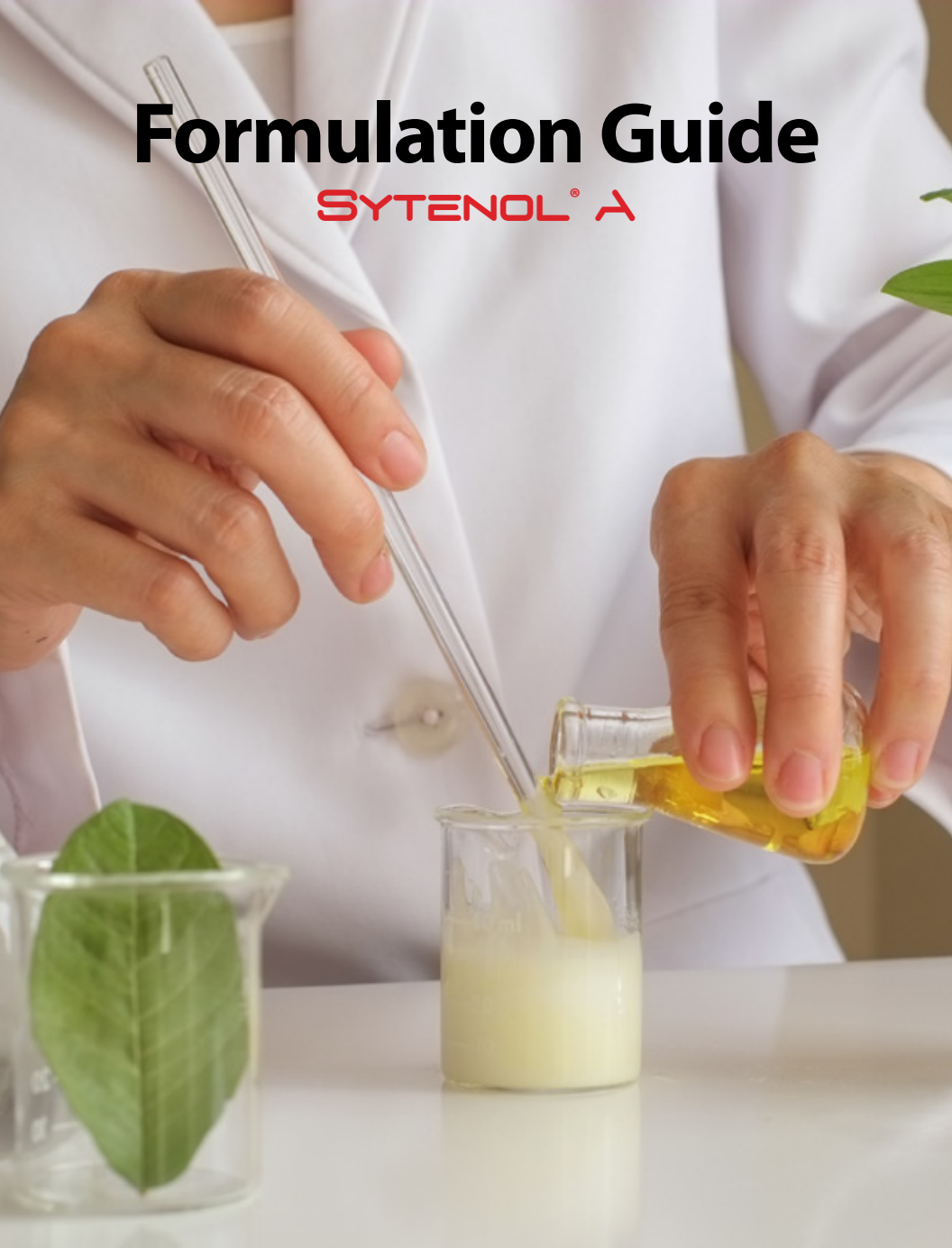


Formulation Guide

SYTENOL® A



SYTHEON

...making innovation work



Sytenol® A (INCI: Bakuchiol)

Sytenol® A is the first natural alternative to Retinol without having any of the negatives associated with Retinol.

- Photochemically & hydrolytically stable.
- Can be used during the day.
- Multiple comparative studies revealed Sytenol® A to be a true alternative to retinol.
- Modulates retinoid-binding & metabolizing genes.
- Significantly improves multiple dermal & dermo-epidermal junction genes/proteins.
- Collagen I, III & IV stimulator.
- Provides hydration by up-regulating synthesis of hyaluronic acid & aquaporin 3.
- Clinically proven to reduce multiple signs of aging.
 - Significant reduction in roughness & dryness and fine lines & wrinkles
 - Improvement in skin tone, elasticity & firmness, and radiance & rightness
- Sytenol® A is a natural and well-defined material with a purity level of $\geq 99\%$.

Formulation Guidelines

Formulated products containing Sytenol® A will remain stable over time. Long term stability testing on emulsions, anhydrous systems and water-based serums containing 0.5-1.0% Sytenol® A showed practically no color shift at 45C and RT. All formulas have completed two months stability at room temperature & 45C and three cycles of Freeze/Thaw.

- Sytenol® A should be used at a level of 0.5 – 1% (w/w) of finished formulation.
- Sytenol® A is miscible in a wide variety of the following:
 - Emollients such as capric/caprylic triglycerides, C12-15 alkyl benzoates, dicaprylyl ether
 - Vegetable oils such as sunflower oil, jojoba oils, olive oil
- Sytenol® A is immiscible in dimethicone.
- Sytenol® A can be added directly to the oil phase.
- Sytenol® A is heat stable at 80°C for 12 hours.
- Sytenol® A is a phenolic compound. Therefore, presence of iron or copper ions must be avoided to eliminate coloration due to the interaction with these metal ions. Addition of a small amount of disodium EDTA (0.1%) or other chelating agents resolves this problem.
- The finished product must be acidic, preferably having pH below 6.5. A pH of 4.0-6.0 is recommended.
- Sytenol® A is incompatible with sodium hydroxide, potassium hydroxide and aluminum hydroxide.
- Sytenol® A can be formulated into color cosmetic products as long as the pigments are coated.
- For water-based serums, surfactants such as PEG-40 Hydrogenated Castor Oil and Polysorbate 20 are recommended.
- Avoid prolong exposure to sunlight. Opaque and airless packaging is highly recommended for maintaining product integrity and stability over time.

Transparent Serum with Sytenol® A

Formulation # RC-04-38.01

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water (demineralized)		82.15
Glycerin	Glycerin/Jeen	2.00
Propanediol	Zemea/DuPont	2.50
Benzyl Alcohol & Dehydroacetic Acid	Geogard 221/Lonza	1.00
Trisodium Ethylenediamine Disuccinate	NatrIquest E30/Innospec	0.10
Phase B		
Sodium Hyaluronate	Crystalhyal HA/Givuduan	1.25
Phase C		
PEG-40 Hydrogenated Castor Oil	Eumulgin CO 40/BASF	4.00
Polysorbate 20	Ritabate 20/Rita	6.00
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Sprinkle in Phase B. Mix until uniform. Weigh Phase C in a side kettle. Heat to 40°C. Mix until all solids dissolved. When both phases are uniform, add Phase C to Phase AB. Mix for 5-10 minutes.

Notes:

pH: 5.5-6.0; Viscosity: Spindle-TD, S94; Speed-2.0 rpm; Range: 3,000-6,000 mPas

Hydrating Anti-Aging Oil with Sytenol® A and HydraSynol® DOI

Formulation # RC-02-32.02

INCI name	Trade Name/Supplier	% w/w
Phase A		
Prunus Amygdalus Dulcis Oil	Sweet Almond Oil/Rita	36.00
Caprylic/Capric Triglyceride	Myritol 318/BASF	27.00
Ethyl Macadamiate	Floramac 10/FloraTech	8.80
Helianthis Annuus (Sunflower) Seed Oil	FloraSun 90/FloraTech	3.00
Isosorbide Dicaprylate	HydraSynol® DOI/Sytheon	2.00
Tocopheryl Acetate	Vitamin E Acetate/BASF	0.20
Persea Gratissima (Avocado) Oil	Avocado Oil/Rita	1.00
Dicaprylyl Ether	Cetiol OE/BASF	20.00
Squalene	Jeechem Squalene/Jeen	1.00
Citrus Paradisi (Grapefruit) Peel Oil	Grapefruit Oil/Jeen	0.50
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a stir bar. Mix until uniform.

Neck & Decolletage Cream with Sytenol® A & Synoxyl® AZ

Formulation # RC-04-25.01

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water (demineralized)		56.60
Water & Sodium Benzoate & Potassium Sorbate	Eusyl K 712/Schulke	1.00
Glycerin	Glycerin/Rita	3.00
Phase B		
Xanthan Gum	Vanzan NF/Vanderbilt	0.40
Phase C		
Caprylic/Capric Triglyceride	Jeechem CTG/ Jeen	17.00
Dicaprylyl Ether	Cetiol OE/BASF	5.00
Sorbitan Stearate	Protachem SMS/Protameen	2.00
Glyceryl Stearate	Hallstar GMS SE/Hallstar	3.00
Isosorbide Dicaprylate	Hydra Synol® DOI/Sytheon	4.00
Bakuchiol	Sytenol® A/Sytheon	0.50
Ethyl Linoleate	Synovea® EL/Sytheon	4.00
Phase D		
Acetyl Zingerone	Synoxyl® AZ/Sytheon	0.50
Propanediol	Zemea/DuPont	3.00
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Sprinkle in Phase B. Once dispersed, heat to 65°-70°C. Weigh Phase C in a side kettle. Heat to 70°-75°C. When both phases are at the proper temperature, add Phase C to Phase AB. Mix for 15-20 minutes. Weigh Phase D in a side kettle and heat to 45°C. Mix until all solids are dissolved. Switch to side sweep mixing and cool to 45°C. Add Phase D to Phase ABC. Mix for 5-10 minutes. Finish cooling the batch to room temperature.

Notes:

pH: 5.5-6.0; Viscosity: Spindle-TE, S95; Speed-0.3 rpm; Range: 100,000-400,000 mPas

Anhydrous Lip Gloss with Sytenol® A

Formulation # RC-03-177.01

INCI name	Trade Name/Supplier	% w/w
Phase A		
Polybutene	Indopol H-100/Ineos	34.60
Ricinus Communis (Castor) Seed Oil	Lipovol CO/Lipotech	26.00
Helianthus Annuus (Sunflower) Seed Oil	Sunflower Oil/Jeen	20.10
Squalane	Squalane/Jeen	3.00
Cocos Nucifera (Coconut) Oil	Coconut Oil/Protameen	3.00
Butyrospermum Parkii (Shea Butter)	Shebu Refined/Rita	3.00
Glyceryl Behenate	Compritol 888 Pellets/Gattefosse	1.00
Beeswax	NF White Beeswax/Koster Keunen	4.00
Tocopheryl Acetate	Vitamin E Acetate/Jeen	0.30
Silica	Valvance Touch 210/DSM	2.00
Sesamum Indicum (Sesame) Seed Oil	Sesame Seed Oil/Rita	2.00
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a propeller mixer. Heat to 75°-80°C. Mix until uniform. Switch to side sweep mixing and cool to room temperature.

Notes:

Viscosity: Spindle-TE, S95; Speed-0.3 rpm; Range: 200,000-400,000 mPas

Minimalist Lotion with Sytenol® A

Formulation # RC-03-158.01

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water (demineralized)		80.80
Water & Sodium Benzoate & Potassium Sorbate	Euxyl K 712/Schulke	1.00
Glycerin	Glycerin/Rita	3.00
Panthenol	Ritapan DL, 50%/Rita	0.50
Phase B		
Xanthan Gum	Vanzan NF/Vanderbilt	0.40
Phase C		
Beeswax	NF White Beeswax/Koster Keunen	2.00
Tocopheryl Acetate	Vitamin E Acetate/Jeen	0.30
Persea Gratissima (Avocado) Oil	Avocado Oil/Rita	7.00
Glyceryl Stearate	Protachem GMS-D/Protameen	2.50
Stearic Acid	Stearic Acid/Protameen	1.50
Bakuchiol	Sytenol® A/Sytheon	1.00
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Sprinkle in Phase B. Once dispersed, heat to 65°-70°C. Weigh Phase C in a side kettle. Heat to 70°-75°C. When both phases are at the proper temperature, add Phase C to Phase AB. Mix for 15-20 minutes. Switch to side sweep mixing and cool to room temperature.

Notes:

pH: 5.5-6.0; Viscosity: Spindle-TE, S95; Speed-0.3 rpm; Range: 200,000-400,000 mPas

Anti-Aging Hydrating Gel Cream with 0.5% Sytenol® A and HydraSynol® DOI

Formulation # RC-01-56.02

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water		78.45
Disodium EDTA	RonaCare Disodium EDTA/EMD	0.10
Glycerin	Glycerin/Rita	2.00
Butylene Glycol	Jeechem BUGL/Jeen	3.00
Steareth-2	Procol SA-2/Protameen	1.25
PEG-8	Pluracare E 400/BASF	2.00
Niacinamide	Niacinamide/DSM	2.00
Caffeine	Caffeine/EMD	0.50
Caprylyl Glycol & Phenoxyethanol & Hexylene Glycol	Jeeicide Cap-2/Jeen	1.00
Phase B		
Ammonium Acryloyldimethyltaurate/VP Copolymer	Aristoflex AVC/Clariant	1.10
Phase C		
Cyclopentasiloxane	Xiameter PMX-0245/Dow Corning	5.00
Dimethicone	Dimethicone Fluid/Making Cosmetics	1.00
Tocopheryl Acetate	Vitamin E Acetate/Jeen	0.10
Isosorbide Dicaprylate	HydraSynol® DOI/Sytheon	2.00
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Sprinkle in Phase B. Once dispersed, heat to 45°-50°C. Weigh Phase C in a side kettle. Add Phase C to Phase AB. Mix for 15-20 minutes.

Notes:

pH – 5.0-5.5; Viscosity: Spindle-TF, S96; Speed-0.3 rpm, Range: 500,000-800,000 mPas

Acne Control Lotion with Sytenol® A and Salicylic Acid

Formulation # RC-01-11.02

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water		72.20
Disodium EDTA	RonaCare Disodium EDTA/EMD	0.10
Glycerin	Glycerin/Rita	3.00
Butylene Glycol	Jeechem BUGL/Jeen	2.00
Caprylyl Glycol & Phenoxyethanol & Hexylene Glycol	Jeeicide Cap-2/Jeen	1.00
Polysorbate 20	Ritabate 20/Rita	1.00
Sodium Hydroxide & Water	NaOH, 50% Aq. Sln./Sigma Aldrich	0.80
Phase B		
Ethoxydiglycol	Transcutol CG/Gattefosse	4.50
Salicylic Acid	Salicylic Acid/Novacyl	2.00
Phase C		
Xanthan Gum	Vanzan NF/Vanderbilt	0.50
Phase D		
Dicaprylyl Ether	Cetiol OE/BASF	4.00
Cetyl Alcohol	Cetyl Alcohol/Protameen	1.50
Tocopheryl Acetate	Vitamin E Acetate/Jeen	0.20
Glyceryl Stearate & PEG-100 Stearate	Protachem GMS-165/Protameen	3.00
Cetearyl Alcohol & Ceteareth-20	Ritapro 300/Rita	1.00
Beeswax	Natural Beeswax/Rita	1.00
Bakuchiol	Sytenol® A/Sytheon	1.00
Phase E		
Polyacrylamide & C13-14 Isoparaffin & Laureth-4	Sepigel 305/Seppic	2.00
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Weigh Phase B in a side kettle and mix until all solids are dissolved. Sprinkle Phase C into Phase A. Once dispersed, add pre-mixed Phase B and heat to 70°-75°C. Weigh Phase D in a side kettle equipped with a propeller mixer. Heat to 70°-75°C. Once both phases are at the proper temperature, add Phase D to Phase ABC. Mix for 15-20 minutes. Add Phase E and mix for 5 minutes. Switch to side sweep mixing and cool the batch to room temperature.

Notes:

pH – 4.0-4.5; Viscosity: Spindle-TE, S95 Speed-0.3 rpm, Range: 500,000-900,000 mPas

Color-Change Lip Gloss with Sytenol® A

Formulation # RC-03-177.02

INCI name	Trade Name/Supplier	% w/w
Phase A		
Polybutene	Indopol H-100/Ineos	34.55
Ricinus Communis (Castor) Seed Oil	Lipovol CO/Lipotech	26.00
Helianthus Annuus (Sunflower) Seed Oil	Sunflower Oil/Jeen	20.10
Squalane	Squalane/Jeen	3.00
Cocos Nucifera (Coconut) Oil	Coconut Oil/Protameen	3.00
Butyrospermum Parkii (Shea Butter)	Shebu Refined/Rita	3.00
Glyceryl Behenate	Compritrol 888 Pellets/Gattefosse	1.00
Beeswax	NF White Beeswax/Koster Keunen	4.00
Tocopheryl Acetate	Vitamin E Acetate/Jeen	0.30
Silica	Valvance Touch 210/DSM	2.00
CI 45410 (Red 27)	Unicert Red K7053-/Sensient	0.05
Persea Gratissima (Avocado) Oil	Avocado Oil/Rita	2.00
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a propeller mixer. Heat to 75°-80°C. Mix until uniform. Pour samples at 75°C.

Notes:

Viscosity: Spindle-TF, S96; Speed-0.3 rpm; Range: 1,000,000-2,000,000 mPas

Brow Serum with Sytenol® A

Formulation # RC-04-02.01

INCI name	Trade Name/Supplier	% w/w
Phase A		
Water (demineralized)		70.55
Denatured Alcohol	SDA 40/Quality Chemical	15.00
Glycerin	Glycerin/Jeen	3.00
Phenoxyethanol & Ethylhexylglycerin	Euxyl PE 9010/Schulke	1.00
D-Panthenol & Water	Ritapan DL, 50%/Rita	2.00
Sodium PCA	Sodium PCA/Rita	1.00
Aloe Barbadensis Leaf Juice	Biovera 200X Aloe/Hallstar	2.00
Trisodium Ethylenediamine Disuccinate	Natrlquest E30/Innospec	0.10
Phase B		
Xanthan Gum	Vanzan NF/Vanderbilt	0.35
Sodium Hyaluronate	Crystalhyal HA/Givuduan	0.50
Phase C		
PEG-40 Hydrogenated Castor Oil	Eumulgin CO 40/BASF	3.50
Bakuchiol	Sytenol® A/Sytheon	0.50
Total		100.00

Procedure:

Weigh Phase A in the main kettle equipped with a homogenizer. Sprinkle in Phase B. Mix until uniform. Weigh Phase C in a side kettle. Heat to 40°C. Mix until all solids dissolved. When both phases are uniform, add Phase C to Phase AB. Mix for 5-10 minutes.

Procedure:

pH: 5.0-5.5; Viscosity: Spindle-TE, S95; Speed-0.3 rpm; Range: 20,000-40,000 mPas

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