innovation technology reliability

cosmetic solutions

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Formulating success is our business.

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Our aim is to assist you in becoming even more successful. Success in the cosmetics industry depends decisively on innovative formulations and technical solutions. We offer innovative ingredients and tailor-made solutions to make your products better. We provide you with high-end formulation expertise and technical support for your specific formulation needs. Based on our regulatory expertise we strive to give you the support to better meet the changing regulatory and ecological challenges. We show our commitment to the cosmetic industry with scientific studies in various areas. Our integrated system – with international production sites, a dense distribution network and effective logistical chains – gives us the edge when it comes to reliability. We deliver what we promise. A global presence with local support structures gives us both the breadth of vision and the local focus to respond flexibly to your requirements.

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| | Typical applications | | | | | | |
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* For details regarding Uvinul grades please refer to table "Overview UV Absorbers Portfolio" on page 34.





styling and conditioning



polymers

Our extensive product range, encompassing old favorites, intelligent improvements and the latest innovative styling polymers, demonstrates how we have moved with the times over the past 50 years and beyond. Hairsprays for ultra strong hold, styling mousses for more volume and flexibility, or shampoo conditioners that give a really smooth and silky feel: BASF offers you the right styling polymer for virtually all applications to meet your c u s t o m e r s' requirements.

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Overview Polymer Portfolio

BASF offers the most extensive range of polymers for hairstyling. It is the result of a long-term commitment, high competence and strong R & D efforts for this segment in the cosmetic industry. There is hardly any hairstyling product which cannot be formulated by using one or several products of this broad range.

To make the choice as simple as possible the following guidelines can be used to find the best polymer for a desired application:

| Gels | Most recommended polymers | Remarks |
|---------------------|----------------------------------|----------------------------|
| Wet look gels | Luviskol K 30 | The classical polymer |
| Sculpture gels | Luviskol K 85 CQ, K 90 | Strong setting |
| | Luviset Clear/Luviset Clear E | Crystal clear gels |
| | Luviskol VA 64 P/W and 73 W | Reduced hygroscopicity, |
| | | widely used |
| Sculpture gels with | Luviset Clear/Luviset Clear E or | Degree of setting and |
| conditioning effect | Luviquat Hold or | conditioning can easily be |
| | Luviskol VA 64 P/W with | adjusted |
| | Luviquat Hold or | |
| | Luviquat PQ 11 PN | |

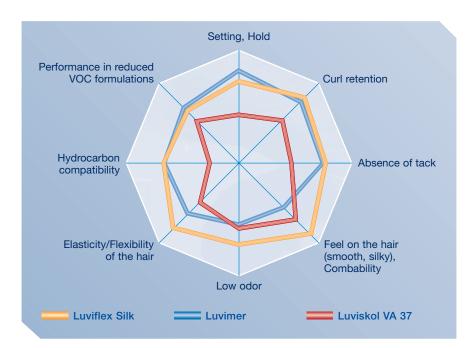
| Mousses | Most recommended polymers | Remarks |
|----------------------------------|----------------------------------|----------------------------------|
| Styling mousses | Luviquat Supreme or | Strong hold, good curl retention |
| | Luviskol VA 64 P/W, VA 73 W | Successful classics |
| Styling and conditioning mousses | Luviquat Supreme or | Luviquat Supreme provides |
| | Luviset Clear/Luviset Clear E or | outstanding curl retention and |
| | Luviskol VA 64 P/W with | ultra strong hold, degree of |
| | Luviquat Hold/PQ 11 PN/Style | conditioning can easily be |
| | Luviflex Soft | adjusted |
| Conditioning mousses | Luviquat Excellence or | Luviquat Mono LS is |
| | Luviquat Style | recommended as conditioning |
| | (in combination with | enhancer, foam stabilizer |
| | Luviquat Mono LS) | and solubilizer |

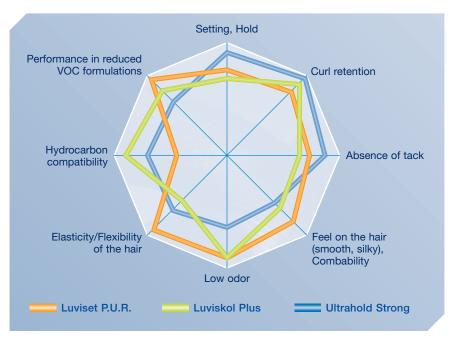
| Aerosol sprays | Most recommended polymer | Remarks |
|----------------|---------------------------|--------------------------------|
| | Ultrahold Strong | Strong setting |
| | Luvimer 100 P | |
| | Ultrahold Strong | Humidity resistance |
| | Luvimer 100 P | |
| | Luviflex Silk | Feel, managability of the hair |
| | Luviskol VA 37 | |
| | Luviset P.U.R. | Elasticity, flexibility |
| | Luviskol VA 37 | Easy to handle, liquid |
| | Luvimer 30 E | |
| | Luviskol Plus | |
| | Luviflex Silk | |
| | Luviset P.U.R. | |
| | Luviskol VA 37 | No neutralization |
| | Luviskol Plus | |
| | Luviset P.U.R. | |
| | Luviskol Plus (up to 70%) | High hydrocarbon compatibility |
| | Ultrahold, Luvimer | |
| | (up to 50 %) | |
| | Luviset P.U.R. | Water-based formulations |
| | Luviset Shape | (low VOC) |
| | Luvimer Pro55 | |

| Pump sprays | Most recommended polymers | Remarks |
|-----------------|---------------------------|---------------------------|
| Setting lotions | Luviskol VA 37 | Easy to handle, |
| | | good combability and feel |
| | Luvimer 100 P | Strong setting, |
| | | very efficient |

| 55 %-VOC Formulations | Most recommended polymers | Remarks |
|---------------------------|---------------------------|-------------------------|
| Sprays (aerosol and pump) | Luviset Shape | Low viscosity and |
| | Luvimer Pro55 | excellent spray pattern |
| | Luviset P.U.R. | |

Aerosol sprays require the most diversified features of polymers since a variety of performance properties but also formulation restrictions have to be considered. The following spider graphs characterize some important features of the major hairspray polymers of this extensive range.





Luviskol K Grades

| Chemical description: | Homopolymers of vinylpyrrolidone with a | a variety of molecular w | /eights |
|-----------------------|--|--------------------------|---------------------|
| INCI CAS: | PVP 9003-39-8 | | |
| Appearance: | Trade name | Molecular weight | K value |
| | Luviskol K 17 powder | ca. 10,000 | 15–19 |
| | Luviskol K 30 powder | ca. 50,000 | 27-33 |
| | Luviskol K 30 solution about 30% | ca. 50,000 | 27-33 |
| | Luviskol K 80 powder | ca. 850,000 | 74-82 |
| | Luviskol K 85 CQ* solution about 20% | ca. 1,000,000 | 83–88 |
| | Luviskol K 90 powder | ca. 1,600,000 | 88–96 |
| | Luviskol K 90 solution about 20% | ca. 1,600,000 | 90–98 |
| | *contains preservative | <u> </u> | |
| | of clarity is required in the finished produ For hair-styling applications K 30, K 80, k various molecular weights. | | est of the |
| Properties: | Water-soluble in high concentrations to form clear solutions At low relative humidity the films are hard and brittle; at high relative humidity they are elastic and soft High water-absorption capacity Non-ionic, no neutralization required. Compatible with anionic and cationic ingredients | | |
| Applications: | Hair gels, in particular wetlook gels, hair mousses, pump s liquid hair setting preparations Luviskol K 30: for products with normal hold, for which low is important (e.g. pump sprays) Luviskol K 90: for products with a strong hold and high vis (e.g. hair gels and hair mousses) For products where lower tack and better curl retention are Luviset Clear is particularly suitable | | viscosity cosity |

Luviskol VA Grades

| Chemical description: | cal description: Copolymers of vinylpyrrolidone (VP) and vinyl acetate (VA) | |
|-----------------------|--|--|
| INCI CAS: | VP/VA Copolymer 25086-89-9 | |
| Appearance: | 50% solutions in ethanol Luviskol VA 37 E (30:70)* Luviskol VA 73 E (70:30)* | |
| | 50% solutions in isopropanol Luviskol VA 37 I (30:70)* Luviskol VA 55 I (50:50)* | |
| | 50% solutions in water Luviskol VA 64 W (60:40)* Luviskol VA 73 W (70:30)* | |
| | Free-flowing powder Luviskol VA 64 P (60:40)* *VP:VA ratio, % by weight | |
| General: | Versatile film-formers for formulating hairstyling products. Properties and differentiation are determined by the VP/VA ratio in the polymer. The series includes alcoholic (ethanol, isopropanol), aqueous and powder products. | |
| Properties: | Non-ionic, no neutralization required Compatible with ionic (anionic as well as cationic) additives Ranging from water-soluble to soluble in ethanol Easy to handle Easy to comb out Propane/butane compatibility 20-45 % DME compatibility up to 70 % | |
| Applications: | All important hair styling applications, such as aerosol sprays (VA 37), pump sprays, setting lotions (all Luviskol VA grades), mousses and gels (mainly Luviskol VA 64/VA 73). | |

| C | Classification of important selection criteria | | | | | | |
|---|--|------------|--------------|--------------------|-----------|--|--|
| | Product | VP content | Solupinvater | Olinatic ure unity | Tackiness | | |
| | VA 73 | 70 % | | ۲ | | | |
| | VA 64 | 60 % | ۲ | ۲ | | | |
| | VA 55 | 50% | ۲ | ۲ | | | |
| | VA 37 | 30 % | ۲ | ٢ | ٢ | | |

Luviset Clear + Luviset Clear E

Innovative!

| Chemical description: | | Luviset Clear is a copolymer of N-vinylpyrrolidone, methacrylamide and N-vinyl imidazole | | |
|-----------------------|--|--|--|--|
| INCI CAS: | | VP/Methacrylamide/Vinyl Imidazole Copolymer 38139-93-4 | | |
| Appearance: | Luviset Clear: Solution of approx. 20 % polymer in water stabilized with 0.75 % Phenon Solution of approx. 20 % polymer in water and 15–18% ethanol, no pres vative. | | | |
| General: | | Luviset Clear is a non-ionic, high performance hair setting polymer for brilliantly clear gels, mousses, styling lotions and alternative styling aids. Very low tackiness, excellent humidity resistance, strong setting properties combined with the ability to formulate brilliantly clear Carbomer gels make Luviset Clear the number one choice for high performing transparent styling aids. | | |
| Properties: | | Brilliantly clear gels can be achieved by using e.g. Acrylates/C10 - C30 Alkyl Acrylate Crosspolymer (Ultrez 21, Noveon), Acrylates Beheneth-25 Methacrylate Copolymer (Aculyn 28, Rohm & Haas) Furthermore compatible with almost every commercially available cosmetic thickener Strongest hold Excellent humidity resistance Very low tackiness Very good curl retention Can be excellently combined with PVP and PVP/VA grades | | |
| Applications: | | Hair gels and mousses Comparison of stiffness test results (65% rel. hum., 3% styling polymer in 0.5 % Ultrez 21 gel) Stiffness [cN] 200 100 100 100 100 100 100 100 | | |

Figure shows a comparison of stiffness test results. The high levels for Luviset Clear reflect its even better holding power compared with our tried and tested Luviskol K 30 and Luviskol K 90 styling polymers.

Luvimer Grades

| Chemical description: | Terpolymer of tertbutyl acrylate, ethyl acrylate and methacrylic acid | | |
|-----------------------|---|---|--|
| INCI CAS: | Acrylates Copolymer 159666-35-0 | | |
| Appearance: | Luvimer 100 P: White powder Luvimer 30 E: 30 % solution in ethanol Luvimer Pro55: 37 % dispersion in water | | |
| General: | Luvimer products have been developed specifically for modern, good- value and strong-hold formulations. At 100 % neutralization they are completely soluble in water. | | |
| Properties: | Strong to extra strong setting Long lasting hold, i.e. very good curl retention Clear solution in water at 100 % neutralization High performance Excellent odor profile | | |
| Applications: | styling polymer created especial It provides long-lasting hold an with excellent sprayability and c | Solid content in % Luvimer 100 P, 30 E 1.0-2.0 2.0-4.0 4.0-5.0 2.0-6.0 ate-based, low-viscosity, water-compatible ally for producing 55 %-VOC formulations. Ind outstanding curl retention in combination can be used for volumizing, styling, or finish-Luvimer Pro55 is an easy-to-use, low odor | |

For formulations containing more than 55 % VOC, we recommend our well-known high-performance Luvimer 100 P.

liquid that produces clear and clolorless 55 %-VOC formulations.

Ultrahold Grades

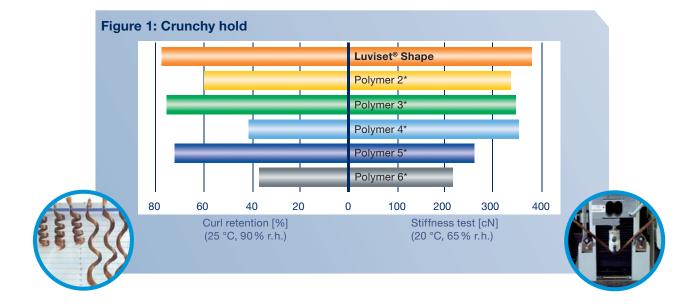
| Chemical description: | Terpolymer of acrylic acid, ethyl acrylate and N-tertbutylacrylamide | | |
|-----------------------|--|--|--|
| INCI CAS: | Acrylates/t-Butylacrylamide Copolymer 26062-56-6 | | |
| Appearance: | Ultrahold 8: White powder Ultrahold Strong: White powder | | |
| General: | Ultrahold 8 and Strong are acrylate polymers with excellent application properties. Ultrahold 8 and Strong differ in molecular weight and acid value. The higher molecular weight of Ultrahold Strong improves the setting effect. A higher acid value ensures water-compatibility and excellent wash-out properties. | | |
| Properties: | High curl retention No tack of the film, even at high relative humidity Exceptionally high propane/butane compatibility. Ultrahold 8 is compatible with propane/butane up to 60%, Ultrahold Strong up to appr. 50%. Combination with other polymers (preferably non-ionic ones) is possible, e.g. Ultrahold Strong with Luviskol VA 37 grades for hair sprays which have strong hold and additional elasticity. | | |
| Applications: | Aerosol and pump hair sprays, lotions, mousses | | |
| | Ultrahold Strong – Ultrahold 8 Curl 82 retention 90 Setting 83 effect 42 No tack 100 | | |

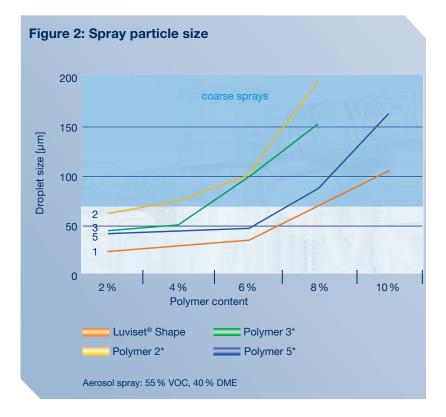
100 Hydrocarbon 54 tolerance 64 DME 69 tolerance 74 Water 100 tolerance 50 80 100 Measured values [%] 0 20 40 60 Ultrahold Strong Ultrahold Strong Ultrahold 8

18

Luviset Shape

| Chemical description: | Luviset Shape is a Methyl methacrylate, Methacrylic acid, Acrylic acid, Urethane-Acrylate Copolymer | |
|-----------------------|--|--|
| INCI CAS: | Polyacrylate-22 39332-53-1 | |
| Appearance: | Luviset Shape is supplied as a pre-neutralized polymer in a water/ethanol solution. It is easy-to-use and contains no preservatives. | |
| General: | Luviset Shape is a unique styling polymer specifically developed for fast drying, non-tacky, aqueous based hair sprays providing long-lasting crunchy hold. | |
| | Luviset Shape has outstanding sprayability characteristics generating a fine spray pattern which produces no foam or beading on the hair. | |
| | This property makes Luviset Shape an excellent choice for low VOC formulations with high water content. | |
| Properties: | Long-lasting crunchy hold even under the most humid conditions Non-tacky feel during application and after drying Fast drying, non-foaming fine spray designed for high water content formulas Excellent performance in the 35 – 80 % VOC range | |
| Applications: | Low VOC hair spray formulations | |





*Polymer 2 = Octylacrylamide / Acrylates / Butylaminoethyl Methacrylate Copolymer

- Polymer 3 = Acrylates / Hydroxyesters Acrylates Copolymer
- Polymer 4 = Diglycol / CHDM / Isophthalates / SIP Copolymer
- Polymer 5 = Acrylates Copolymer
- Polymer 6 = Octylacrylamide / Acrylates / Butylaminoethyl Methacrylate Copolymer

Luviset P.U.R.

| Chemical description: | Based on polyurethane, ethanol, water | | | |
|-----------------------|--|--|--|--|
| INCI CAS: | Polyurethane-1 208054-84-6 | | | |
| Appearance: | Clear liquid to slightly turbid liquid (30 % polymer, 10 % ethanol, 60 % water) | | | |
| General: | Luviset P.U.R. is the first cosmetic polymer on polyurethane basis and has especially been designed for water-based hair sprays (VOC 55 sprays), but is also suitable in conventional hair spray formulations (VOC 80/90) or "water-free" formulations. It allows the formulation of water-containing hair sprays – avoiding or minimizing the negative effects of water. | | | |
| Properties: | Low viscosity and excellent spray pattern even at high polymer concentrations (up to 12 % solids, "High Solids Concept") Long-lasting curl retention and excellent hold Outstanding elasticity for bouncy and flexible hair No tack on the hair during and after drying Already neutralized (100 %) with AMP | | | |
| Applications: | Low and regular VOC aerosol and pump sprays, lotions | | | |

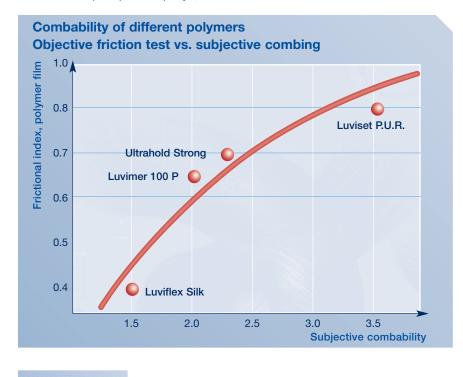
Conventional "Acrylates Copolymer"

Luviflex Silk

| Chemical description: | Terpolymer of tertbutyl acrylate, methacrylic acid and dimethicone copolyol | | |
|-----------------------|--|--|--|
| INCI CAS: | PEG/PPG-25/25 Dimethicone/Acrylates Copolymer 248935-80-0 | | |
| Appearance: | Colorless to faint yellow, clear to slightly opalescent, approx. 50 % solution in ethanol | | |
| General: | Luviflex Silk is a unique styling polymer that gives hair a bouncy and silky feel. It is supplied as a colorless to slightly yellowish, clear ethanolic solution (50 %) with a characteristic low odor. It has been developed especially for hairsprays with little or no water content (80 % VOC up to "100 % VOC"). The unique chemical/physical character gives this polymer outstanding sensoric properties, such as a soft, silky feel of the hair, an exceptional combability and provides a natural, flexible hold. | | |
| Properties: | Smooth, silky and bouncy feel Exceptional combability Polymer already contains a silicone component Excellent natural and non-sticky hold Long-lasting curl retention Natural styling Flexibility | | |

Applications:

Aerosol and pump hair sprays, lotions



22

Luviset CA 66 and CAN

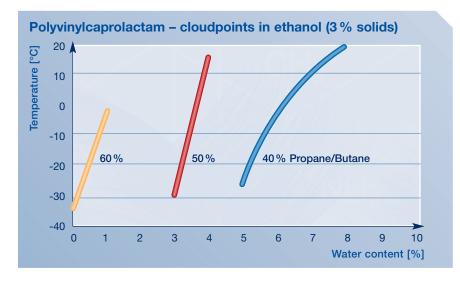
| Chemical description: | Luviset CA 66: Copolymer based on vinyl acetate and crotonic acid Luviset CAN: Terpolymer based on vinyl acetate, crotonic acid and vinyl neodecanoate | | |
|-----------------------|--|--|--|
| INCI CAS: | Luviset CA 66: VA/Crotonates Copolymer 25609-89-6 Luviset CAN: VA/Crotonates/Vinyl Neodecanoate Copolymer 55353-21-4 | | |
| Appearance: | Luviset CA 66: White powder Luviset CAN: Fine, free flowing transparent beads | | |
| General: | Luviset CA 66 and CAN are based on vinylacetate (VA) and crotonic acid providing a reasonable setting effect. | | |
| Properties: | Good hold Curl retention depending on degree of neutralisation When formulating aerosol sprays with Luviset CA 66, dimethyl ether should be used as propellant, because compatibility with propane/butane is limited. Luviset CAN has a better hydrocarbon compatibility. Formulations with 20 – 30 % propane/butane are possible. Both products can be combined with other polymers in order to modify the properties of the hair styling preparation as desired. | | |
| Applications: | Aerosol and pump sprays | | |

Luviskol Plus

| Chemical description: Homopolymer of vinylcaprolactam | |
|---|--|
| INCI CAS: | Polyvinylcaprolactam 25189-83-7 |
| Appearance: | 40 % solution in ethanol |
| General: | Luviskol Plus is a film-former for hair styling with an extremely high hydrocarbon compatibility |
| Properties: | Excellent curl retention; and therefore long lasting hold even at high relative humidity Strong hold Excellent odor profile, i.e. almost no intrinsic odor Simple handling; the non-ionic polymer does not require neutralization Broad formulation spectrum; both for nonaqueous and aqueous hair sprays Extremely high compatibility with propellants, in particular propane and butane |

Applications:

Hair styling products, in particular aerosol sprays (inc. 55 % VOC), pump sprays and setting lotions.



Luviflex Soft

| Chemical description: | Copolymer of ethyl acrylate and methacrylic acid | |
|-----------------------|--|--|
| INCI CAS: | Acrylates Copolymer 25212-88-8 | |
| Appearance: | Milky-white liquid. 30% dispersion in water | |
| General: | Luviflex Soft is an anionic polymer for hair styling mousses. It is supplied as a 30 % dispersion in water. It 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 a much better curl retention with no tack. | |
| Properties: | Very good curl retention Nearly no tack Provides significantly volume and bounce to the hair Soft, gentle feel of the hair Medium setting Natural, "invisible styling" | |
| Applications: | Aerosol mousses, pump mousses (not recommended for hair sprays) | |

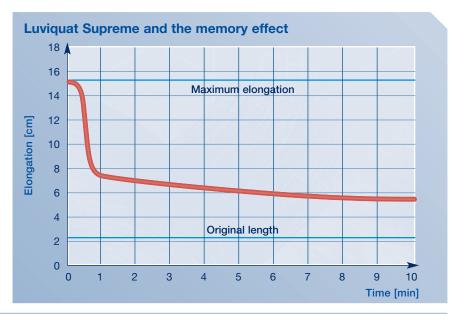
Luviquat Supreme

Innovative!

| Chemical description: | Quaternized copolymers of vinylpyrrolidone (VP), methacrylamide (MAM), vinylimidazole (VI) and quaternized vinylimidazole (QVI). | | |
|---|--|--|--|
| INCI CAS: | Polyquaternium-68 827346-45-2 | | |
| Appearance: | Solution of 20 % polymer in water; contains preservative. Clear to slightly yellowish viscous liquid | | |
| General: | Luviquat Supreme is an innovative styling polymer for hair mousse. It pro- vides ultra strong hold and outstanding curl retention even at high humidity levels. In addition, Luviquat Supreme has impressive conditioning proper- ties and gives even the finest hair more volume. Another highlight is the combination of Luviquat Supreme and panthenol. The result is a highly flexible polymer film with a tremendous resistance to breaking that ensures a natural, flexible hold regardless of the weather. In comparative studies of styling polymers currently used in hair mousse, Polyquaternium-11 or Polyquaternium-4 for instance, Luviquat Supreme comes out on top. Replacing Polyquaternium-11 with Luviquat Supreme saves 25 % of the amount of polymer required without losing any stiffening effect. | | |
| Properties: | Maximum setting even in the most extreme conditions Strong hold all the way to natural, flexible hold with additives Excellent curl retention Very low tackiness Quick foam development Rich and creamy foam Hair that feels smooth Improves combability Increased volume for fine hair Easy solubility in water Combines styling and conditioning properties | | |
| Hair setting Luviquat Supreme, Luviquat Hold, Luviquat PQ 11 PN and Luviquat Style are especially recommended for styling products, e.g. hair mousses and lotions. Their high molecular weight and their specific composition provide a good setting effect Setting effect (Stiffness test, 2.2% polymer content, 65% rel. hum./25 °C) | Supreme Image: Constraint of the second | | |
| Curl retention Luviquat Supreme exhibits highest curl retention values even at 90 % rel. hum. | Supreme 2% Hold 2% PQ 11 PN2% Style 2.2% 0 20 40 60 80 100 Polymer content in standard mousse formulation Curl retention [%] | | |

Curl retention at 90 % rel. hum./25 °C

The memory effect of Luviquat Supreme in combination with panthenol: After elongation, the polymer film containing Luviquat Supreme and panthenol contracts within minutes and tries to regain its original form. In spite of the enormous elasticity, the polymer film still provides ultra strong hold and outstanding curl retention. This memory effect can be demonstrated particularly well on blow dried hair.



Applications:

Aerosol mousses, pump mousses.

Luviquat Grades

Conditioning Polymers

Chemical description:

Aqueous solutions of cationic polymers

Appearance:

| Trade name | | CAS | Solid content |
|---------------------|-------------------|-------------|---------------|
| Luviquat UltraCare* | Polyquaternium-44 | 150599-70-5 | 13.5-15.5% |
| Luviquat Hold* | Polyquaternium-46 | 174761-16-1 | 20 % |
| Luviquat PQ 11 PN* | Polyquaternium-11 | 53633-54-8 | 20 % |
| Luviquat Style* | Polyquaternium-16 | 95144-24-4 | 20 % |
| Luviquat Excellence | Polyquaternium-16 | 150599-70-5 | 40 % |
| Luviquat FC 550 | Polyquaternium-16 | 95144-24-4 | 40 % |
| Luviquat FC 370 | Polyquaternium-16 | 95144-24-4 | 40 % |
| Luviquat Supreme | Polyquaternium-68 | 827346-45-2 | 20 % |

*contains preservative

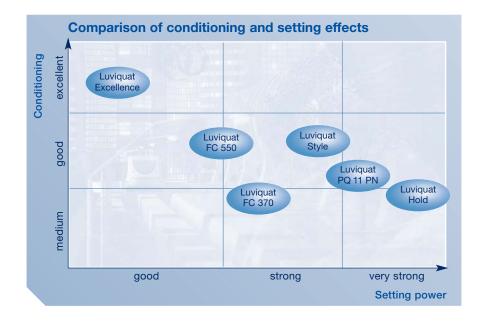
| General: | The Luviquat products are substantive cationic compounds. |
|-------------|---|
| Properties: | Hair care Improvement of wet combability Prevention of electrostatic charging Additional protection by means of coating the hair, reducing damage of the surface of the hair Volume and hold |
| | The technical properties of the individual Luviquat products are influenced by their molecular weight and their cationic activity. A high molecular weight increases not only the viscosity in the solution (advantageous for hair mousses and shampoos), but also gives good hold. Luviquat PQ 11 PN, Luviquat Hold and Luviquat Style are thus preferentially used in products where, in addition to the conditioning effect, a strong setting effect is also desired. The setting effect can even exceed that of traditional hair spray polymers, so that Luviquat Hold and Luviquat PQ 11 PN can be used to formulate pump sprays having excellent setting and good conditioning effects. The cationic activity influences conditioning (wet combability) and compa- tibility with anionic products, e.g. with carbomers. In view of its low catio- nic activity, Luviquat Hold is also suitable for hair gels, giving transparent gels with a good conditioning effect. |

Properties:

Luviquat UltraCare is an effective conditioning polymer for shampoos, cleansing products and skin care formulations. Its outstanding features in shampoo conditioning are:

- Excellent wet and dry hair combability
- No build-up
- O Smooth feel of the hair
- Brilliantly clear shampoo formulations
- O Counter irritancy
- Rich lather creaminess

| Trade name | Mole [g/mo | cular weight ol] | Cationic activity [meq/g] |
|---------------------|---------------|---------------------|------------------------------|
| Luviquat UltraCare | ca. | 200,000 | 1.0 |
| Luviquat Hold | ca. | 700,000 | 0.5 |
| Luviquat PQ 11 PN | ca. | 1,000,000 | 0.8 |
| Luviquat Style | ca. | 400,000 | 3.0 |
| Luviquat Excellence | ca. | 40,000 | 6.1 |
| Luviquat FC 550 | ca. | 80,000 | 3.3 |
| Luviquat FC 370 | ca. | 100,000 | 2.0 |



| Skin | care: |
|---------------|-------|
| U 1111 | 00.01 |

Luviquat UltraCare and Luviquat Style are additionally recommended for skin care. They are substantive to the skin and are able to improve the overall performance of skin care formulations:

- O Impart smooth and supple feel of the skin
- Increase the moisture content of the skin
- O Improve the lather creaminess in cleansing formulas
- Reduce the irritation potential of surfactants (Luviquat UltraCare)

| A | lin a ti | |
|-----|----------|------|
| App | licati | ons: |

Hair care

The Luviquat grades are recommended for use in conditioners, shampoos, hair-setting products, hair rinses, perms, bleaches, and colorants.

Skin care

Luviquat UltraCare and Luviquat Style are recommended for emulsions, creams, lotions, and provide skin smoothness and moisturization. Luviquat UltraCare is especially recommended for all surfactant based cleansing formulations like body washes and shower gels where it improves the skin feel and acts as an efficient counter-irritant.

Monoquats

Chemical description:

Aqueous solutions of quaternized alkylamines

| Appearance: | Trade name | INCI | CAS | Solid content | | | | |
|---------------|-------------------------------|--|------------|---------------|--|--|--|--|
| | Luviquat Mono CP* | Hydroxyethyl | 85563-48-0 | 30 % | | | | |
| | | Cetyldimonium | | | | | | |
| | | Phosphate | | | | | | |
| | Luviquat Mono LS | Cocotrimonium | 68002-60-8 | 30 % | | | | |
| | | Methosulfate | | | | | | |
| | *contains 0.3 % Phenonip | *contains 0.3 % Phenonip | | | | | | |
| Profile: | Luviquat Mono CP ar products. | Luviquat Mono CP and Luviquat Mono LS are excellent conditioning products. | | | | | | |
| Applications: | | They are especially suitable for conditioning rinses, hair treatments and hair mousses. In certain cases, they can also replace the solubilizer in formulations. | | | | | | |

| Trade name | | Hair sty | ling | H | Hair conditionir | ng |
|---------------------------------|--|-------------------|--------------------|-------------|--|---------|
| | | Mousse, Lotion | Gel ^(a) | Spray | Conditioning rinse, Hair treatment | Shampoo |
| Luviquat Supreme | Innovative polymer for styling | 000 | ٢ | 0 | | 0 |
| | hold and outstanding curl retention | 000 | | | 0 | 0 |
| Luviquat UltraCare | Excellent conditioning in shampoos, soft skin feel and moisturizing effect | (b) | 0 | 0 | 00 | 000 |
| Luviquat Hold | Styling and conditioning with only one polymer, even at high humidity, extremely strong setting with a crispy feel | 000 | ۲ | ۲ | ۲ | ۲ |
| Luviquat PQ 11 PN | Strong setting, exceptionally creamy foam | ۲ | ۲ | 0 | 00 | 00 |
| Luviquat Style | Good conditioning and strong setting, recommended for combinations with Luviskol VA 64 | ۲ | 0 | 0 | 00 | 00 |
| Luviquat Excellence | Excellent conditioning, good skin feel, high cationic charge | ۲ | 0 | ۲ | 000 | ۲ |
| Luviquat FC 550 | Strong conditioning | 00 | 0 | 00 | 00 | 00 |
| Luviquat FC 370 | Strong hold and good conditioning, versatile | 00 | ۲ | 00 | ۲ | 00 |
| Luviquat Mono LS © | Excellent conditioning, reduction of static charge, foam stabilizer, emulsifier and solubilizer; excellent price/performance ratio | | 0 | 0 | | |
| Luviquat Mono CP ^(c) | Excellent conditioning, reduction of static charge, foam stabilizer and emulsifier | ۲ | 0 | 0 | 00 | 00 |
| | | (2) Dava ave | elline en the | a concentra | tion up al | |

Outstanding

Suitable

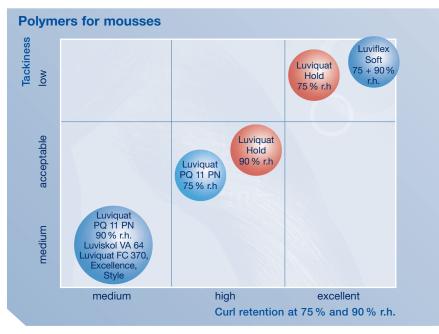
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Suitable under certain conditions Not suitable

^(a) Depending on the concentration used, slight turbidity may occur in carbomer gels
 ^(b) Recommended in combination with Luviquat Hold or Luviquat PQ 11 PN

to boost setting and conditioning ^(c) Cationic surfactants





Protection from the detrimental effects of solar radiation is more relevant in today's world than ever before. BASF offers a broad range of UV filters: organic and inorganic. UVA absorbers and UVB absorbers **for m o d e r n sun care and skin care products.**

- and a start

protected **exposure**

H₃CO

32

11the



Overview UV Absorbers Portfolio

| UV absorber | INCI | Range of absorption | λ max nm | A ^{1%} 1cm | Solubility | Possible a | applications Skin | Regu EU | latory US | status Japan |
|------------------|---|---------------------|-------------------|--|---|------------|---|----------------------|--------------------|-----------------|
| | | absorption | | | | protection | | | 00 | Japan |
| Uvinul A Plus | Diethylamino Hydroxy- benzoyl Hexyl Benzoate | UVAI | 354 | 910 – 940 | Oil | ۲ | ۲ | 10 %* | (1) | 10 % |
| Uvinul A Plus B | Ethylhexyl Methoxycinna- mate (and) Diethylamino Hydroxybenzoyl Hexyl Benzoate | UVA I-UVB | 354 310 | 325 587 | Oil | ۲ | ۲ | 15.38 % | (1) | 15.38 % |
| Uvinul M 40 | Benzophenone-3 | UVAII-UVB | 320 – 330 287 | ~ 400 640 – 670 | Oil | ۲ | ۲ | 10 %(2) | 6% | 5% |
| Uvinul MS 40 | Benzophenone-4 | UVAII-UVB | 323 286 | ~ 290 460- 490 | Water | ۲ | ۲ | 5% | 10 % | 10 % |
| Uvinul MC 80 (N) |) Ethylhexyl Methoxycinnamate | UVB | 310 | min. 850 | Oil | 0 | ۲ | 10 % | 7.5% | 20 %** |
| Uvinul T 150 | Ethylhexyl Triazone | UVB | 314 | 1550 - 1662 | Oil | 0 | ۲ | 5% | (3) | 5% |
| Uvinul N 539 T | Octocrylene | UVB | 302 | 340-369 | Oil | ۲ | ۲ | 10 % | 10% | 10 % |
| Uvinul P 25 | PEG-25 PABA | UVB | 309 | 160–180 | Water | ۲ | ۲ | 10 % | - | - |
| Uvinul DS 49 | Benzophenone-9 | UVB 331 | 270 170 | 220 | Water | ۲ | 0 | (4) | (4) | 10 % |
| T-Lite SF | Titanium Dioxide (and) Aluminum Hydroxide (and) Dimethicone/Methicone Copolymer | UVA II-UVB | broad <330 | A~2.0 | Oil | 0 | ۲ | 25% | 25% ⁽⁵⁾ | (7) |
| T-Lite SF-S | Titanium Dioxide (and) Hydrated Silica (and) Dimethicone/Methicone Copolymer (and) Aluminum Hydroxide | UVA II-UVB | broad < 330 | A~2.0 | Oil | 0 | ۲ | 25% | 25%(5) | (7) |
| T-Lite MAX | Titanium Dioxide (and) Dimethoxydiphenylsilane (and) Triethoxycaprylylsilane Crosspolymer (and) Hydrated, Silica (and) Aluminum, Hydroxyde | UVA II-UVB | broad <330 | A~2.0 | Oil | 0 | ۲ | 25% | 25%(5) | (7) |
| Z-COTE | Zinc Oxide | UVAI-UVB | broad max. 370 | A~2.0 | Water/ Oil | 0 | ۲ | (6) | 25% | (7) |
| Z-COTE HP 1 | Zinc Oxide (and) Tri- ethoxycaprylylsilane | UVA I-UVB | broad max. 370 | A~2.0 | Oil | 0 | ۲ | (6) | 25% | (7) |
| Z-COTE MAX | Zinc Oxide (and) Dimethoxydiphenylsilane/ Triethoxycaprylylsilane Crosspolymer | UVA I-UVB | broad max. 370 | A~2.0 | Oil | 0 | ۲ | (6) | 25% | (7) |
| • Yes • No | Crosspolymer * in sunscreen products * For use on mucous mer approved up to 8 % | nbranes | that Benz | e EU, cosmeti contain more cophenone-3 i ntains Oxyben. | than 0.5 % [°] must be labele | ed | 4) Only for press 5) US – not in Avobenzon 6) EU – appres | combinat ne (BMDB | tion with M) | |

1) TEA (Time and Extend Application) intended

"Contains Oxybenzone" 3) TEA (Time and Extend Application)

6) EU – approval pending, preliminary approved in Germany up to 25 %
7) Considered as UV-scattering agent, no limit



pending

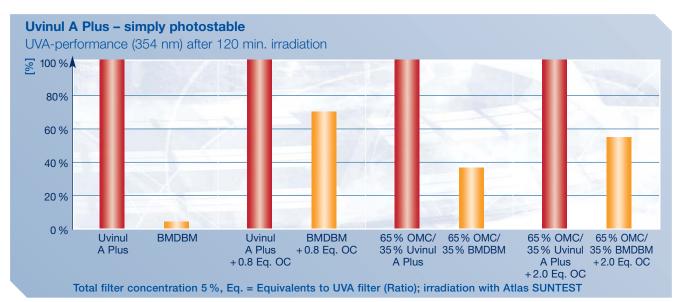
Uvinul A Plus

Innovative!

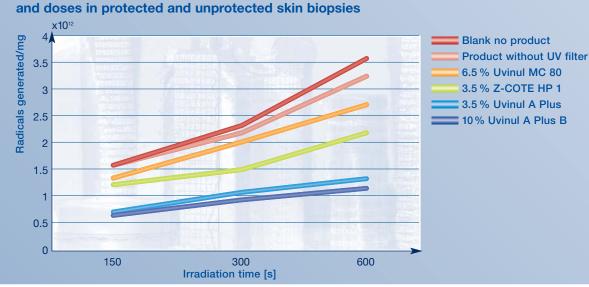
| INCI CAS: | Diethylamino Hydroxybenzoyl Hexyl Benzoate 302776-68-7 |
|-------------|---|
| Appearance: | Yellow melt that crystallizes |
| Properties: | Especially recommended for high UVA protection High performance against UV induced free radicals formation Efficient protection against longwave UV irradiation (UVA-I) High absorptivity Outstanding photostability Excellent formulation flexibility Good compatibility with cosmetic ingredients Soluble in a wide range of cosmetic oils and alcohol |

Applications:

Skin and sun care products





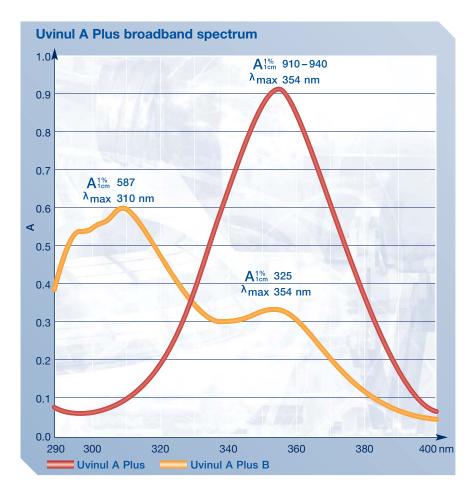


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Uvinul A Plus B

Innovative!

| INCI CAS: | Ethylhexyl Methoxycinnamate 5466-77-3 (and) Diethylamino Hydroxybenzoyl Hexyl Benzoate 302776-68-7 |
|---------------|---|
| Appearance: | Yellow liquid |
| General: | Min. 35 % – max. 37 % solution of Uvinul A Plus in Uvinul MC 80 Should be kept above 22 °C to avoid crystalization |
| Properties: | Easy to handle Miscible in a wide range of cosmetic oils and solvents Efficient protection against long wave UVA radiation and UVB light Broad-spectrum protection |
| Applications: | Skin and sun care products |



Uvinul M 40

| INCI CAS: | Benzophenone-3 131-57-7 |
|---------------|---|
| Appearance: | Light yellow powder |
| Properties: | Broadband UV absorption High photostability SPF boosting World-wide approved |
| Applications: | Skin, sun care products and product protection |

Uvinul MS 40

| INCI CAS: | Benzophenone-4 4065-45-6 |
|---------------|--|
| Appearance: | Off white fine powder |
| General: | Water-soluble UV absorber |
| Properties: | World-wide approved Broadband UV absorption |
| Applications: | Skin, sun care products and product protection |

Uvinul MC 80, MC 80 N

| INCI CAS: | Ethylhexyl Methoxycinnamate 5466-77-3 |
|---------------|---|
| Appearance: | Colorless to slightly yellow liquid |
| General: | MC 80: Stabilised with BHT MC 80 N: Unstabilised |
| Properties: | Outstanding purity (patented process) Odorless, suitable for perfume-free formulations Excellent solvent for other solid UV filters (e.g. Uvinul T 150, Uvinul A Plus) Freely miscible with cosmetic oils World-wide approved |
| Applications: | Skin and sun care products |

| Highest absorption of all available UVB absorbers |
|---|
| |

| INCI CAS: | Ethylhexyl Triazone 88122-99-0 |
|---------------|---|
| Appearance: | White to pale yellow powder |
| Properties: | Very high absorptivity Excellent photostability Soluble in polar cosmetic oils Extremely low skin penetration Protection against UVB induced immune suppression |
| Applications: | Skin and sun care products |

Uvinul N 539 T

| INCI CAS: | Octocrylene 6197-30-4 |
|---------------|--|
| Appearance: | Less yellowish viscous liquid |
| Properties: | SPF boosting in combination with other UVB absorbers (Uvinul MC 80 or Uvinul M 40) Excellent photostability Good solvent for other UV filters (e.g. Uvinul A Plus) Miscible with cosmetic oils World-wide approved |
| Applications: | Skin and sun care products |

Uvinul P 25

| INCI CAS: | PEG-25 PABA 113010-52-9 |
|---------------|--|
| Appearance: | at 50 °C: clear, slightly yellow to brownish yellow, viscous liquid |
| General: | Water-soluble |
| Properties: | Especially suitable for clear gels Non-ionic Mild to the skin Emollient properties Easy to handle liquid |
| Applications: | Sun care, hair care products, especially suitable for product protection |

Uvinul DS 49

| INCI CAS: | Benzophenone-9 3121-60-6 |
|---------------|-----------------------------|
| Appearance: | Light yellow powder |
| General: | Water-soluble UV absorber |
| Applications: | Only for product protection |

Z-COTE MAX

Innovative!

| INCI CAS: | Zinc Oxide 1314-13-2 (and) Dimethoxydiphenylsilane/ Triethoxycaprylylsilane Crosspolymer 827036-50-0 / 1343-98-2 |
|---------------|--|
| Appearance: | Odorless, lipophilic off white powder |
| Properties: | Unique compatibility with polyacrylate-based thickeners Superior formulation flexibility and stability Easy to disperse UVA-UVB broad-spectrum protection |
| Applications: | Suitable for sensitive skin/hypoallergenic formulations |

Z-COTE HP 1

| INCI CAS: | Zinc Oxide 1314-13-2 (and) Triethoxycaprylylsilane 2943-75-1 |
|---------------|---|
| Appearance: | Hydrophobic white powder |
| General: | Surface treated micronized zinc oxide |
| Properties: | Anti-irritant, especially for sensitive skin Strong synergistic effects with Uvinul T 150 Broadband UV absorption |
| Applications: | Suitable for sensitive skin/hypoallergenic formulations |

Z-COTE

| INCI CAS: | Zinc Oxide 1314-13-2 |
|---------------|---|
| Appearance: | Amphiphilic white powder |
| General: | Uncoated, micronized zinc oxide |
| Properties: | Anti-irritant, especially for sensitive skin Strong synergistic effects with Uvinul T 150 Broadband UV absorption |
| Applications: | Suitable for sensitive skin/hypoallergenic formulations |



T-Lite MAX

Innovative!

| INCI CAS: | Titanium Dioxide 13463-67-7 (and) Dimethoxydiphenylsilane 827036-50-0 (and) Triethoxycaprylylsilane Crosspolymer 1343-98-2 (and) Hydrated Silica (and) Aluminum Hydroxyde 21645-51-2 |
|---------------|--|
| Appearance: | Odorless white, polar/hydrophobic powder |
| Properties: | Carbomer compatible - providing the widest range of formulation possibilities Outstanding dispersibility Light non-tacky skin feel Excellent transparency |
| Applications: | Specially developed for daily care application Suitable for sensitive/hypoallergenic formulations |

T-Lite SF

| INCI CAS: | Titanium Dioxide 13463-67-7 (and) Aluminum Hydroxide 21645-51-2 (and) Dimethicone/Methicone Copolymer 68037-59-2 |
|---------------|--|
| Appearance: | Odorless white, hydrophobic powder |
| Properties: | Good dispersibility High compatibility with many oils and solvents Excellent transparency even at high concentrations (>8%) |
| Applications: | Skin care and sun care Suitable for sensitive skin/hypoallergenic formulations |

T-Lite SF-S

| INCI CAS: | Titanium Dioxide 13463-67-7 (and) Hydrated Silica 1343-98-2 (and) Dimethicone/Methicone Copolymer 68037-59-2 (and) Aluminum Hydroxide 21645-51-2 |
|---------------|---|
| Appearance: | Odorless white, hydrophobic powder |
| Properties: | Superior dispersibility High compatibility with many oils and solvents Good transparency even at high concentrations (>8%) |
| Applications: | Skin care and sun care Suitable for sensitive skin/hypoallergenic formulations |

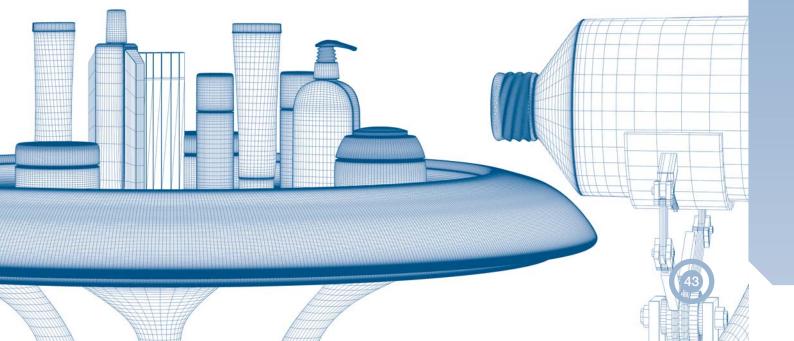




Uvinul M 40, Uvinul MS 40, Uvinul N 539 T, Uvinul P 25, Uvinul DS 49, Uvinul A Plus, Uvinul A Plus B

Properties:

- Protection of colorants against fading (particularly the broadband UV absorbers Uvinul A Plus B, Uvinul M 40 and Uvinul MS 40)
- Improvement of the stability of fragrances and active ingredients against oxidation
- Stabilization of the viscosity of gels and shampoos





The skin is exposed every day to various harmful influences such as UV radiation, smog, ozone and dry air. Cosmetic active ingredients and vitamins from BASF put a stop to this, as they deactivate free radicals, slow down the formation of fine lines and wrinkles, **retain skin m o i s t u r e and protect against premature aging of the skin as a result.**



Overview Actives Portfolio

| Trade name | Essential efficiency claims |
|--|--|
| Vitamin A Grades | Anti-aging, anti-wrinkle |
| Retinol Grades | Increases skin cell regeneration |
| RetiSTAR | Improves the appearance of the skin |
| Retinyl Palmitate, | Smoothens fine lines and wrinkles |
| Retinyl Acetate | |
| Vitamin E Grades | Effective oil-soluble antioxidant |
| Tocopherol | Protection from free radical damage |
| Tocopheryl acetate | Reduction of UV damage in skin cells |
| | Increases moisturization |
| Vitamin C | Antioxidant - Cell protection due to free radical deactivation |
| Sodium Ascorbyl Phosphate | Skin lightener |
| (SAP) | Increases collagen formation |
| Panthenol Grades | Moisturizer, soothing effect on irritated skin |
| D-Panthenol | |
| Bisabolol Grades | Anti-inflammatory |
| Bisabolol rac. | |
| Bisabolol nat. | |

Retinol Grades

| INCI CAS: | Retinol 15 D Caprylic/Capric Triglyceride 65381-09-1, 73398-61-5 (and) Retinol 68-26-8 Retinol 10 S Soybean (Glycine Soja) Oil 8001-22-7 (and) Retinol 68-26-8 Retinol 50 C Retinol 68-26-8 (and) Polysorbate 20 9005-64-5 RetiSTAR Caprylic/Capric Triglyceride 65381-09-1 (and) Sodium Ascorbate 134-03-2 (and) Tocopherol 10191-41-0 (and) Retinol 68-26-8 (see also next page) |
|---------------|---|
| Appearance: | Retinol 15 D 15% solution of retinol in caprylic/capric triglyceride; stabilised with 1% BHT Yellowish oil Retinol 10 S 10% solution of retinol in soybean oil; stabilised with BHT Yellowish oil, from which retinol may crystallize at low temperatures Retinol 50 C 50% blend of retinol and polysorbate 20; stabilised with BHT and BHA Yellowish oil RetiSTAR 5% solution of retinol in caprylic/capric triglyceride with the optimum combination of sodium ascorbate and tocopherol; provides stable retinol in the emulsion Yellow liquid dispersion (see also next page) |
| General: | Retinol, vitamin A-alcohol, is essential for the growth, development and structural integrity of skin and mucous membranes. It has a positive effect on the formation of new skin cells and thus improves the appearance of the skin; fine lines and wrinkles are smoothened. In addition, it acts against UV-induced skin-aging. |
| Properties: | Anti-photoaging, anti-wrinkling agent Helps to prevent the UV-induced formation of wrinkles Smoothens existing fine lines and wrinkles Improves the overall appearance of the skin Improves epithelization (thickens the epidermis) Normalises keratinization Increases mitotic activity Improves skin elasticity Normalises enzyme activity Counters the effects of aging |
| Applications: | For anti-aging and anti-wrinkles products. Helps to prevent the skin |

against photoaging.

RetiSTAR – Stabilised Retinol

| INCI CAS: | Caprylic/Capric Triglyceride 65381-09-1(and) Sodium Ascorbate 134-03-2 (and) Tocopherol 10191-41-0 (and) Retinol 68-26-8 |
|-------------|--|
| Appearance: | Yellow liquid dispersion |
| General: | RetiSTAR is an oil dispersion providing stable retinol. It consists of a combination of the vitamins A, C and E that requires no inert gas atmosphere during emulsion preparation or packaging. The optimum combination of sodium ascorbate and tocopherol provides highly stable retinol in your emulsions. It can be added as any other cosmetic ingredient below 50 °C. The packaging should provide a sufficient barrier against oxygen. |
| Properties: | Provides stable retinol in cosmetic emulsions Requires no inert gas during manufacturing and packaging Reduces costs of manufacturing More flexibility for formulations Improves epithelization (thickens the epidermis) Normalises keratinization Increases mitotic activity Improves skin elasticity Normalises enzyme activity Counters the effects of aging |
| | |

40 0 3 6 9 Storage time/weeks Unstabilized retinol without inert gas Unstabilized retinol under argon RetiSTAR (without inert gas)

Vitamin A Esters

| INCI CAS: | Vitamin A Palmitate 1.7 mio. IU/g Retinyl Palmitate 79-81-2 Vitamin A Palmitate 1.0 mio. IU/g Retinyl Palmitate 79-81-2 (and) Sunflower (Helianthus Annuus) Seed Oil 8001-21-6 Vitamin A Acetate 1.5 mio. IU/g Retinyl Acetate 127-47-9 (and) Sunflower (Helianthus Annuus) Seed Oil 8001-21-6 |
|---------------|--|
| Appearance: | At room temperature, a viscous yellow oil, from which vitamin A esters can partially crystallize. Vitamin A acetate 1.5 mio. IU/g and vitamin A palmitate 1.0 mio. IU/g are adjusted by adding pharmaceutical grade sunflower seed oil. Insoluble in water. Soluble in hydrocarbons, ethers, fats and oils. In aqueous-alcoholic preparations, the use of solubilizers (e.g. Cremophor RH 40 or Cremophor CO 40) is necessary. |
| General: | Vitamin A esters are used in skin care products especially in facial products, for the improvement of the general skin texture. Vitamin A palmitate 1.7 mio. IU/g 3 different versions: unstabilised, stabilised with tocopherol and BHT. Vitamin A palmitate 1.0 mio. IU/g 2 different versions: stabilised with tocopherol and BHT. Vitamin A palmitate 1.5 mio. IU/g only stabilised with BHT. |
| Properties: | Improves epithelization (thickens the epidermis) Normalises keratinization Increases mitotic activity Improves skin elasticity Normalises enzyme activity Counters the effects of aging |
| Applications: | For cosmetic oils and emulsions (creams, lotions, body milk, gels, etc.) as well as other preparations (lipsticks, masks, etc.). All forms of vitamin A esters require adequate stabilisation in cosmetic preparations. This can be best achieved by using inert gas and oxygen- |

impermeable packaging.

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Vitamin E Grades

| INCI CAS: | Vitamin E Tocopherol 10191-41-0 Vitamin E acetate Tocopheryl Acetate 7695-91-2 |
|---------------|---|
| Appearance: | Colorless or yellow to brown, viscous, practically odorless oils. Soluble in hydrocarbons, alcohols, fats and oils; insoluble in water. In aqueous and aqueous-alcoholic preparations (toners, gels etc.), solubilizers, such as Cremophor RH 40 or Cremophor CO 40, are necessary. |
| General: | Vitamin E is frequently used as a cosmetic antioxidant. Tocopherol is sensitive to light and air. It can be used to stabilize cosmetic formulations. In cosmetic preparations, it is possible to increase the antioxidizing effect by combination with complexing agents (such as citric acid). Tocopheryl acetate is more stable than tocopherol. It is used for the protection of skin. It is cleaved in the skin enzymatically to tocopherol. In order to guarantee vitamin efficiency on the skin tocopheryl acetate is primarily used. |
| Properties: | Vitamin E Protects cosmetic formulations from oxidation Reduces lipid peroxidation Vitamin E acetate Antioxidant – Prevents skin damage by free radicals Reduces lipid peroxidation Has an anti-inflammatory effect Increases the moisture-retaining ability of the epidermis Improves the skin's surface relief and feel (softness, suppleness) |
| Applications: | For the use in cosmetic emulsions, such as sunscreen preparations, body lotions, hand creams, body creams, day and night facial creams, multi-vitamin creams. Also in skin oils or decorative cosmetics (lip care sticks, mascara, eyeshadow, blusher, powder, make-up). |

lotion

Initial value

Emulsion

4 weeks

3 months

Sodium Ascorbyl Phosphate

| INCI CAS: | Sodium Ascorbyl Phosphate 66170-10-3 |
|---|---|
| Appearance: | White to pale beige powder with practically no odor. At least 45 % vitamin C content (HPLC). Extremely soluble in water (high dissolution rate). |
| General: | Sodium Ascorbyl Phosphate is a stable vitamin C derivative for use in high-activity skin care products. In the skin vitamin C is released by enzymatic cleavage. |
| Properties: | Antioxidant – protects skin cells and extracellular matrix: as a reductive substance, vitamin C can capture aggressive oxidants and free radicals in the skin and deactivate them. Collagen booster – promotes skin elasticity Skin lightening – inhibits melamin formation Vitamin C is able to suppress pigmentation of the skin and decrease melanin formation. It thus prevents the formation of freckles, moles and age spots. Synergistic anti-oxidant effect with vitamin E acetate |
| Applications: | Any kind of skin care products: creams, lotions, gels, etc. – daily care products, preparations to protect against sunburn, care products to protect against everyday environmental influences, preparations to lighten the skin, cosmetics to conceal freckles and age spots, vitamin creams. |
| 5. | Phosphate in different formulations at 20 °C, pH 6.5: |
| 2 1 0 52/00078NDE-Face 53/0018 | 34NDE- 53/00186NDE-W/O- 62/00053NDE-O/W- 62/00061NDE-O/W- 62/00062NDE-O/W- |

Emulsion

7 months

When the formulations were kept at 40 °C, they became discolored after about 2 months, and assumed a pale beige color. Finished product should therefore be stored at temperatures below 25 °C.

9 months 11 year

Emulsion

Emulsion

Emulsion

Panthenol Grades (Pro Vit. B₅)

| INCI CAS: | D-Panthenol, USP Panthenol 81-13-0 D-Panthenol 50 P Panthenol 81-13-0 (and) Propylene Glycol 57-55-6 D-Panthenol 75 W Panthenol 81-13-0 (and) Water 7732-18-5 |
|-------------|---|
| Appearance: | D-Panthenol, USP: colorless, clear, somewhat hygroscopic liquid with high viscosity (may solidify on prolonged storage) D-Panthenol 50 P: colorless, clear liquid with low viscosity (50 % D-Panthenol solution in 1,2-propylene glycol) D-Panthenol 75 W: clear liquid (75 % D-Panthenol solution in water, stabilized with citric acid) |
| General: | D-panthenol is the provitamin of D-pantothenic acid (vitamin B5). D-pantothenic acid plays a key role in the human body. It is part of the coenzyme A which is important for the structure and function of living tissue, for the resistance of mucous membranes as well as for growth and pigmentation of hair. Deficiency of vitamin B5 results in diverse dermatological disorders. Because of its physical properties, it can easily be incorporated into all customary cosmetic formulations. It penetrates into both skin and hair to a high degree where it exerts the effects required by manufacturers and consumers. Compared with pantothenic acid, D-panthenol has improved stability, in particular in liquid formulations. Panthenol is readily soluble in water, ethanol and 1,2-propylene glycol and is insoluble in oils and fats. It is stable at room temperature and stable against light and air. Above 70 °C, partial racemization and cleavage to aminopropanol occurs. Recommended pH range: 4–8. |

Properties:

Skin care

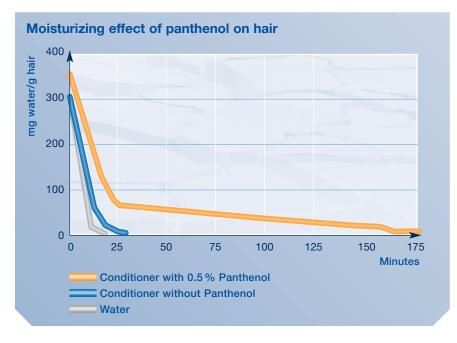
- Prevents vitamin B5 deficiency
- Improves and increases the moisture-retaining ability of the skin (long lasting moisturizer)
- Dry skin remains supple and elastic
- Improves wound healing (alleviates skin irritation and redness; minor wounds, skin grazes and bruises heal more quickly)
- Stimulates epithelization and pigmentation
- O Improves normal keratinization of the skin

Hair care*

- O Imparts elasticity, shine and long lasting moisture to the hair
- Reduces split ends
- Improves the condition of damaged hair (e.g. caused by washing and brushing)
- O Prevents the hair from drying out
- O Improves the combability of the hair

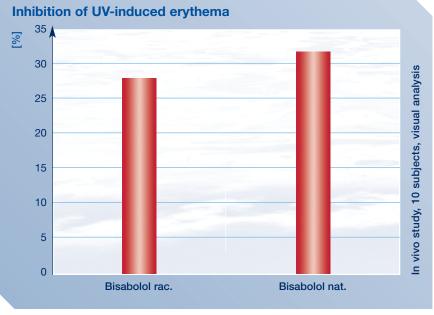
Applications:

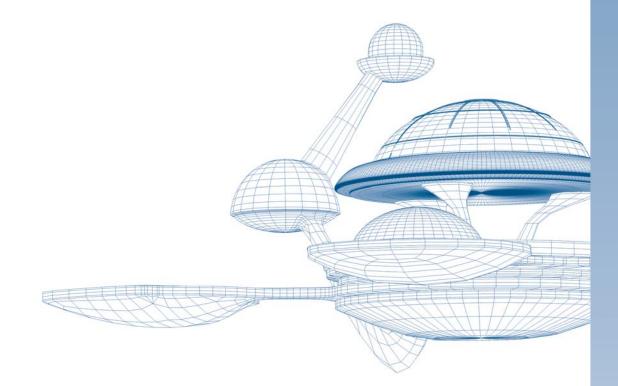
Ideal for use in modern skin care products, such as sunscreen preparations, after sun products, skin creams for daily use, night creams, multivitamin creams, body lotions, gels; it is as well ideal for use in modern haircare products, such as hair sprays, hair-setting products, hair mousses, hair rinses and shampoos.



*please see additional benefits in combination with Luviquat Supreme at page 26

Bisabolol Grades







57

With our Cremophor, Pluracare and Jordapon grades we offer a range of surfactants that can be **used as emulsifiers, solubilizers and c I e a n s i n g agents.**

bonding not breaking

Jordapon Grades

| INCI CAS: | Jordapon Cl Prill Sodium Cocoyl Isethionate 61789-32-0 Jordapon Cl P Sodium Cocoyl Isethionate 61789-32-0 |
|-------------|---|
| Appearance: | Jordapon CI Prill Granular Jordapon CI P Powder |
| General: | Jordapon CI Prill and Jordapon CI P offer the highest available level of actives. Jordapon CI Prill is a low-dusting granular form, and Jordapon CI P is a fine particle-size, flowable powder. All the Jordapon surfactant products are environmentally responsible compounds, which are based on purified fatty acids derived from natural coconut oil. The flake forms contain vegetable-based stearic acid. Our manufacturing process produces no hazardous or environmentally threatening by-products, and Jordapon surfactants themselves are completely biodegradable. |
| Properties: | All Jordapon Grades are mild to skin and eyes are excellent foamers in hard or soft water impart a soft afterfeel to the skin have a mild odor are based upon fatty acids from natural, renewable coconut oil are completely biodegradable have limited water solubility are available in high-active powder and high-active granular |

Pluracare E Grades

INCI CAS:

 Pluracare E 200

 PEG-4 | 25322-68-3

 Pluracare E 400

 PEG-8 | 25322-68-3

 Pluracare E 600

 PEG-12 | 25322-68-3

 Pluracare E 1500 Flakes

 PEG-32 | 25322-68-3

 Pluracare E 1500 Melt

 PEG-32 | 25322-68-3

 Pluracare E 4000 Flakes

 PEG-90 | 25322-68-3

General:

Pluracare E 200-600 readily dissolve numerous substances that are sparingly soluble in water. For this reason, the liquid Pluracare E grades are primarily used as solvents for liquid preparations. Pluracare E 1500 and 4000 are binders, solubilizers and absorption promoters for substances that are insoluble or sparingly soluble in water, e.g. oil-soluble vitamins. The Pluracare E grades are also used as non-irritating humectants and

The Pluracare E grades are also used as non-irritating humectants and moisturizers in cosmetic formulations.

Pluracare F 127

 INCI | CAS:
 Poloxamer 407 | 9003-11-6

 General:
 Pluracare F 127 is used as a mild surfactant, thickener, gelling agent, coemulsifier and bodying agent in creams and liquid emulsions. Another application is as a solubilizer for certain active ingredients and essential oils in cosmetic formulations.

 Due to their good toxicological profile and their low eve irritancy the

Due to their good toxicological profile and their low eye irritancy the Pluracare grades are suitable for cleansing applications, and are even used in products for contact lens cleansing.

Cremophor Grades

| Solubilizers | |
|--------------|--|
| INCI CAS: | Cremophor CO 40 Cremophor RH 40 (pharmaceutical grade) PEG-40 Hydrogenated Castor Oil 61788-85-0 Cremophor CO 410 Cremophor RH 410 (pharmaceutical grade) Contains 10 % water PEG-40 Hydrogenated Castor Oil 61788-85-0 Cremophor CO 455 Contains 5 % water and 5 % propylene glycol PEG-40 Hydrogenated Castor Oil (and) Propylene Glycol 61788-85-0, 57-55-6 Cremophor CO 60 Cremophor RH 60 (pharmaceutical grade) PEG-60 Hydrogenated Castor Oil 61788-85-0 Cremophor EL PEG-35 Castor Oil 61791-12-6 |
| Appearance: | Cremophor CO 40 Cremophor RH 40 (pharmaceutical grade) Viscous liquid or soft paste Cremophor CO 410 Cremophor RH 410 (pharmaceutical grade) Viscous liquid Cremophor CO 455 Viscous liquid Cremophor CO 60 Cremophor RH 60 (pharmaceutical grade) Viscous liquid or soft paste Cremophor EL Pale yellow viscous liquid |
| General: | Effective solubilizers which can be used for aqueous or aqueous-alcoholic solutions which are enriched with fragrances or essential oils. Also effective in making products which may be improved by the addition of hydrophobic vitamins or speciality active ingredients. Cremophor CO 410 and CO 455 are also suitable as co-emulsifiers for formulating emulsions prepared without heat; this can result in a more cost-effective and time-saving production. |
| Properties: | Effective in low concentrations Easy to handle Can also be used as a co-emulsifier (stabilizing effect) Manufactured, filled and analysed to GMP-conditions All ingredients are plant-derived or from a synthetic source |

Emulsifiers

| INCI CAS:: | Cremophor A 6: Ceteareth-6 (and) Stearyl Alcohol 68439-49-6 Cremophor A 25: Ceteareth-25 68439-49-6 | | |
|----------------|--|---|--------------|
| Appearance: | Cremophor A 6: White wax Cremophor A 25: White microbeads | | |
| General: | The O/W emulsifier-"team" of Cremophor A 25/A 6 offers considerable advantages for formulating stable emulsions. | | |
| Properties: | Freedom in the choice of oil polarities (nearly unlimited use of a wide variety of different oils) Flexibility of viscosity control by varying the concentration of Cremophor A 6. Creams and lotions can be prepared easily Cosmetic brilliance as a result of the white and glossy texture, which this emulsifier combination produces | | |
| INCI CAS: | Cremophor WO 7: PEG-7 Hydrogenated Castor Oil 61788-85-0 | | |
| Appearance: | Cloudy, slightly yellow, viscous liquid | | |
| General: | Emulsifier for W/O creams and lotions. Ideal for soft emulsions and low- viscosity body lotions. Also suitable for cold emulsification processes. | | |
| INCI CAS: | Cremophor GS 32: Polyglyceryl-3 Distearate 94423-19-5 | | |
| Appearance: | White powder | | |
| General: | PEG-free emulsifier for O/W creams and lotions, especially for the use in sunscreen preparations and hypoallergenic cosmetic products. | | |
| Emulsion type: | o/wCremophor A 6Cremophor A 25Cremophor WO 7Cremophor GS 32 | • | PEG-free o/w |

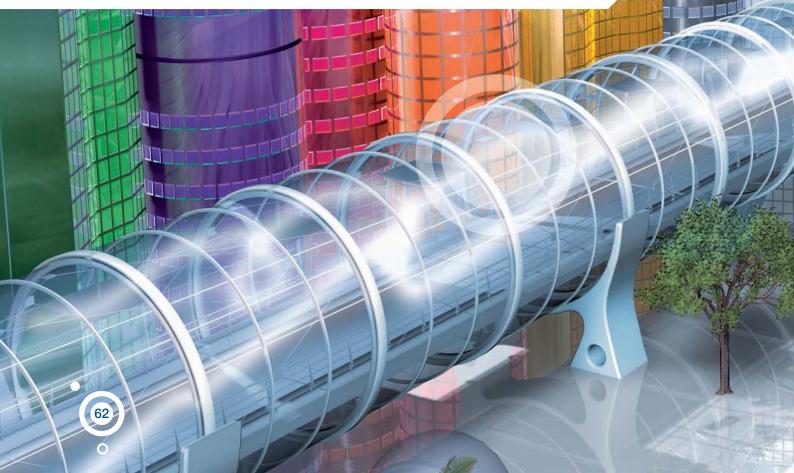
The entire line at a glance

| | Trade name | | Supplied as | HLB |
|--------------|-------------------------|---------------------------------|------------------------------|---------|
| 10 | Cremophor CO 40/RH 40 | PEG-40 Hydrogenated Castor Oil | Viscous liquid or soft paste | 14 – 16 |
| zers | Cremophor CO 60/RH 60 | PEG-60 Hydrogenated Castor Oil | Viscous liquid or soft paste | 15 – 17 |
| Solubilizers | Cremophor CO 410/RH 410 | PEG-40 Hydrogenated Castor Oil | Viscous liquid | 14–16 |
| olu | Cremophor CO 455 | PEG-40 Hydrogenated Castor Oil | Viscous liquid | 14–16 |
| S | | and Propylene Glycol | | |
| | Cremophor EL | PEG-35 Castor Oil | Pale yellow viscous liquid | 12-14 |
| | | | | |
| | Cremophor A 6 | Ceteareth-6 and Stearyl Alcohol | White wax | 10-12 |
| lieu | Cremophor A 25 | Ceteareth-25 | White microbeads | 15–17 |
| lsit | Cremophor WO 7 | PEG-7 Hydrogenated Castor Oil | Cloudy, slightly yellowish | ca. 5 |
| Emulsifiers | | | viscous liquid | |
| | Cremophor GS 32 | Polyglyceryl-3 Distearate | White powder | ca. 9 |

BASF offers a wide range of special effect pigments for cosmetic and personal care applications. These pigments provide a broad spectrum of optical effects, enabling you to add exceptional luxury and visual impact to **your cosmetic and personal care formulations.**

add dramatic effects

C





Sicovit Grades

| Product | Color Index | INCI name | CAS: |
|---|------------------------------------|--|---|
| Sicovit Red 30 E 172 | 77491 | C.I. 77491, Iron Oxides | 1309-37-1 |
| Sicovit Yellow 10 E 172 Sicovit Brown 70 E 172 | 77492 77491 +77492 +77499 | C.I. 77492, Iron Oxides Iron Oxides | 51274-00-1 1309-37-1 + 51274-00-1 + 12227-89-3 |
| Sicovit Brown 75 E 172 | 77491 +77499 | Iron Oxides | + 12227-09-3 1309-37-1 + 12227-89-3 |
| Sicovit Black 80 E 172 | 77499 | C.I. 77499, Iron Oxides | 12227-89-3 |
| Sicovit Black 85 E 172 | 77499 | C.I. 77499, Iron Oxides | 12227-89-3 |

General:

Colorants for food, drugs and cosmetic products



Effect Pigments

With the acquisition of Engelhard, we now provide a complete line of special effect pigments that add extraordinary visual impact and a look worthy of truly innovative cosmetic and personal care products.

Whether adding opalescence to lipstick or shampoo, or dramatic shimmer to nail polish or body lotions, our effect pigments create looks ranging from soft luster to brilliant sparkle. These novel products can also add complex color, visual depth and dimensionality to your products.

For more information on our broad range of effect pigments, please contact us at the toll free phone number 00800 2273 4444.



BASF offers thickeners, emollients, neutralizers and solvents, which are used in almost all cosmetic applications and **form an i n d i s p e n s a b l e part of the final formulation.**

essential for excellent formulations



Luvigel EM

| INCI CAS: | Caprylic/Capric Triglyceride (and) Sodium Acrylates Copolymer 65381-09-1, 73398-61-5, 9033-79-8 |
|---------------|---|
| Appearance: | Water in oil emulsion |
| General: | Luvigel EM is a pre-neutralized crosslinked sodium acrylates copolymer that does not require pre-swelling, and can be used in emulsions for fast viscosity build-up. Composition: 23-27 % polymer content, 49-52 % water and oil ad 100. |
| Properties: | Saves manufacturing time/Eliminates the need for pre-swelling Readily pourable into formulation at any stage Allows post-addition for viscosity adjustments Easy to handle – no dusting Not shear sensitive |
| Applications: | Luvigel EM is recommended as thickening agent in skin care: O/W emulsions, creams, lotions hair care: pomades, alternative styling aids and aqueous gels (non clear) Recommended usage: 0.1 to 1.0 % polymer |

Luvitol EHO

| INCI CAS: | Cetearyl Octanoate N/A |
|-------------|--|
| Appearance: | Clear, colorless oil |
| General: | Luvitol EHO is easy to emulsify, improves the spreadability of cosmetic emulsions, softens and smoothens the skin. |

Luviform FA 139

| Chemical description: | Copolymer of methylvinylether and maleic acid, approx. 26 % in water |
|-----------------------|--|
| INCI CAS: | PVM/MA Copolymer 9011-16-9 |
| Appearance: | Clear, yellowish viscous liquid |
| General: | Luviform FA 139 can be used in a wide range of cosmetic applications as binder, complexing agent, adhesive, film former etc. |

1,2-Propylene Glycol Care

| INCI CAS: | Propylene Glycol 57-55-6 |
|-----------|---|
| General: | Water-miscible, odorless solvent of low volatility and very high purity. Particularly suitable for cosmetic applications. |

Dipropylene Glycol Care

| INCI CAS: | Dipropylene Glycol 25265-71-8 |
|-----------|--|
| General: | Low volatility, water-miscible solvent and moisture-retaining agent for cosmetic applications. |

n-Propanol purest

INCI CAS:

Propyl Alcohol | 71-23-8

General:

Moderately volatile, polar solvent of very high purity with a mild odor, especially suitable for cosmetic applications.

Monoethanolamine Care

| INCI CAS: | Ethanolamine 141-43-5 |
|-----------|--|
| General: | The product conforms to the requirements of the EU Cosmetics Regulations. Colorless liquid with a slightly amine like odor, suitable for cosmetic appli- cations and especially for hair colors and formulations that accept higher pH values. |

Triethanolamine Grades

| INCI CAS: | Triethanolamine Care Triethanolamine 90% Care (contains approx. 10% water) INCI: Triethanolamine 102-71-6 |
|-----------|--|
| General: | Triethanolamine Care and Triethanolamine 90% Care surpass the European requirements for diethanolamine content and nitrosamine content. Almost colorless liquids, miscible with water and alcohols. Widely used neutralizing agent for skin and hair care preparations. Especially for the gel production used to neutralize polyacrylic acid (Carbomer). |

Neutrol TE

| INCI CAS: | Tetrahydroxypropyl Ethylenediamine 102-60-3 |
|-------------|--|
| Appearance: | Clear, viscous, almost odorless liquid |
| General: | Neutrol TE is recommended as neutralization agent, especially for carbomer based gels. |
| | Gels formulated with Neutrol TE feature high alcohol compatibility and stimulate a pleasant, non-sticky sensation on the skin. It has been demonstrated that the tendency of Neutrol TE to form nitrosamines is significantly lower than other commonly used amine containing neutralization agents. |



Edeta B Grades

| | Edoto P. powdor |
|-------------|--|
| INCI CAS: | Edeta B powder Na⊿EDTA |
| | Tetrasodium EDTA 64-02-8 |
| | Edeta BD |
| | Dihydrate of the disodium salt of EDTA |
| | Disodium ETDA 139-33-3 |
| | Edeta BS |
| | H ₄ EDTA |
| | EDTA 60-00-4 |
| Appearance: | Edeta B powder |
| | White Powder |
| | Edeta BD |
| | White Powder |
| | Edeta BS |
| | White Powder |
| General: | The Edeta B grades are aminocarboxylic acids with six functional groups whose characteristic reactions enable them to form complexes. They sequester undesirable metal ions in cosmetic preparations, thus protecting against metal ion catalysed oxidation of lipids and colorants, and preventing |
| | from precipitation of the salts, which are responsible for water hardness. |

Edeta BD and Edeta BS represent the grades with the lowest formaldehyde level.

Note

The data submitted in this publication are based on our current knowledge and experience. They do not constitute a guarantee in the legal sense of the term and, in view of the manifold factors that may affect processing and application, do not relieve processors of the responsibility of carrying out their own tests and experiments. Any relevant patent rights and existing legislation and regulations must be observed.

Cosmetic Solutions

Our assortment of cosmetic ingredients comprises UV filters, active ingredients, cosmetic polymers and effect pigments. With that range of high quality products we are the partner to the cosmetic industry in the areas of skin and sun care, hair and oral care as well as color cosmetics. On top of our cosmetic ingredients we are offering a comprehensive range of aroma chemicals which are used by the Flavor & Fragrance industry amongst others in the manufacture of fragrance compounds for cosmetics, detergents and household cleansing products.

No warranties are made that the formulation example may be used without infringing the intellectual property rights of third parties. In any case, it lies within the responsibility of the user to examine the respective patent situation.

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The Chemical Company