



ACUDYNE™ LT-120 Hair Fixative Polymer

Maximum hold with stiff feel and excellent humidity resistance

Description

Introducing ACUDYNE™ LT-120 Hair Fixative Polymer. ACUDYNE LT-120 is an excellent choice for extreme hair styling products, such as, hair gels, styling aids, and sprays because it offers a stiff hold with maximum humidity resistance and does not flake.

Advantages

- Maximum hold with stiff feel
- Excellent humidity resistance
- Low tack and fast dry time
- Forms a smooth coating on hair shaft for non-flaking performance without the use of plasticizers
- Washes out easily and, therefore, will not build up on hair

Formulating with ACUDYNE™ LT-120 Hair Fixative Polymer

- Low viscosity, water soluble emulsion is easy to handle and readily disperses in aqueous phase
- Upon neutralization dissolves to form clear water or water/ethanol solutions
- Low formulation viscosity delivers desired spray aesthetics
- Non-corrosive to tin-plated cans

Recommended Applications

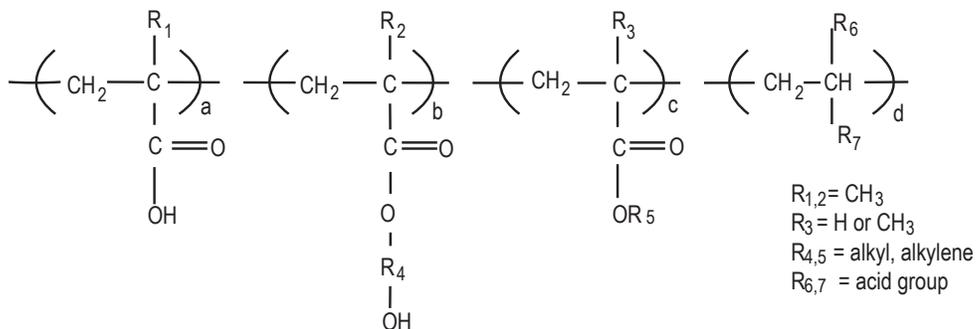
The stiff feel of ACUDYNE™ LT-120 Hair Fixative Polymer and excellent humidity resistance delivers superior performance across a broad range of styling formulations.

- Aerosol and pump sprays across entire range of VOC levels (0% VOC – 90% VOC)
- Aerosol and non-aerosol mousse
- Styling gels including alcohol-containing gels
- Variety of styling aids, such as, pomades, waxes, puttys, lotions, creams, etc.

Chemical Properties

ACUDYNE™ LT-120 Hair Fixative Polymer is an aqueous emulsion polymer derived from methacrylic acid, alkene succinic acids, alkyl and hydroxyl alkyl esters of acrylic and methacrylic acid. The choice of monomers and their levels was optimized to deliver a stiff, non-tacky, humidity resistant film, with low formulation viscosity for aesthetic spray characteristics.

Structure



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 ACUDYNE™ LT-120 Hair Fixative Polymer

Physical Properties

The following are typical properties of ACUDYNE™ LT-120 Hair Fixative Polymer; they are not to be considered product specifications.

Trade name: ACUDYNE™ LT-120 Hair Fixative Polymer
INCI Name: Acrylates/C1-2 Succinates/
Hydroxyacrylates Copolymer
Solids: 46.00 - 47.50%
pH: 2.05 - 3.20
Acid level, mmoles/gram active: 2.05 - 2.50
Molecular weight: 120,000
Preservative: 0.75% Benzoic Acid
Viscosity, cps at 25°C:
As supplied, Brookfield LV, spindle #1, 60 rpm <50 mPas

Spray Performance Data

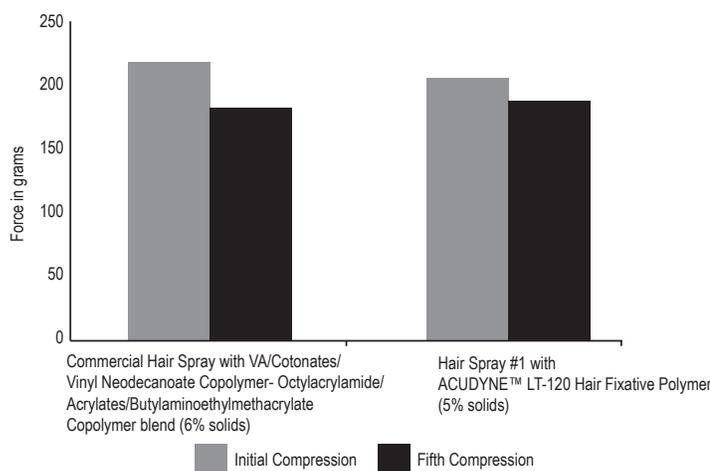
Stiffness

Test Method: Dia-Stron Compression Durability Test
Conditions: 25°C and 50% Relative Humidity

ACUDYNE™ LT-120 Hair Fixative Polymer imparts a stiff feel to hair as shown in the Dia-Stron experiment, where curled tresses were compressed 25% to evaluate stiffness. (Figure 1)

In this study, hair tresses were roller set and treated with a 55% VOC formula containing 5% solids of ACUDYNE LT-120 and a commercial 55% VOC ultra hold texturizing hair spray (~6% solids) and curls were compressed by 25% to evaluate stiffness. At lower solids, the ACUDYNE LT-120 spray showed comparable stiffness and better curl retention than the competitive resins formulation.

Figure 1: Hair Spray Stiffness Evaluation via Dia-Stron



Humidity Resistance

Test Method: High Humidity Curl Retention
Conditions: 24 hours at 85% Relative Humidity and 30°C

The unique polymer design of ACUDYNE LT-120 allows it to be formulated into a water-containing formulation, yet be fast drying and extremely resistant to humidity once dried.

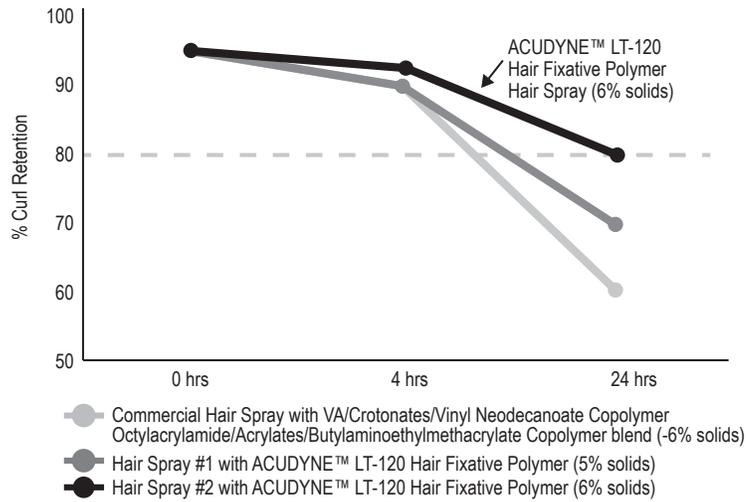
Hair tresses were roller set and treated with ACUDYNE LT-120 in a 55% VOC hair spray formulation and a commercial 55% VOC ultra hold hair spray. The tresses were subjected to a humidity chamber at 30°C and 85% Relative Humidity and curl retention was measured over 24 hours. (Figure 2)

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ACUDYNE™ LT-120 Hair Fixative Polymer

The ACUDYNE™ LT-120 Hair Fixative Polymer #1 spray formulation (5% solids) has better curl retention after 24 hrs than a higher solids commercial hair spray formulation (6% solids). At equal solids compared to commercial hair spray, the ACUDYNE LT-120 #2 spray formulation (6% solids) retained 80% of the curl after 24 hrs.

Figure 2: Hair Spray Humidity Resistance Evaluation



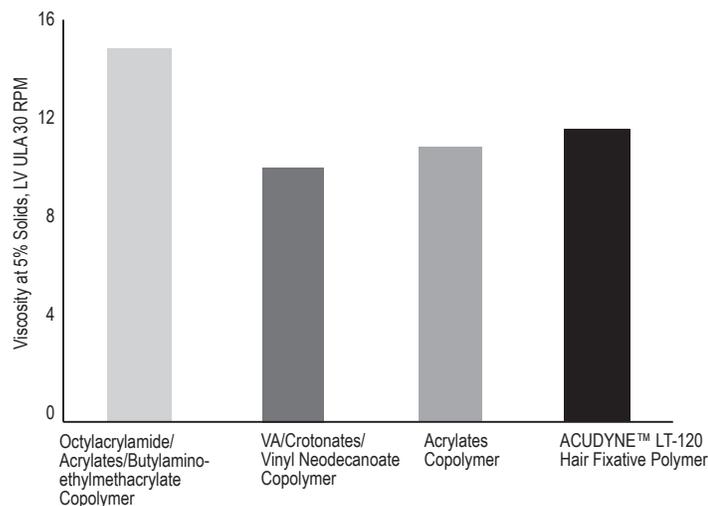
Formulation Viscosity and Dry Time

Test Method: Formulation Viscosity and Viscosity Build Analysis

In the 55% VOC aerosol and pump market, formulation viscosity has a significant impact on spray particle size. ACUDYNE LT-120, as other ACUDYNE hair fixatives, has low formulation viscosity which allows formulators to achieve desired spray characteristics required for aesthetics and surface coverage. Furthermore, to increase stiffness, higher levels of polymer can be incorporated without sacrificing spray aesthetics and drying. (Figure 3)

In a 55% VOC spray, ACUDYNE LT-120 builds viscosity quickly, allowing it to form stiff seam and spot welds and excellent hold. (Figure 4)

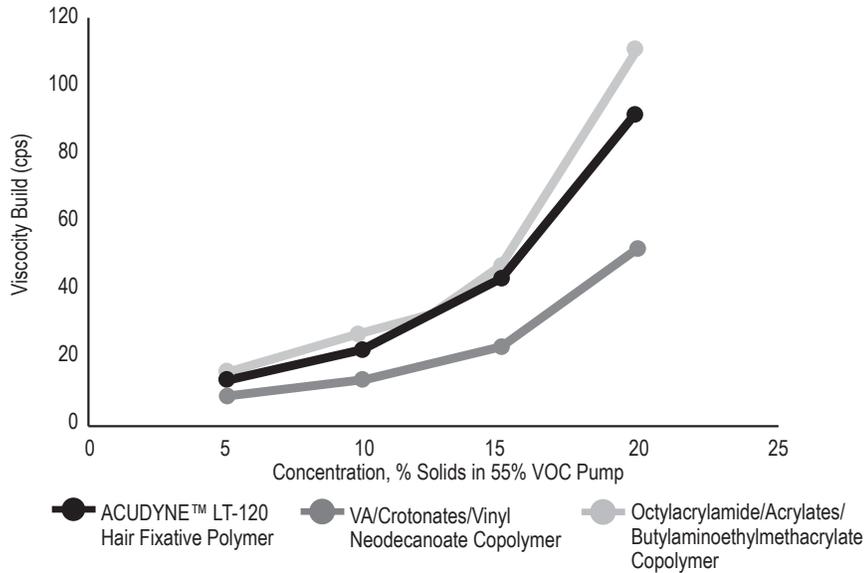
Figure 3: Hair Spray Formulation Viscosity Evaluation



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Figure 4: Hair Spray Viscosity Build During Drying



Gel Performance Data

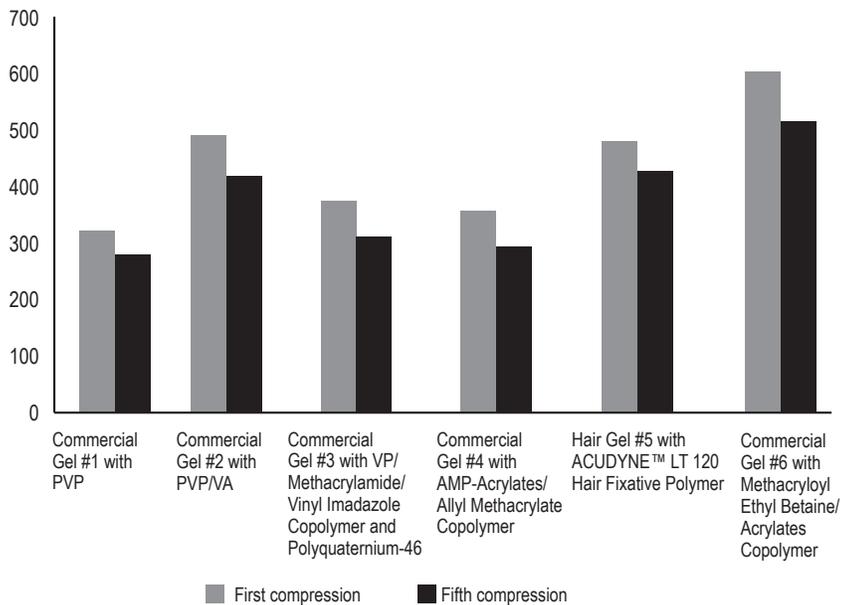
Stiffness

Test Method: Dia-Stron Compression Durability Test
Conditions: 25°C and 50% Relative Humidity

ACUDYNE™ LT-120 Hair Fixative Polymer imparts a stiff feel to hair as shown in the Dia-Stron experiment below, where curled tresses were compressed 25% to evaluate stiffness. (Figure 5)

In this study, hair tresses were roller set and treated with a hair gel containing 1.7% solids of ACUDYNE LT-120 and equal amounts of several commercial gels. Curls were compressed by 25% to evaluate stiffness. At significantly lower solids, the ACUDYNE LT-120 gel showed superior or comparable stiffness to all the commercial gels.

Figure 5: Hair Gel Stiffness Evaluation via Dia-Stron



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 ACUDYNE™ LT-120 Hair Fixative Polymer

Humidity Resistance

Test Method: High Humidity Curl Retention
Conditions: 72 hours at 85% Relative Humidity and 30°C

In this study, ACUDYNE™ LT-120 Hair Fixative Polymer, formulated into an extreme hold gel with ACULYN™ 88 Rheology Modifier, and several commercial extreme hold gels were evaluated for humidity resistance. The ACUDYNE LT-120 hair gel has outstanding humidity resistance with over 85% curl retention after 72 hours, compared to all commercial hair gels. (Figure 6, 7)

Figure 6: Hair Gel Humidity Resistance Evaluation

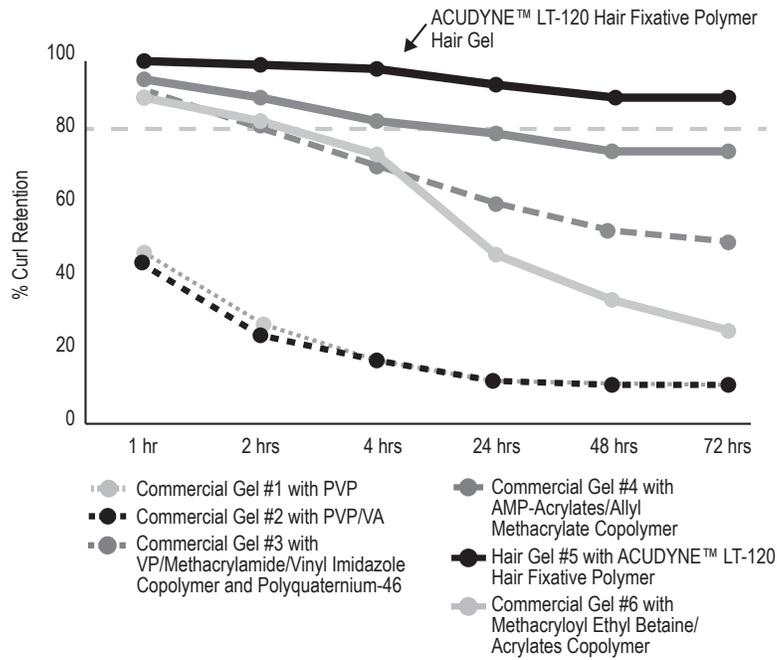
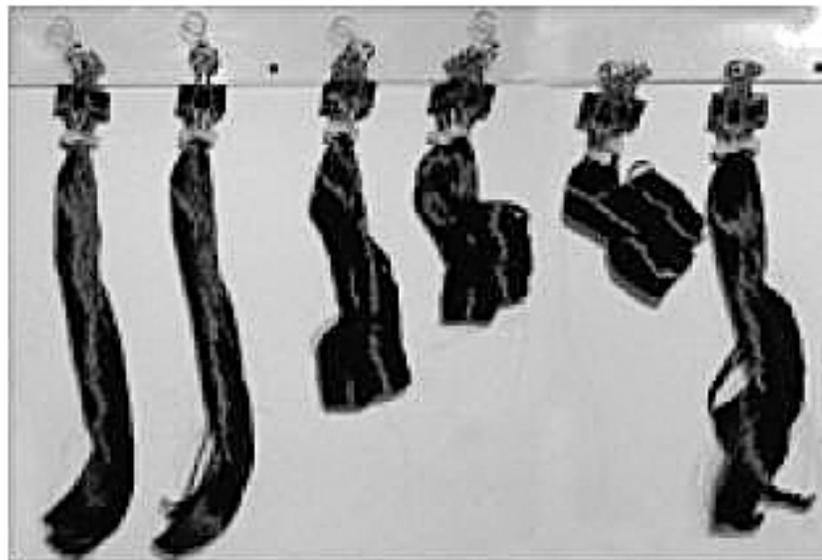


Figure 7: Hair Gel Humidity Resistance Evaluation
Conditions: 72 Hours at 85% Relative Humidity and 30°C



Commercial Gel #1 Commercial Gel #2 Commercial Gel #3 Commercial Gel #4 ACUDYNE™ LT-120 Hair Fixative Polymer (Gel #5) Commercial Gel #6



Formulation Clarity

ACUDYNE™ LT-120 Hair Fixative Polymer can be formulated into a crystal clear gel with ACULYN™ 88 Rheology Modifier for exceptional clarity.

Aesthetics

ACUDYNE LT-120 has excellent spreadability for high hold hair gels with a cleaner feel and less drag and no residue after combing.

Formulation Guidelines

Formulation Guidelines for Sprays

Recommended Use Levels	Compatibility	Order of Addition
<ul style="list-style-type: none"> • 6% solids in 55% VOC aerosols • 4% solids in 90% VOC aerosols • 6% solids in 55 - 90% VOC pumps • 5% solids in 0% VOC sprays 	<ul style="list-style-type: none"> • Compatible with anionic, nonionic (hair fixatives) and select cationic additives, such as, polyquaterniums and other conditioning agents • Propellants: Compatible with Dymel 152A, DME and blends of DME with hydrocarbons • Solvents: Compatible with acetone, ethanol and isopropyl alcohol • Non-corrosive to tin-plated cans although corrosion inhibitors are always recommended 	<ul style="list-style-type: none"> • Water • Ethanol • Neutralizer • Other high pH ingredients, i.e., Na₄EDTA • ACUDYNE™ LT-120 Hair Fixative Polymer • Other ingredients • If aerosol, propellant
<p>Neutralization</p> <ul style="list-style-type: none"> • 75-90% for 55% VOC aerosols • 60-85% neutralization for 55-90% VOC pumps and 80-90% VOC aerosols • Neutralize to pH 7.5 for 0% VOC sprays • Neutralizers: aminomethyl propanol, triisopropanolamine, triethanolamine, potassium hydroxide, sodium hydroxide 		

Formulation Guidelines for Non-Sprays

Recommended Use Levels

- 3% solids in clear styling gels when used with ACULYN™ rheology modifiers
- 2% solids in spray gels
- 3% in aerosol or non-aerosol mousse formulations
- 10% in various styling aids

Neutralization

- Neutralize to pH 7.5 for optimum performance in most non-spray formulations
- Neutralizers: aminomethyl propanol, triisopropanolamine, triethanolamine, potassium hydroxide, sodium hydroxide

Compatibility

- Compatible with anionic, nonionic (hair fixatives) and select cationic additives, such as, polyquaterniums and other conditioning agents
- Can be formulated with ACULYN rheology modifiers
- For optimum clarity and performance in gels, thickening with ACULYN rheology modifiers, such as, ACULYN 88 is particularly recommended.
- Solvents: Compatible with ethanol

Order of Addition

- Water
- Neutralizer
- Other high pH ingredients, i.e., Na₄EDTA
- ACUDYNE™ LT-120 Hair Fixative Polymer
- Other ingredients

Neutralization Calculations

$$\text{Grams of Neutralizer} = \frac{\text{Acid Level} \times \text{MW of Neutralizer} \times \text{Grams Polymer Solids} \times \% \text{ Desired Neutralization}}{\% \text{ Solids Neutralizer} \times 1000}$$

Example:

How many grams of AMP-95 (i.e., AMP-95 = 89g/mole Mw and 95% solids) is required to neutralize 5 grams of ACUDYNE™ LT-120 solids to 60% neutralization?

$$\text{Grams of AMP-95} = \frac{2.3 \times 89 \times 5 \times 60}{95 \times 1000}$$

$$\text{Grams of AMP-95} = 0.65 \text{ grams}$$

Formulations

Extra Firm Hold Aerosol Hair Spray Formulation, 55% VOC — Featuring ACUDYNE™ LT-120 Hair Fixatives

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	33.1	Water	
A	Ethanol	20.00	Alcohol	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	10.40	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.80	Aminomethyl Propanol	ANGUS
A	Dow Corning 193 Fluid	0.20	PEG-12 Dimethicone	Dow Corning
A	Monacor BE	0.30	MEA Borate and MIPA Borate	Uniqema
A	Fresh	0.20	Fragrance	Custom Essence
B	Dymel A	35.00	Dimethyl Ether	DuPont

(*) This corresponds to 75% neutralization.

Processing Instructions

1. Add the alcohol and water to the mixing vessel, followed by the AMP ULTRA PC 2000.
2. Add the ACUDYNE LT-120 to the mixing solution.
3. Add the Dow Corning 193 Fluid, Monacor BE, and fragrance to the mixing solution.
4. Charge under pressure the Dymel A.

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ACUDYNE™ LT-120 Hair Fixative Polymer

Equipment

Seaquist VX 81, stem orifice 0.016 length: 0.343", spring 0.018" SS, body orifice 0.013" Std VX, vapor tap 0.010", tubing ID 0.122" Actuator VX/XL 200 Misty, 0.023" Misty

Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.5-8.0	pH meter
Concentrate Viscosity	12.0-15.0 cps	Brookfield LV viscometer, Spindle #1, 60 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

Firm Hold 90% VOC Aerosol Hair Spray — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	0.40	Water	
A	Ethanol	55.00	Alcohol	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	8.30	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.70	Aminomethyl Propanol	ANGUS
A	Dow Corning 193 Fluid	0.20	PEG-12 Dimethicone	Dow Corning
A	Monacor BE	0.20	MEA Borate and MIPA Borate	Uniqema
A	Fresh	0.20	Fragrance	Custom Essence
B	Dymel A 3	5.00	Dimethyl Ether	DuPont

(*) This corresponds to 85% neutralization.

Processing Instructions

1. Add the alcohol and the water to the mixing vessel, followed by the AMP ULTRA PC 2000.
2. Add the ACUDYNE LT-120 to the mixing solution.
3. Add the Dow Corning 193 Fluid, Monacor BE, and fragrance to the mixing solution.
4. Charge under pressure the Dymel A.

Equipment

Seaquist VX 81, stem orifice 0.016 length: 0.343", spring 0.018" SS, body orifice 0.013" Std VX, vapor tap 0.010", tubing ID 0.122" Actuator VX/XL 200 Misty, 0.023" Misty

Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.5-8.0	pH meter
Concentrate Viscosity	7.0-12.5 cps	Brookfield LV viscometer, Spindle #1, 60 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

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ACUDYNE™ LT-120 Hair Fixative Polymer

Maximum Hold, Stiff Feel 55% VOC Pump Hair Spray — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	34.00	Water	
A	Ethanol	55.00	Alcohol	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	10.20	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.70	Aminomethyl Propanol	ANGUS
A	Fragrance	0.10	Fragrance	

(*) This corresponds to 70% neutralization.

Processing Instructions

1. Add the alcohol and the water to the mixing vessel, followed by the AMP ULTRA PC 2000.
2. Add the ACUDYNE LT-120 to the mixing solution.
3. Add fragrance as desired.

Equipment

Seaquist Perfect: Euromist Optima, 0.16 mL, Insert 0.014" x 0.010" deep, Dip tube 0.060" I.D.

Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.5-8.0	pH meter
Concentrate viscosity	10.5-15.0 cps	Brookfield LV viscometer, Spindle #1, 60 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

Firm Hold 90% VOC Aerosol Hair Spray — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Ethanol	90.00	Alcohol	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	9.30	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.60	Aminomethyl Propanol	ANGUS
A	Fragrance	0.10	Fragrance	

(*) This corresponds to 65% neutralization.

Processing Instructions

1. Add the alcohol and the water to the mixing vessel, followed by the AMP ULTRA PC 2000.
2. Add the ACUDYNE LT-120 to the mixing solution.
3. Add fragrance as desired.

Equipment

Seaquist Perfect: Euromist Optima, 0.16 mL, Insert 0.014" x 0.010" deep, Dip tube 0.060" I.D.

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ACUDYNE™ LT-120 Hair Fixative Polymer

Form No. 324-00591-0914 PS

Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.5-8.0	pH meter
Viscosity	7.0-12.0 cps	Brookfield LV viscometer, Spindle #1, 60 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

Extreme Strong Hold Hair Spray, 0% VOC

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Deionized water	84.25	Water	
A	AMP ULTRA PC 2000	0.82	Aminomethyl Propanol	ANGUS
A	VERSENE™ NA	0.05	Disodium EDTA	Dow
A	ACUDYNE™ LT-120 Hair Fixative Polymer	10.78	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
B	Croduret 50SP	1.00	PEG-40 Hydrogenated Castor Oil	Croda
B	Unipeg PG	0.50	Propylene Glycol	Fluka
B	Glycerin	0.50	Glycerin	Merck
C	Marula	0.30	Fragrance	Premier Specialties, Inc.
C	Montanox DF 20	1.20	Polysorbate-20	Seppic
C	NEOLONE™ PE	0.60	Phenoxyethanol and Methylisothiazolinone	Dow
C	Deionized water	q.s	Water	

(*) This corresponds to 75% neutralization.

Processing Instructions

1. Phase A, with mixing: Blend alcohol and water followed by the AMP ULTRA PC 2000. Mix slowly.
2. Phase B, with mixing at 400 rpm.
3. Solubilize fragrance with Montanox DF 20 in advance.
4. Phase C, with mixing: Add in solubilized fragrance, followed by NEOLONE™ PE into phase B and mix well.
5. Top up deionized water to make up 100%.

Formulation Characteristics

Parameter	Range	Method
Appearance	Clear	Visual
pH (as is)	7.20-7.70	pH meter
Viscosity (cps)	5-10	Spindle No.: LV#1 Speed 60 rpm
Stability	25°C and 45°C for 2 months	Visual

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ACUDYNE™ LT-120 Hair Fixative Polymer

Maximum Hold Stiff Hair Gel — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer and ACULYN™ 88 Rheology Modifier

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	45.00	Water	
A	AMP ULTRA PC 2000	0.85	Aminomethyl Propanol	ANGUS
A	ACUDYNE™ LT-120 Hair Fixative Polymer	3.70	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	NEOLONE™ MxP	0.50	Phenoxyethanol, Methylparaben Propylparaben, Methylisothiazolinone	Dow
B	Water	45.45	Water	
A	ACULYN™ 88	4.50	Acrylates/Steareth-20 Methacrylate Crosspolymer	Dow

(*) This corresponds to 100% neutralization.

Processing Instructions

1. Phase A, with mixing: blend water with AMP ULTRA PC 2000. Add slowly ACUDYNE LT-120 and NEOLONE MxP.
2. Phase B, with mixing: blend water with ACULYN 88.
3. Gradually add phase B to phase A with mixing.

Formulation Characteristics

Parameter	Range	Method
Appearance	Clear	Visual
pH (as is)	7.7	pH meter
Viscosity (cps)	18000 cps	Brookfield LV viscometer Spindle #6, 20 rpm
Stability	23°C, 3 weeks	Visual

Maximum Hold Spray Gel — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer and ACULYN™ 22 Rheology Modifier Stabilizer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	93.65	Water	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	4.0	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	Tween 20	0.5	Polysorbate-20	Uniqema
A	AMP ULTRA PC 2000	0.5	Aminomethyl Propanol	ANGUS
A	Fragrance	0.1	Fragrance	
B	NEOLONE™ PE	0.5	Methylisothiazolinone and Phenoxyethanol	Dow
B	ACULYN™ 22	0.75	Acrylates/Steareth-20 Methacrylate Crosspolymer	Dow

(*) This corresponds to 100% neutralization.

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ACUDYNE™ LT-120 Hair Fixative Polymer

Processing Instructions

1. Add the alcohol and the water to the mixing vessel, followed by the AMP ULTRA PC 2000.
2. Gradually add remaining phase A ingredients.
3. Add in ACULYN™ 22 Rheology Modifier/Stabilizer with stirring.

Equipment

Precision Valve: Santos Actuator, 0.012" MBU Natural Insert, Jumbo Dip tube, 0.18 mL dosage

Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.20-7.50	pH meter
Concentrate viscosity	4000-8000 cps	Brookfield LV viscometer, Spindle #6, 12 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

Alcohol-Free Mousse — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	92.66	Water	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	4.26	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
B	AMP ULTRA PC 2000	0.33	Aminomethyl Propanol	ANGUS
C	D-Panthenol 50P	0.20	Aminomethyl Propanol	Dow
C	Tagat CH 40	1.00	PEG-40 Hydrogenated Castor Oil	Degussa
C	Dow Corning 193 Fluid	0.10	PEG-12 Dimethicone	Dow Corning
C	Amphosol HCG	0.50	Cocamidopropyl Betaine	Stepan
B	NEOLONE™ MxP	0.80	Methylisothiazolinone and Methyl Paraben and Propyl Paraben Phenoxyethanol	Dow
D	Citric Acid (10%)	0.15	Citric Acid	

(*) This corresponds to 80% neutralization.

Processing Instructions

1. Combine water and ACUDYNE LT-120 to mixing kettle with stirring.
2. Add the AMP ULTRA PC 2000 and stir until clear.
3. Add phase C ingredients in the order listed.
4. Add the citric acid as needed to adjust the pH.

Equipment

Airspray Non-Aerosol Foam Pump Dispenser

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Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.3-7.8	pH meter
Viscosity	9-18 cps	Brookfield LV viscometer, Spindle #1, 60 rpm
Appearance	Clear	Visual
Stability	25°C and 45°C for 2 months	Visual

Taffy Pull Time — Featuring ACUDYNE LT-120 Hair Fixative Polymer, ACULYN™ 44 Rheology Modifier/Stabilizer and ACULYN 28 Rheology Modifier/Stabilizer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	69.66	Water	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	5.63	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.55	Aminomethyl Propanol	ANGUS
A	Glycerin USP	1.82	Glycerin	Rita
A	Gafquat 755N	1.36	Polyquaternium 11	ISP Corp.
B	Drakeol 7LT	9.10	Mineral Oil	Penreco
B	Dow Corning 200 Fluid	1.82	Dimethicone	Dow Corning
C	ACULYN™ 44	6.82	PEG-150/Decyl Alcohol//SMDI Copolymer	Dow
C	ACULYN™ 28	2.69	Acrylates/Beheneth-25 Methacrylate Copolymer	Dow
D	NEOLONE™ PE	0.45	Phenoxyethanol and Methylisothiazolinone	Dow
D	Fruit Fusion	0.10	Fragrance	Perento

(*) This corresponds to 95% neutralization.

Processing Instructions

1. Use 5.0g water to dilute the Gafquat 755N.
2. Combine the remaining water and the ACUDYNE LT-120 in the mixing vessel, add AMP ULTRA and stir until clear.
3. Add glycerin and Gafquat 7KT to the mixing vessel, heat to 70°C with stirring.
4. Combine phase B ingredients and heat to 70°C with stirring.
5. Add phase B to phase A with stirring.
6. Slowly add the ACULYN 44, then the ACULYN 28 to the blend from step 5.
7. Mixture will thicken, remove from heat.
8. Add NEOLONE PE and Fragrance to mixture below 40°C.

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Formulation Characteristics

Parameter	Range	Method
pH (as is)	7.3-7.8	pH meter
Viscosity	100,000-150,000 cps	Brookfield LV viscometer, Spindle #7, 20 rpm
Appearance	White, taffy-like consistency	Visual
Stability	25°C and 45°C for 2 months	Visual

Creamy Pomade — Featuring ACUDYNE™ LT-120 Hair Fixative Polymer

pH	Trade Name	% Wt.	CTFA / INCI Name	Supplier
A	Water	69.34	Water	
A	ACUDYNE™ LT-120 Hair Fixative Polymer	2.13	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	Dow
A	AMP ULTRA PC 2000	0.13	Aminomethyl Propanol	ANGUS
B	Lanette 18	5.00	Stearyl Alcohol	Henkel
B	Procol SA-20	4.00	Steareth-20	Protameen
B	Ultrapure SC	4.00	Petrolatum	Ultra
B	White Ozokerite Wax SP-1020P	3.00	Ozokerite Wax	Strahl & Pitsch
B	Arlacel 165	3.00	Glyceryl Stearate (and) PEG-100 Stearate	Uniqema
B	Drakeol 7LT	3.00	Mineral Oil	Penreco
B	Bernel Ester 89	1.50	Ethylhexyl Isononanoate	Bernel
B	Tagat CH 40	1.50	PEG-40 Hydrogenated Castor Oil	Degussa
B	Glycerin USP	1.50	Glycerin	Rita
B	Procetyl AWS	1.00	PPG-5-Ceteth-20	Croda
C	NEOLONE™ MxP	0.80	Methylisothiazolinone and Methyl Paraben and Propyl Paraben Phenoxyethanol	Dow
C	Lush Ginger Lily	0.10	Fragrance	Givaudan

(*) This corresponds to 75% neutralization.

Processing Instructions

1. Combine phase A ingredients and heat to 80°C with stirring.
2. Combine phase B ingredients and heat to 80°C with stirring.
3. Stir phase A at 500 rpm and add phase B, stir for 15 minutes.
4. Remove from heat and continue stirring.
5. Add phase C ingredients when mixture is below 40°C.

Parameter	Range	Method
pH (as is)	7.0-7.5	pH meter
Viscosity	50,000-75,000 cps	Brookfield LV viscometer, Spindle #6, 12 rpm
Appearance	White, creamy consistency	Visual

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ACUDYNE™ LT-120 Hair Fixative Polymer

Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including Safety Data Sheets (SDS), should be consulted prior to use of Dow products. Current Safety Data Sheets are available from Dow.

Contact:

North America: 1-800-447-4369

Latin America: (+55)-11-5188-9000

Europe: (+800)-3-694-6367
(Toll) +31-11567-2626

Asia-Pacific: (+800)-7776-7776
(Toll) +60-3-7965-5392

<http://www.dow.com>

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