI name
A	0.46	AMP	(56)	Aminomethyl Propanol
	17.54	Water, dem.		Aqua
	35.30	Ethanol		Alcohol
	q.s.	Perfume		
B	6.70	Luvimer® 30 E	(1)	Acrylates Copolymer
C	40.00	Dimethyl Ether		Dimethyl Ether

Production:

Weigh out the components of phase A and mix them.
Add phase B and stir until a clear solution is obtained. Fill into appropriate containers and charge with phase C.

Properties:

Cloud point: still clear at -35°C
Pressure: 3.2 bar
Density: 0.8152 g/ml

Hairspray with Luvimer® 30 E and Luviskol® VA 37 E**No. 01/00835**

	%	Ingredients	Supplier	INCI name
A	8.00	Luvimer® 30 E	(1)	Acrylates Copolymer
	0.56	AMP	(56)	Aminomethyl Propanol
	1.20	Luviskol® VA 37 E	(1)	VP/VA Copolymer
	50.24	Ethanol		Alcohol
	q.s.	Perfume		
B	40.00	Dimethyl Ether		Dimethyl Ether

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase B.

Properties:

Cloud point: still clear at -35°C
Pressure: 3.2 bar
Density: 0.7648 g/ml

Pumpspray with Luvimer® 30 E**No. 01/00837**

	%	Ingredients	Supplier	INCI name
	20.00	Luvimer® 30 E	(1)	Acrylates Copolymer
	1.39	AMP	(56)	Aminomethyl Propanol
	12.61	Water, dem.		Aqua
	66.00	Ethanol		Alcohol
	q.s.	Perfume		

Production:

Mix together ethanol, AMP, water and Perfume, add Luvimer® 30 E, stir until dissolved.

**Suggested formulations for
Luvimer 36 D:**

Hairspray „Ultrahold® IT“ with Luvimer® 36 D

No. 01/01064

	%	Ingredients	Supplier	INCI name
A	11.10	Luvimer® 36 D	(1)	Acrylates Copolymer
	0.98	AMP	(56)	Aminomethyl Propanol
	0.10	Dow Corning 190 Surfactant	(16)	PEG/PPG-18/18 Dimethicone
	0.05	Dow Corning 344 Fluid	(16)	Cyclomethicone
	0.10	Perfume		
	42.77	Ethanol 96%		Alcohol
B	45.00	Dimethyl Ether		Dimethyl Ether

Production:

Weigh out the components of phase A and stir until a homogeneous solution is obtained. Fill into appropriate containers and charge with phase B.

Properties:

Pressure: 3,5 bar (20°C)
Density: 0.7824 g/ml
Cloud point: -35°C clear

Suppliers

1. **BASF Aktiengesellschaft**
67056 Ludwigshafen. Germany
Tel.: (0621) 60-0
Telefax (0621) 60-42525

16. **Dow Corning Corporation**
P.O. Box 17 67, Dept. 2291 Midland. Michigan 48686-0994, USA
Tel.: +1-517-496-6000
Fax: +1-517-496-5324

44. **Degussa Care Specialities**
710 South 6th Street, Hopewell VA 23860, USA
Tel. 1 800 46-1890

German address:
Goldschmidtstraße 100, 45127 Essen, Germany
Tel. 0201 173-0

56. **Angus Chemical Company**
1500 E. Lake Cook Road, Buffalo Grove. Illinois 60089. USA
Tel.: +1-847-215-8600
Fax: +1-847-215-8626

in Germany:
Angus Chemie GmbH
Huysseallee, 45128 Essen, Germany
Tel.: (0201) 81093-0
Telefax (0201) 81093-15

Stability

Luvimer® 100 P and Luvimer® 30 E can be stored for one year at 25 °C in the unopened original containers. Luvimer 36 D can be stored for six months in the unopened original containers. It should be kept at temperatures over 0 °C.

Toxicology

An examination of the raw material did not indicate any health risks for the concentrations used and the areas of application given. However, due to the large number of possible applications, also in combination with other products, the user has to carry out his own safety assessment of his products.

Safety Data Sheet

Safety Data Sheets are available.

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.
NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, OR THAT DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE.
Further, you expressly understand and agree that the descriptions, design, data and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability for the description, designs, data and information given or results obtained, all such being given and accepted at your risk.“

July 2005

