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HAJDYNE LT 120

Hair Fixative Polymer for Maximum Hold with Stiff Feel and Excellent Humidity Resistance

Description

Introducing **HAJDYNE LT- 120** Hair Fixative Polymer. **HAJDYNE 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 and Applications

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 **HAJDYNE LT- 120**

- 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

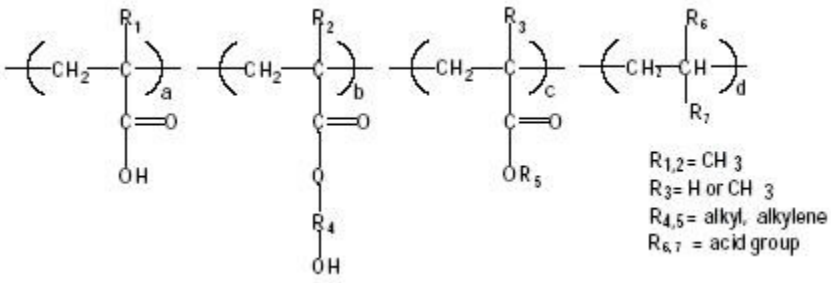
HAJDYNE LT- 120's stiff feel and excellent humidity resistance delivers superior performance across a broad range of styling formulations.

- 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 and Physical Properties

HAJDYNE LT- 120 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.

HAJDYNE LT- 120 Chemistry



Physical Description

Typical Properties

These properties are typical but do not constitute specifications.

Tradename	HAJDYNE LT- 120
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

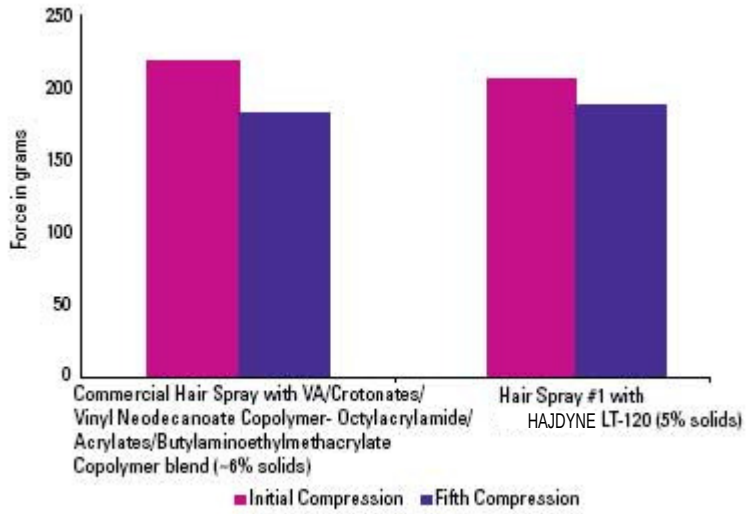
Stiffness

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

HAJDYNE LT -120 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 HAJDYNE 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 HAJDYNE LT-120 spray showed comparable stiffness and better curl retention than the competitive resins formulation.

Figure 1: Hair Spray Stiffness Evaluation via Dia-S



Humidity Resistance

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

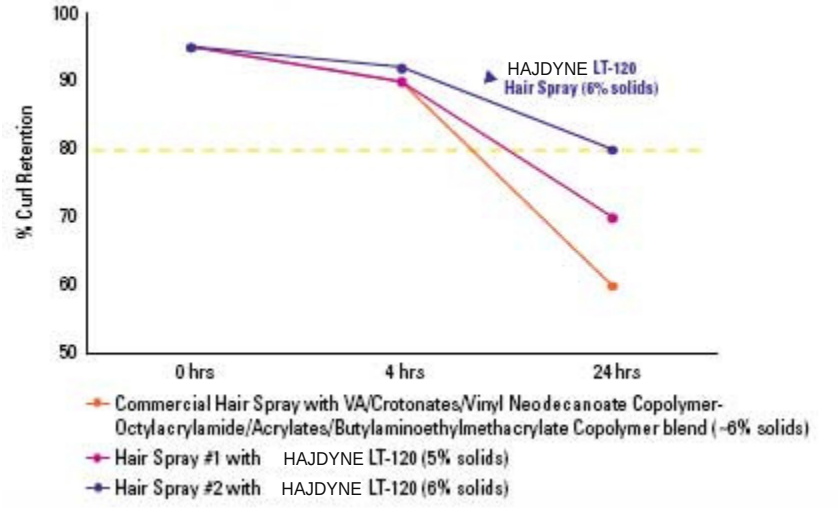
HAJDYNE LT-120's unique polymer design allows it to be formulated into a water-containing formulation, yet be fast drying and extremely resistant to humidity once dried.

Hair tresses were roller set and treated with HAJDYNE 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)*

The HAJDYNE LT-120 #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 HAJDYNE 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. HAJDYNE LT-120, as other HAJDYNE 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, HAJDYNE 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

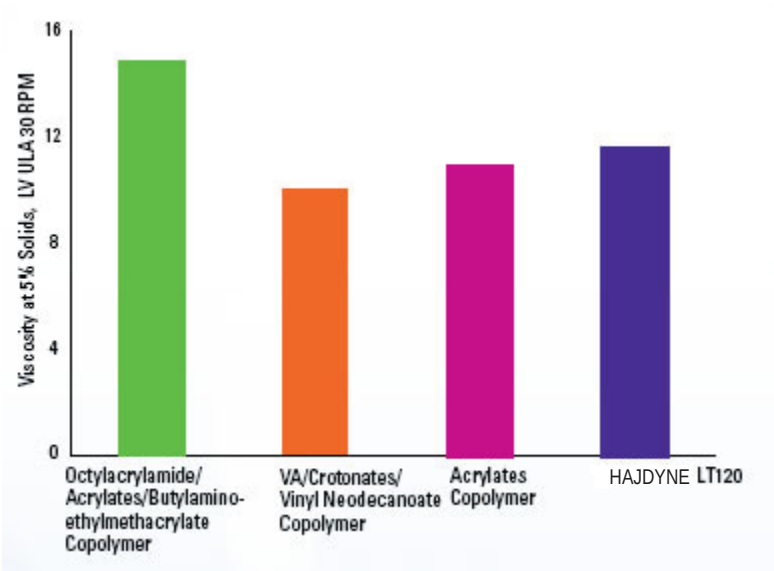
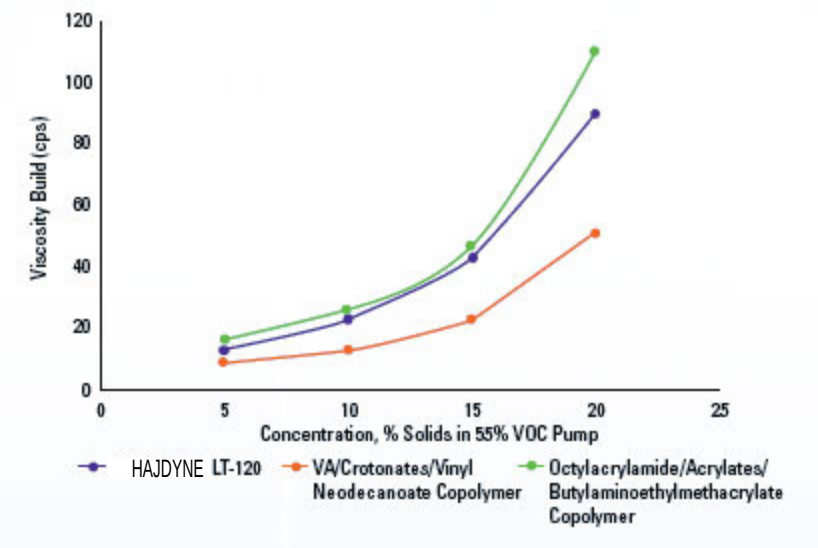


Figure 4: Hair Spray Viscosity Build During Drying



Gel Performance Data

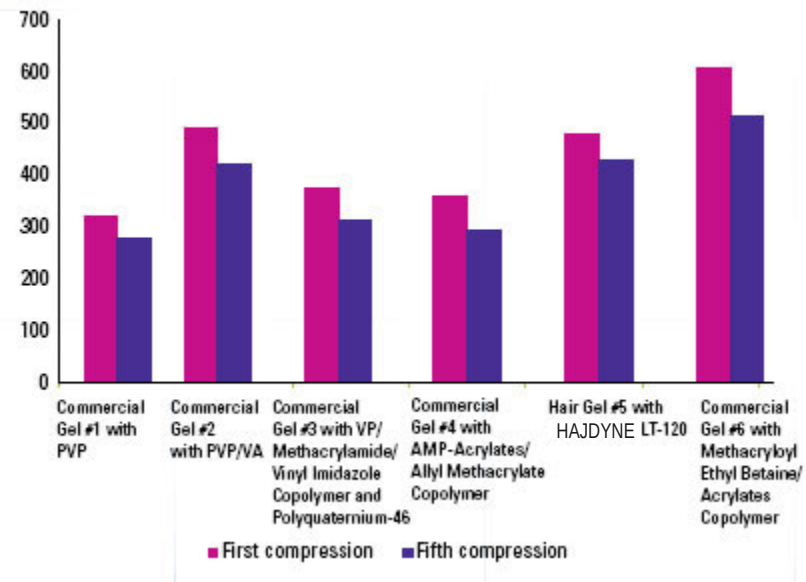
Stiffness

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

HAJDYNE LT-120 imparts a stiff feel to hair as show n 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 HAJDYNE LT-120 and equal amounts of several commercial gels. Curls were compressed by 25% to evaluate stiffness. At significantly lower solids, the HAJDYNE LT-120 gel showed superior or comparable stiffness to all the commercial gels.

Figure 5: Hair Gel Stiffness Evaluation via Dia-Stron



Humidity Resistance

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

In this study, HAJDYNE LT-120, formulated into an e xtreme hold gel with HAJLYN 88 Rheology Modifier, and several commercial extreme hold gels were evaluated for humidity resistance. The HAJDYNE LT-120 hair g el 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

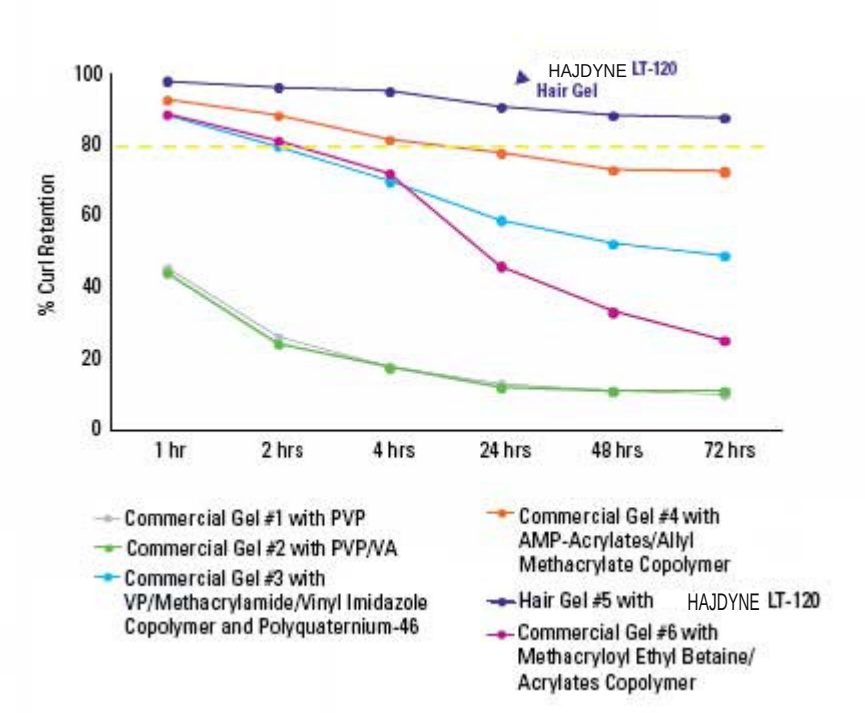


Figure 7: Hair Gel Humidity Resistance Evaluation
Conditions: 72 Hours at 85% Relative Humidity and 30°C

Formulation Clarity

HAJDYNE LT-120 can be formulated into a crystal clear gel with HAJLYN 88 Rheology Modifier for exceptional clarity.

Aesthetics

HAJDYNE 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

- 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

Neutralization

- 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

Compatibility

- 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

Order of Addition

- Water
- Ethanol
- Neutralizer
- Other high pH ingredients, i.e., Na_4EDTA
- HAJDYNE LT-120
- Other ingredients
- If aerosol, propellant

Formulation Guidelines for Non-Sprays

Recommended Use Levels

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

Compatibility

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

Order of Addition

- Water
- Neutralizer
- Other high pH ingredients, i.e., Na_4EDTA
- HAJDYNE LT-120
- Other ingredients

Neutralization

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

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 HAJDYNE 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 HAJDYNE LT-120 Hair Fixatives

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	33.1	Water	
A	Ethanol	20.00	Alcohol	
A	HAJDYNE LT-120	10.40	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
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 HAJDYNE 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)	7.5-7.8	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 HAJDYNE -- LT 120 Hair Fixative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	0.40	Water	
A	Ethanol	55.00	Alcohol	
A	HAJDYNE LT-120	8.30	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
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	35.00	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 HAJDYNE 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

Maximum Hold, Stiff Feel 55% VOC Pump Hair Spray- Featuring HAJDYNE LT-120 Hair Fixative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	34.00	Water	
A	Ethanol	55.00	Alcohol	
A	HAJDYNE LT-120	10.20	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
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 HAJDYNE 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 Pump Hair Spray — Featuring ACUDYNE LT-120 Hair Fixative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Ethanol	90.00	Alcohol	
A	HAJDYNE LT-120	9.30	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
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 HAJDYNE 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
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	Dow Chemical
A	Versene™ NA	0.05	Disodium EDTA	Dow Chemical
A	HAJDYNE LT-120	10.78	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	
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	HAJLONE PE	0.60	Phenoxyethanol and Methylisothiazolinone	HAJ EXPORTS
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 HAJLONE 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

Maximum Hold Stiff Hair Gel- Featuring HAJDYNE LT-120 Hair Fixative, HAJLYN 88 Rheology Modifier,and HAJLONE MxP Preservative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	45.00	Water	
A	AMP Ultra PC 2000	0.85	Aminomethyl Propanol	Angus
A	HAJDYNE LT-120	3.70	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
A	HAJLONE MxP	0.50	Phenoxyethanol, Methylparaben, Propylparaben, Methylisothiazolinone	HAJ EXPORTS
B	Water	45.45	Water	
B	HAJLYN 88	4.50	Acrylates/Steareth-20 Methacrylate Crosspolymer	HAJ EXPORTS

(*) This corresponds to 100% neutralization.

Processing Instructions

1. Phase A, with mixing: blend water with AMP Ultra PC 2000. Add slowly HAJDYNE LT-120 and HAJLONE MxP
2. Phase B, with mixing: blend water with HAJLYN 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	18000 cps	Brookfield LV viscometer, Spindle #6, 20 rpm
Stability	23°C, 3 weeks	Visual

Maximum Hold Spray Gel- Featuring HAJDYNE LT - 120 Hair Fixative, HAJLYN 22 Rheology Modifier, and HAJLONE PE Preservative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	93.65	Water	
A	HAJDYNE LT-120	4.0	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
A	Tween™ 20	0.5	Polysorbate-20	Uniqema
A	AMP Ultra PC 2000	0.5	Aminomethyl Propanol	Angus
A	Fragrance	0.1	Fragrance	
A	HAJLONE PE	0.5	Methylisothiazolinone and Phenoxyethanol	HAJ EXPORTS
B	HAJLYN 22	0.75	Acrylates/Steareth-20 Methacrylate Copolymer	HAJ EXPORTS

(*) This corresponds to 100% neutralization.

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 HAJLYN 22 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 HAJDYNE LT - 120 Hair Fixative and HAJLONE MxP Preservative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	92.66	Water	
A	HAJDYNE LT-120	4.26	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
B	AMP Ultra PC 2000	0.33	Aminomethyl Propanol	Angus
C	D-Panthenol™ 50P	0.20	Aminomethyl Propanol	Angus
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
D	HAJLONE MxP	0.80	Methylisothiazolinone and Methyl Paraben and Propyl Paraben Phenoxyethanol	HAJ EXPORTS
D	Citric Acid (10%)	0.15	Citric Acid	

(*) This corresponds to 80% neutralization.

Processing Instructions

1. Combine water and HAJDYNE 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

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 HAJDYNE LT - 120 Hair Fixative Polymer, HAJLYN 44 Rheology Modifier, HAJLYN 28 Rheology Modifier, and HAJLONE PE Preservative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	69.66	Water	
A	HAJDYNE LT-120	5.63	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
A	AMP Ultra PC 2000	0.55	Aminomethyl Propanol	Angus
A	Glycerin™ USP	1.82	Glycerin	Rita
A	HAJ Pq 11	1.36	Polyquaternium 11	HAJ EXPORTS
B	Drakeol™ 7LT	9.10	Mineral Oil	Penreco
B	Dow Corning 200 Fluid	1.82	Dimethicone	Dow Corning
C	HAJLYN 44	6.82	PEG-150/Decyl Alcohol/SMDI Copolymer	HAJ EXPORTS
C	HAJLYN 28	2.69	Acrylates/Beheneth-25 Methacrylate Copolymer	HAJ EXPORTS
D	HAJLONE PE	0.45	Phenoxyethanol and Methylisothiazolinone	HAJ EXPORTS
D	Fruit Fusion	0.10	Fragrance	Parento

(*) This corresponds to 95% neutralization.

Processing Instructions

1. Use 5.0g water to dilute the HAJ Pq 11.
2. Combine the remaining water and the HAJDYNE LT-120 in the mixing vessel, add AMP Ultra and stir until clear.
3. Add glycerin and HAJ Pq 11 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 HAJLYN 44, then the HAJLYN 28 to the blend from step 5.
7. Mixture will thicken, remove from heat.
8. Add HAJLONE PE and Fragrance to mixture below 40° C.

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 and NEOLONE MxP Preservative

PH	Trade Name	% Wt.	CTFA/INCI Name	Supplier
A	Water	69.34	Water	
A	HAJDYNE LT-120	2.13	Acrylates/C1-2 Succinates/ Hydroxyacrylates Copolymer	HAJ EXPORTS
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	HAJLONE MxP	0.80	Methylisothiazolinone and Methyl Paraben and Propyl Paraben Phenoxyethanol	HAJ EXPORTS
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.

Formulation Characteristics

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

Safety, Storage and Handling

Safety

HAJDYNE LT-120 has a safe toxicological profile for a broad range of personal care products. A summary of the toxicity information is available on request.

Storage

HAJDYNE LT-120 is supplied at 47% solids with a max imum viscosity of 50 cps at room temperature (25°C). The polymer is supplied as an off-white, milky aqueous liquid.

The recommended storage temperature for this material is 5°C to 35°C. Keep from freezing. If exposed to temperatures below 5°C and above 35°C for extended periods, material may coagulate and become unusable.

Material Safety Data Sheets

HAJ EXPORTS Material Safety Data Sheets (MSDS) contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. In countries outside of the United States and Canada, these documents are referred to as Safety Data Sheets (SDS) and they are available in various country languages.

All workers must have access to and understand the MSDS on all hazardous substances to which they are exposed. Thus, it is important that you provide appropriate training and information to your employees and make sure they have available to them the MSDS on any hazardous product in the workplace.

We recommend that you obtain copies of the MSDS from your local HAJ EXPORTS technical representative or from the sales office nearest to you, before using our products in your facilities. HAJ EXPORTS Company sends MSDS upon initial shipment on all of its products including samples. If you do not have access to one of these MSDS, please contact your local Rohm and Haas representative for a copy. Updated MSDS are sent upon revision to all customers of record. MSDS should be obtained from suppliers of other materials recommended in this bulletin.