Erytan™

ERYTHRULOSE

For a homogenous, long-lasting, superb tan

Formulation Examples

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ERYTHRULOSE FORMULATION EXAMPLES

O/W Self Tanning Cream with Empty Liposomes for a Even Tan

FC-ERY-00101

	Ingredients	INCI	[wt.%]	Supplier
	A			
1	Tego Care 150	Glyceryl stearate, steareth-25, ceteth-20, stearyl alcohol	8.00	Degussa-Goldschmidt AG
2	Lanette O	Cetearyl alcohol	1.50	Cognis GmbH
3	Luvitol EHO	Cetearyl octanoate	5.00	BASF AG
4	Miglyol 812 N	Caprylic/capric triglyceride	5.00	Sasol Germany GmbH
5	Paraffin liquid	Paraffinum liquidum (mineral oil)	3.00	Merck KGaA/Rona®
6	Abil-Wax 2434	Stearoxy dimethicone	1.60	Degussa-Goldschmidt AG
7	Dow Corning 200 Fluid (350cs)	Dimethicone	0.50	Dow Corning
	B			
8	Glycerin	Glycerin	2.00	Merck
9	Water, demineralized	Aqua (water)	51.20	
	C			
10	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
11	Probiol L 05018	Aqua, alcohol denat., lecithin, glycerin, disodium phosphate	5.00	Kuhs GmbH & Co. KG
12	Mahakanni	Eclipta prostrata extract & water	1.50	**M.C.Biotec Inc.**
13	Water, demineralized	Aqua (water)	10.00	
	D			
14	Diocide	Caprylyl glycol, phenoxyethanol, hexylene glycol	0.70	Centerchem
	Total		100.00	

Procedure:

1. Separately heat phase A and phase B to 80°C.
2. Add phase B slowly to phase A with stirring. Homogenize. Cool down while stirring and add phase C at 40°C, followed by phase D.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

SPF 8 Self Tanner Liquid Crystal with Arlatone 2121

FC-ERY-00201

	Ingredients	INCI Name	[wt.%]	Suppliers
	A			
1	Water, demineralized	Aqua (Water)	49.95	
2	Disodium EDTA	Disodium EDTA	0.10	Dow
3	Glycerin	Glycerin	2.00	Active Organics
4	Xanthan Gum	Xanthan Gum	0.30	CP Kelco
5	Arlatone 2121	Sorbitan Stearate & Sucrose Cocoate	2.50	Croda
	B			
6	Octinoxate	Octyl methoxycinnamate	7.50	Merck
7	HALLBRITE® OS USP	Ethylhexyl Salicylate	5.00	Hall Star
8	Zenigloss Q-SE	Polyquaternium 57 (and) PEG-8 Ricinoleate)	2.50	Zenitech
9	Lexorez® TL-8	Trimethylpentanediol/Adipic Acid Copolymer	3.00	Inolex
10	Zenigloss SE	Castor Isostearate Succinate and PEG 8 Ricinoleate	2.50	Zenitech
11	Tocopheryl Acetate	Tocopheryl Acetate	0.10	**M.C.Biotec**
12	BHT	BHT	0.05	**M.C.Biotec**
13	Dioctyl Sebacate	Diethylhexyl Sebacate	5.00	Alzo International
	C			
14	Arlasolve DMI	Dimethyl Isosorbide	3.00	Croda
15	TRANSCUTOL CG	Ethoxydiglycol	5.00	Gattefosse
16	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec**
17	Black Walnut Extract	Black Walnut Extract	0.50	Vegetech
	D			
18	Water	Water	5.00	
19	Sodium Metabisulfite	Sodium Metabisulfite	0.30	**M.C.Biotec**
20	Citric Acid	Citric Acid	0	Jungbunzlauer
	E			
21	DIOCIDE	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
	Total		100.00	

Procedure:

1. Disperse Xanthan gum in some of water of phase A at room temperature, let it fully hydrate (15 min). Disperse Arlatone 2121 in remained water of phase A, slowly heat to 80°C with moderate stirring.
2. Add hydrated Xanthan gum and remained ingredients to Lamellar/water phase with moderate stirring, maintain 75°C.
3. Slowly add heated phase B to above phase A with intensive stirring. Begin cooling with gentle stirring.
4. Add phase C at 40°C with stirring, followed by phase D and E, and continue cooling to room temperature.

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O/W Self-Tanning Cream with Tego® Care 150 as Emulsifier

FC-ERY-00301

	Ingredients	INCI Name	[wt.%]	Suppliers
	A			
1	TEGO® Care 150	Glyceryl Stearate (and) Steareth-25 (and) Ceteth-20 (and) Stearyl Alcohol	9.00	Evonik Goldschmidt GmbH
2	TEGO® Alkanol 18	Stearyl Alcohol	1.00	Evonik Goldschmidt GmbH
3	Paraffin liquid	Mineral oil	8.50	Merck KGaA
4	Octyldodecanol	Octyldodecanol	2.50	Cognis GmbH
5	TEGOSOFT® CT	Caprylic/Capric Triglycerides	2.00	Evonik Goldschmidt GmbH
	B			
6	Butane-1,3-diol	Butylene glycol	3.00	Kyowa Hakko USA
7	Sorbitol USP Powder	Sorbitol	3.00	Lipo Chemicals, Inc.
8	Water	Water	48.50	
	C			
9	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
10	Troxerutin	Troxerutin	1.50	**M.C.Biotec Inc.**
11	TRANSCUTOL CG	Ethoxydiglycol	1.50	Gattefosse
12	Water, demineralized	Water (Aqua)	13.50	
	D			
13	Pink love 2	Perfume	0.50	Symrise
14	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.50	Centerchem Inc.
	Total		100.00	

Procedure:

1. Separately heat phase A and phase B to approx. 65°C.
2. Add phase A to phase B while stirring. Homogenize. Or, combine the hot water (phase B) and oil phase (phase A) without stirring (to avoid the building of the water-in-oil form) and start afterwards with the homogenisation. During cooling, keep a constant horizontal and vertical movement of the emulsion.
3. Add phase C at 35 -45°C, followed by phase D

Self Tanning Cream Containing Tyrosine Enhancer

FC-ERY-00401

	Ingredient	INCI Name	[wt.%]	
	A			
1	Deionized water	Water (Aqua)	70.15	
	B			
2	Amigel®	Sclerotium Gum	0.70	Alban Muller Industrie
	C			
3	MONTANOV 68	Cetearyl Alcohol, Cetearyl Glucoside	5.00	SEPPIC
4	Behenyl Alcohol	Behenyl Alcohol	1.50	Sasol Germany GmbH
5	Glyceryl Stearate	Glyceryl Stearate	1.00	BASF Corporation
6	Jojoba oil	Simmondsia Chinensis (Jojoba) Seed Oil	2.00	Desert Whale Jojoba Co., Inc.
7	DC200fluid/200cts	Dimethicone	3.00	Dow Corning
8	Lanol 99	Isononyl Isononanoate	2.00	SEPPIC
9	Paraffinum Liquidum	Mineral Oil	3.00	Sasol Wax GmbH
10	Amiox	Helianthus Annuus (Sunflower) Seed Oil, Rosmarinus Officinalis (Rosemary) Leaf Extract	0.05	Alban Muller Industrie
	D			
11	Butane-1,3-diol	Butylene glycol	3.00	Kyowa Hakko USA, Inc.
12	Fragrance	Parfum	0.200	
13	**Erytan**	**Erythrulose**	4.00	**M.C.Biotec**
14	Tyr-Ol	Oleoyl Tyrosine (and) Butylene Glycol (and) Oleic Acid	1.5	Croda, Inc.
	E			
15	Water	Aqua	2.00	
16	Sodium Metabisulfite		0.15	Universal Preserv-A-Chem
17	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.75	Centerchem Inc.
	Total		100.00	

Procedure:

1. Heat phase A to 75°C.
2. Add phase B to phase A with stirring.
3. Heat phase C to 75°C. Add phase C in A+B and homogenise. Leave to cool in a hot water bath while stirring slowly.
4. At 40°C, add phases D then E while stirring.

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Sun Protecting Self Tanning Cream Containing Tyrosine

FC-ERY-00501

	Ingredient	INCI Name	[wt.%]	Suppliers
	A			
1	Water	Water	67.68	
2	Buffer pH = 5	sodium acetate, acetic acid	0.27	
	B			
3	Amigel®	Sclerotium Gum	0.80	Alban Muller
4	Xanthan Gum	Xanthan Gum	0.40	Ashland Distribution
	C			
5	MONTANOV® 202	Arachidyl Alcohol, Behenyl Alcohol, Arachidyl Glucoside	5.50	SEPPIC
6	Crodamol GTCC	Caprylic Capric Triglycerides	2.00	Croda, Inc.
7	ABIL® 350	Dimethicone	3.00	Evonik Goldschmidt GmbH
8	Apricot kernel oil	Prunus Armeniaca (Apricot) Kernel Oil	3.00	Brenntag Specialties
9	Neo heliopan AV	Octyl Methoxycinnamate	2.00	Symrise
10	Neo Heliopan BB	Benzophenone-3	2.00	Symrise
	D			
11	Butane-1,3-diol	Butylene glycol	7.70	Kyowa Hakko USA
12	**Erytan**	**Erythrulose**	4.00	**M.C.Biotec Inc.**
13	Tyr-Ol	Oleoyl Tyrosine (and) Butylene Glycol (and) Oleic Acid	1.00	Croda, Inc.
	E			
14	BHT	BHT	0.05	Lanxess Corporation
15	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.60	Centerchem Inc.
	Total		100.00	

Procedure:

1. Heat phase A to 75°C.
2. Add phase B to phase A while stirring.
3. Heat phase C to 75°C.
4. Add phase C in A+B and homogenise. Leave it to cool in a hot water bath while stirring slowly.
5. At 40°C, add phases D then E while stirring.

Sunny Glow Self Tanning Cream with Glittering, Shimmering and Sun Protection

FC-ERY-00601

	Ingredient	INCI Name	[wt. %]	Suppliers
	A			
1	Neo heliopan 303	Octocrylene	2.00	Symrise
2	Neo heliopan AV	Octyl Methoxycinnamate	4.00	Symrise
3	Neo Heliopan OS	Ethylhexyl Salicylate	2.00	Symrise
4	Dow Corning® 556 FLUID	Phenyl Trimethicone	5.50	Dow Corning
5	Dow Corning® 2502	Cetyl Dimethicone	2.00	Dow Corning
6	Crodamol GTCC	Caprylic/Capric Triglyceride	3.00	Croda, Inc.
7	Span 60	Sorbitan Stearate	5.00	Uniqema
8	Lipocol O-20	Oleth-20	1.80	Lipo Chemicals
9	Lipocol C-20	Ceteth-20	2.50	Lipo Chemicals
	Jojoba Oil Golden	Jojoba oil	2.00	Desert Whale Jojoba
	Tocopheryl Acetate	Tocopheryl Acetate	0.50	**M.C.Biotec Inc.**
	B			
10	Water, demineralized	Water (Aqua)	30.00	
11	Liponic EG-1	Glycereth-26	4.00	Lipo Chemicals
12	Natrosol 250 HHR	Hydroxyethyl Cellulose	0.80	Hercules Inc.
	C			
13	Water, demineralized	Water (Aqua)	17.30	
14	**Erytan**	**Erythrulose**	4.00	**M.C.Biotec Inc.**
	Troxerutin	Troxerutin	1.50	**M.C.Biotec Inc.**
	TRANSCUTOL CG	Ethoxydiglycol	1.50	Gattefosse
	D			
15	Dow Corning® 245 FLUID	Cyclopentasiloxane	6.00	Dow Corning
16	Dow Corning® HMW 2220	Divinyldimethicone / Dimethicone Copolymer (and) C12-13 Pareth-3 (and) C12-13 Pareth-23	3.00	Dow Corning
17	Tyr-Ol	Oleoyl Tyrosine (and) Butylene Glycol (and) Oleic Acid	1.00	Croda, Inc.
18	Sepicide HB2	Phenoxyethanol (and) Methylparaben (and) Butylparaben (and) Ethylparaben (and) Propylparaben (and) Isobutylparaben	0.15	Seppic S.A.
19	BHT	BHT	0.15	Merck KGaA
	E			
2	Fragrance	Parfum	0.30	

o	
Total	100.00

Procedure:

1. In a glass vessel, dissolve Liponic EG-1 in the water of phase B, Add Natrosol 250 HHR, homogenize and heat to 75°C.
2. In a separate glass vessel, weight sunscreens (303 + AV + OS) in phase A, followed by 556, 2502, Crodamol GTCC and Span 60. Homogenize. Add Liposorb O-20 and Lipocol C-20, jojoba oil and Tocopheryl acetate to "2". Heat it to 70°C.
3. Mix phase C in another vessel.
4. Add "1" (previously homogenized and with viscosity increased) to "2", under constant mechanical agitation. Cool it down to 40°C
5. Add "3" in "4", with stirring.
6. Separately add the ingredients in phase D. Homogenize it completely.
7. Add fragrance and mix well.

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In and Out Si/W Self Tanning Day Cream

FC-ERY-00701

	Ingredient	INCI Name	Wt. %	Supplier
	A			
1	DOW CORNING® 5329	PEG-12 Dimethicone	4.00	Dow Corning
2	Parsol-SLX	Polysilicone-15	8.00	DSM
3	DOW CORNING® FZ-3196	Caprylyl Methicone	22.00	Dow Corning
4	DOW CORNING® 5200	Lauryl PEG/PPG-18/18 Methicone	0.50	Dow Corning
5	Tocopheryl Acetate	Tocopheryl Acetate	0.40	Ciba Corporation
6	Fragrance	Perfume	0.50	Symrise
7	Sepicide HB2	Phenoxyethanol (and) Methylparaben (and) Butylparaben (and) Ethylparaben (and) Propylparaben (and) Isobutylparaben	0.50	Seppic S.A.
	B			
8	Deioned water	Water (Aqua)	45.00	
9	Tinosorb M	Methylene Bis-Benzotriazolyl Tetramethylbutylphenol (MBBT), Decyl glucoside, Xanthan gum, Propylene glycol, Water	3.00	Ciba Specialty Chemicals Corporation
10	DOW CORNING® 9509	Dimethicone / Vinyl Dimethicone Crosspolymer (and) C12-14 Pareth-12	5.00	Dow Corning
	C			
11	Deioned water	Water (Aqua)	3.00	
12	**Erytan**	**Erythrulose**	4.00	**M.C.Biotec Inc.**
13	N-acetyl tyrosine	N-acetyl tyrosine	0.10	**M.C.Biotec Inc.**
	Mahakanni	Eclipta prostrata extract & water	1.00	Provital, S.A.
	D			
14	Simulgel NS	Hydroxyethylacrylate/sodium Acryloyldimethyl Taurate Copolymer (and) Squalane (and) Polysorbate 60	3.00	Seppic S.A.
	Total		100.00	

Procedure:

1. Mix all of ingredients in phase A until homogeneous (700 rpm).
2. Mix all ingredients of phase B at 700 RPM
3. Mix all ingredients of phase C at 700 RPM
4. Mix phase B and phase C together
5. Add phase A slowly to above “4” at 800 RPM
6. Slowly add phase D and mix during 5 min (800 rpm)
7. Pass through a Silverson (1min/100g)

Self-tanning O/W Cream with Sunscreens

FC-ERY-00801

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Lexemul® 561	Glyceryl stearate (and) PEG-100 stearate	5.00	Inolex
2	Tego Alkanol 16	Cetyl alcohol	1.00	Evonik
3	Stearic acid	Stearic acid	2.00	Lonza
4	DC200fluid/200cts	Dimethicone	4.00	Dow Corning
5	DC345fluid	Cyclomethicone	2.00	Dow Corning
6	NEOBEE® 1053	Caprylic/capric acid triglyceride	2.50	Stepan
7	Jojoba oil	Simmondsia chinensis (jojoba) seed oil	1.00	Active Concepts LLC
8	Isopropyl palmitate	Isopropyl palmitate	3.50	**M.C.Biotec Inc.**
9	Eusolex 2292	Octyl methoxycinnamate	2.00	Merck KGaA
10	Eusolex 9020	Butyl methoxydibenzoylmethane	1.00	Merck KGaA
11	Tocopheryl Acetate	Tocopheryl acetate	0.50	**M.C.Biotec Inc.**
	B			
12	demineralised water	Water (Aqua)	48.70	
13	Euxyl PE9010	Phenoxyethanol, Ethylhexylglycerin	0.80	Schulke & Mayr
14	Glycerin	Glycerin	2.00	Merck
15	Butane-1,3-diol	Butylene glycol	4.00	Kyowa Hakko
16	Arlasolve DMI	Dimethyl isosorbide	2.50	Croda
	C			
17	demineralised water	Water (Aqua)	10.00%	
18	**Erytan**	**Erythrulose**	5.00%	**M.C.Biotec Inc.**
19	Troxerutin	Troxerutin	2.50	**M.C.Biotec Inc.**
	Total		100.0%	

Procedure:

1. Mix the ingredients of phase A and heat to 75°C.
2. Heat phase B to 80° C and add to above "1" and stir thoroughly. Cool the resulting emulsion to 50°C and homogenise.
3. At 30° C add aqueous phase C to the above emulsion and stir thoroughly.

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Self-Tanning Cream With Cyclodextrin

FC-ERY-00901

	Ingredient	INCI Name	Wt.%	Suppliers
	A			
1	Cremophor A6	Ceteareth 6 and stearyl alcohol	1.00	BASF
2	Cremophor A25	Ceteareth 25	1.00	BASF
3	Cetyl Alcohol	Cetyl Alcohol	1.00	
4	Cutina GMS	Glyceryl Stearate	3.00	Cognis
5	Paraffin Oil	Mineral Oil	8.00	Exxon Mobil Lubricants and Petroleum Specialties
6	ABIL® Wax 2434	Stearoxy Dimethicone	1.00	Evonik Goldschmidt GmbH
7	ABIL® 350	Dimethicone	0.50	Evonik Goldschmidt GmbH
8	Jojoba oil	Simmondsia Chinensis (Jojoba) Seed Oil	5.00	C&F Koei Phyto Corp
9	Tocopheryl acetate	Tocopheryl Acetate	0.50	**M.C.Biotec Inc.**
	B			
10	Deionized water	Water (Aqua)	48.00	
11	Euxyl PE9010	Phenoxyethanol, Ethylhexylglycerin	0.80	Schulke & Mayr
12	Transcutol CG	Ethoxydiglycol	5.00	Gattefosse
	C			
13	Deionized water	Water (Aqua)	15.00	
14	Cyclodextrin	Cyclodextrin	5.00	Wacker Chemie AG
15	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
16	N-acetyl tyrosine	N-acetyl Tyrosine	0.20	**M.C.Biotec Inc.**
	Total		100.00	

Procedure:

1. Mix Phase A and heat to 70°C
2. Mix phase B and heat to 75°C
3. Add above "2" to "1" with stirring and then cool to 50° C, homogenise and cool continued to 30° C
4. Add C to above "3" and stir to cold.

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O/W Self Tanning Cream Comprising Flavonoids

FC-ERY-01001

	Ingredients	INCI	wt.%	Suppliers
	A			
1	TEGO® Care 150	Glyceryl Stearate, Steareth-25, Ceteth-20, Stearyl Alcohol	8.00	Evonik Goldschmidt
2	Lanette O	Ceteary Alcohol	1.50	Cognis GmbH
3	TEGOSOFT® liquid	Cetearyl Ethylhexanoate	5.50	Degussa AG
4	NEOBEE® 1053	Caprylic/Capric Triglyceride	5.50	Stepan
5	ABIL® Wax 2434	Stearoxy Dimethicone	1.00	Evonik Goldschmidt
6	ABIL® 350	Dimethicone	0.50	Evonik Goldschmidt
7	Tocopheryl Acetate	Tocopheryl Acetate	0.50	**M.C.Biotec Inc.**
	B			
8	RonaCare® Ectoin	Ectoine	0.30	Merck KGaA
9	Butane-1,3-diol	Butylene glycol	2.00	Kyowa Hakko Chemical
10	Water	Aqua (water)	47.80	
	C			
11	Sodium Metabisulfite	Sodium Metabisulfite	0.10	**M.C.Biotec Inc.**
12	Troxerutin	Troxerutin	2.50	**M.C.Biotec Inc.**
13	Colorona® Bronze	Mica and Iron oxides	5.00	Merck KGaA
14	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
15	Mahakanni	Eclipta prostrata extract & water	1.50	**M.C.Biotec Inc.**
16	Arlasolve DMI	Dimethyl isosorbide	2.50	Croda
17	Water	Aqua (water)	10.00	
	D			
18	Fragrance	Perfume	0.10	
19	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem Inc.
	Total		100.00	

Procedure:

1. Heat phase A and B separately to 80°C.
2. Slowly add phase B to A with stirring and homogenized. Cool the mixture with stirring and homogenized
3. Add Phase C to above "2" at 40°C, and then add Phase D

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O/W Self Tanning Cream Containing Mahakanni and Sorbitol

FC-ERY-01101

	Ingredients	INCI Name	wt.%	Supplier
	A			
1	Tego Care 150	Glyceryl stearate, steareth-25, ceteth-20, stearyl alcohol	8.00	Degussa-Goldschmidt AG
2	Miglyol 812 N	Caprylic/capric triglyceride	3.00	Sasol Germany GmbH
3	Isopropyl myristate	Isopropyl myristate	2.00	**M.C.Biotec Inc.**
4	Paraffin liquid	Paraffinum liquidum (mineral oil)	12.00	Merck KGaA
5	Paraffin	Paraffin	2.00	Merck KGaA
	B			
6	Butane-1,3-diol	Butylene glycol	4.00	Merck Schuchardt OHG
7	Sorbitol F liquid	Sorbitol	2.00	Merck KGaA
8	Deionized water	Aqua (water)	48.50	
	C			
9	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
	Mahakanni	Eclipta prostrata extract & water	1.00	**M.C.Biotec Inc.**
10	Deionized water	Aqua (water)	11.50	
	D			
11	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.50	Centerchem Inc.
12	Fragrance	Parfum	0.50	
	Total		100.00	

Procedure:

1. Heat phase A and B separately to 75° C.
2. Add phase A slowly into phase B with gently stirring. Homogenize at 65 °C for one minute. Cool.
3. At 40° C add phase C with stirring.
4. At 35° C add phase D while stirring, cool down.

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Self Tanning Butter Containing Self Foaming Agent

FC-ERY-01201

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Purified Water		19.60	
2	Stabileze QM	PVM/MA Decadiene Crosspolymer	1.00	ISP Technologies
3	Sodium Hydroxide 50%	Sodium Hydroxide	0.20	
	B			
4	Kaydol Mineral Oil	Mineral Oil	15.00	Coast Chemicals
5	Ceresine Wax 252	Ceresine Wax	7.50	Strahl & Pitsch
6	Petrolatum SNOW WHITE	Petrolatum	7.00	Penreco
7	Botaniwax BW-100	Beeswax	6.80	Botagenics, Inc.
8	Liposorb SQO	Sorbitan Sesquioleate	6.00	Lipo Chemicals
9	Genapol EP 1022	PPG-2-Isideceth-12	3.50	Calriant
	C			
10	Botanistat PF-64	Phenoxyethanol (and) Caprylyl Glycol (and) Ethylhexylglycerin (and) Hexylene Glycol	1.00	Botanigenics, Inc.
11	Fragrance	Perfume	1.00	
12	Black Walnut Extract	Black Walnut Extract	0.20	Vegetech
13	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
14	Acetyl tyrosine	N-acetyl Tyrosine	0.50	**M.C.Biotec Inc.**
	D			
15	Water		3.20	
16	Sodium Sulfite		0.20	Universal Preser-A-Chem
17	Sodium Metabisulfite		0.30	Esseco USA
	E			
18	PLANTAREN 2000	Decyl Glucoside	7.00	Cognis Corp
	F			
19	PHOENOMULSE CE-1	Polyhydroxystearic Acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Methyl Perfluorobutyl Ether (and) Methyl Perfluoroisobutyl Ether	15.00	Phoenix Chemical, Inc.
	Total		100.00	

Procedure:

1. Add STABILEZE QM to the water of phase A, mix well at 70-75°C until uniform. Then add 50% NaOH at the same temperature.
2. Heat phase B to 70-75°C with stirring until all solids are dissolved.
3. At 70-75°C add phase B to phase A and mix for 15-30 minutes to emulsify. Cool to 40°C
4. Mix phase C into above "3", then add phase D (Sodium Sulfite and Sodium Metabisulfite are previously dissolved in water of Phase D).
5. Add PLANTAREN 2000 of phase E to above "4" at 35-40°C and mix well. Continue to cool to 12-18°C and then add PHOENOMULSE CE-1 of phase F with stirring.

Touch of Sun Day Care Self Tanning Cream

FC-ERY-01301

	Ingredients	INCI	[%]	Suppliers
	A			
1	Tego Care 150	Glyceryl stearate, steareth-25, ceteth-20, stearyl alcohol	8.00	Degussa-Goldschmidt AG
2	Lanette O	Stearyl alcohol	1.50	Cognis GmbH
3	Tegosoft liquid	Cetearyl ethylhexanoate	5.00	Degussa-Goldschmidt AG
4	Miglyol 812 N	Caprylic/capric triglyceride	5.00	Sasol Germany GmbH
5	Abil Wax 2434	Stearoxy dimethicone	1.00	Degussa-Goldschmidt AG
6	Dow Corning 200 (100cs)	Dimethicone	0.50	Dow Corning
7	(-)-Alpha-Bisabolol Natural	Bisabolol	0.20	Symrise
	B			
8	Ronastar® Silver	Calcium Aluminum Borosilicate, Silica, CI 77891 (Titanium Dioxide), Tin Oxide	1.00	Merck KGaA
9	Glycerin	Glycerin	2.00	
10	Deionized water	Water (Aqua)	62.80	
	C			
11	**Erytan**	**Erythrulose**	3.00	**M.C.Biotec Inc.**
12	Sodium metabisulfite	Sodium metabisulfite	0.20	**M.C.Biotec Inc.**
13	Water	Water (Aqua)	9.00	
	D			
14	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
15	Fragrance	Parfum	0.10	
	Total		100.00	

Procedure:

1. Separately heat phase A and phase B to 80°C.
2. Add phase B slowly to phase A while stirring. Homogenize. Cool down while stirring and add phase C at 40°C, followed by adding Phase D.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Transparent W/O Smooth Self-Tanning Lotion

FL-ERY-00101

	Ingredients	INCI	[%]	Suppliers
	A			Dow Corning
1	Dow Corning 3225 C	Cyclomethicone, dimethicone copolyol	23.60	Merck KGaA
	B			
2	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
3	Butane-1,3-diol	Butylene Glycol	35.50	Textron Tecnica, S.L.
4	Water, demineralized	Aqua (Water)	35.30	
	C			
5	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.60	Centerchem
	Total		100.00	

Procedure:

1. Mix phase B and add it to phase A with stirring.
2. Add phase C to above “1”.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Sunless Tanning Lotion For Even Tan

FL-ERY-00201

	Ingredient	INCI Name	Wt.%	Suppliers
	A			
1	Polawax	Emulsifying Wax NF	5.00	Croda
2	Crodamol PMP	PPG-2 Myristyl Ether Propionate	3.00	Croda
3	Crodarom NUT O	Peanut Oil (and) Mineral Oil (and) Walnut Extract	3.00	Croda
4	VOLPO S-10	Steareth-10	1.05	Croda
5	VOLPO S-2	Steareth-2	1.95	Croda
6	Incropol CS-20	Ceteareth-20	0.50	Croda
7	DC-344 Silicone Fluid		1.00	Dow Corning
	B			
8	Deionized Water		69.00	
	C			
9	Deionized Water		5.00	
10	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
11	Transcutol P	Ethoxydiglycol	5.00	Gattefossé
	D			
12	Phenonip	Phenoxyethanol, Methylparben, Ethylparaben, Butylparaben, Propylparaben, Isobutylparaben	0.50	Clariant
	Total		100.00	

Procedure:

1. Separately heat phase A and and phase B to 75-80°C
2. Add phase B to phase A with mixing and cool to 40°C, and then followed by phase C and phase D.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

W/SI Silky Feel Self Tanning Lotion

FL-ERY-00301

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Dow Corning® emulsifier 10	Lauryl PEG/PPG-18/18 Methicone	2.25	Dow Corning
2	Isohexadecan	Isohexadecan	16.00	LANXESS Distribution GmbH
3	Dow Corning® 245 Fluid	Cyclopentasiloxane	3.00	Dow Corning
4	XIAMETER® PMX-1184	Dimethicone; Trisiloxane	3.00	Dow Corning
5	Jojoba oil	Simmondsia chinensis (Jojoba) Seed Oil	3.00	Alban Muller Industrie
	B			
6	Deionized water	Aqua (water)	66.90	
7	Sodium Chloride	Sodium Chloride	1.00	
8	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem Inc.
9	**Erytan**	**Erythrulose**	3.00	**M.C.Biotec Inc.**
10	BHT	BHT	0.15	**M.C.Biotec Inc.**
11	Mahakanni	Eclipta prostrata extract & water	1.00	**M.C.Biotec Inc.**
	Total		100.00	

Procedure:

Separately mix ingredients of phase A and B. Add phase B slowly to phase A. Homogenise.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self-Tanning Body Lotion Comprising Bisabolol and Mahakanni

FL-ERY-00401

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Cutina GMS	Glyceryl stearate	12.00	Cognis
2	Eumulgin B1	Ceteareth-12	1.50	Gognis
3	Eumulgin B2	Ceteareth-20	1.50	Cognis
4	Isopropyl myristate	Isopropyl myristate	4.00	**M.C.Biotec Inc.**
5	Paraffin oil	Mineral oil	7.00	ChevronTexaco Global Lubricants
6	Miglyol 812	Caprylic/capric acid triglyceride	4.00	Sasol Germany GmbH
7	RonaCare® Bisabolol nat.	Alpha bisobola	0.20	Merck KGaA
	B			
8	Demineralised water	Water (Aqua)	54.20	
9	Arlasolve DMI	Dimethyl isosorbide	3.00	Croda
	C			
10	Demineralised water	Water (Aqua)	5.00	
11	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
12	Mahakanni	Eclipta prostrata extract & water	1.50	Provital, S.A.
13	Sodium metabisulfite	Sodium metabisulfite	0.30	**M.C.Biotec Inc.**
	D			
14	Diocide	Caprylyl glycol, phenoxyethanol, hexylene glycol	0.80	Centerchem Inc.
	Total		100.00	

Procedure:

1. Mix together Phase A and heat to 70°C
2. Mix together Phase B and heat to 75°C
3. Add above "2" to "1" with stirring, homogenize and cool to 40°C
4. Add Phase C to above "3" with stirring at 40°C, followed by Phase D with stirring. Stir to cool.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

O/W Self-tanning Lotion Comprising Cell Protect Factor

FL-ERY-00501

	Ingredients	INCI Name	Wt.%	Supplier
	A			
1	Emulsifier E 2155	Steareth-10, Steareth-7, Stearyl Alcohol	3.00	Goldschmidt AG
2	Tegin Acid H	Glyceryl Stearate, Ceteth-20	3.00	Goldschmidt AG
3	Imwitor 900	Glyceryl Stearate	3.00	Huls AG
4	Paracera M	Microwax	1.00	Pararmelt
5	Cetiol	Oleyl Oleate	8.50	Cognis GmbH
6	Luvitol EHO	Cetearyl Octanoate	11.50	BASF AG
7	Miglyol 812 N	Caprylic/Capric Triglyceride	8.50	Condea Chemie GmbH

	B			
8	Deionized water	Water (Aqua)	40.0	
9	Butane-1,3-diol	Butylene Glycol	4.00	Ashland Chemicals
10	Arlasolve DMI	Dimethyl isosorbide	2.50	Croda
11	Phenonip	phenoxyethanol, methylparaben, ethylparaben, butylparaben, propylparaben, isobutylparaben	0.80	Clariant
	C			
12	Deionized water		9.00	
13	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
14	RonaCare TM ectoin	ectoin	0.10	Merck KGaA
15	Sodium Metabisulfite	Sodium Metabisulfite	0.10	**M.C.Biotec Inc.**
	Total		100.00	

Procedure:

1. Separately heat phase A to 75°C, and phase B to 80°C.
2. Slowly add phase B to phase A with stirring and homogenized. Cool under stirring.
3. Premix Phase C and then add to above "2" at about 40°C with stirring and allow it to cool with stirring.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

After Sun Light Tanning Lotion containing bisabolol

FL-ERY-00601

	Ingredients	INCI Name	Wt.%	Supplier
	A			
1	Tego® Care 450	Polyglyceryl-3 Methylglucose Distearate	1.50	Evonik-Goldschmidt
2	Cetearyl Alcohol	Cetearyl Alcohol	1.15	Croda
3	Glyceryl Stearate	Glyceryl Stearate	1.15	Gattefosse s.a.s.
4	Crodamol OS	Ethylhexyl Stearate	8.00	Croda
5	Nikkol Olive Squalane	Squalane	5.00	Nikkol
6	RonaCare® Bisabolol	Bisabolol	0.20	Merck KGaA
7	DC345fluid	Cyclomethicone	2.00	Dow Corning
	B			
8	Deionized Water	Water	55.10	
9	Keltrol CG-RD	Xanthan Gum	0.10	CP Kelco
	C			
10	Glycerin	Glycerin	5.00	Merck KGaA
11	Phenonip	Phenoxyethanol, Methylparben, Ethylparaben, Butylparaben, Propylparaben, Isobutylparaben	0.50	Clariant
	D			
12	Alcohol	Alcohol	5.00	
13	Fragrance	Perfume	0.30	
	E			
14	Deionized Water	Water (Aqua)	8.00	
15	**Erytan**	**Erythrulose**	4.00	**M.C.Biotec Inc.**
16	Troxerutin	Troxerutin	2.50	**M.C.Biotec Inc.**
17	Sodium Metabisulfite	Sodium Metabisulfite	0.50	**M.C.Biotec Inc.**
	Total		100.00	

Procedure:

1. Separately heat phase A to 70°C, and phase B to 75°C.
2. With stirring add phase B to phase A, cool to 50°C, homogenize and cool to 30°C. Then add phases C, D and E one after the other and stir till cold.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self Foaming Sunless Tanning Lotion Containing Phoenomulse CE-1 and Stabileze QM

FL-ERY-00701

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Purified Water	Water (Aqua)	48.57	
2	STABILEZE QM	PVM/MA Decadiene Crosspolymer	0.50	ISP Technologies
3	Sodium Hydroxide 50%	Sodium Hydroxide	0.30	
4	BOTANIMOIST G-26	Glycereth-26	2.00	Botanigenics
5	VERSENE NA	Disodium EDTA	0.05	Univar USA
	B			
6	PROMULGEN D	Cetearyl Alcohol (and) Ceteareth-20	1.50	Lubrizol
7	ENDIMULSE 165-V	Glyceryl Stearate (and) PEG-100 Stearate	1.00	Coast Chemicals
8	LIPO GMS-470	Glyceryl Stearate SE	1.50	Lipo Chemicals
9	Shea Butter	Shea Butter	2.00	Desert Whale Jojoba
10	Sunflower Oil	Sunflower Oil	3.00	
11	Butylated hydroxytoluene	BHT	0.05	**M.C.Biotec Inc.**
12	dl-Alpha Tocopherol Acetate	Tocopherol Acetate	0.10	**M.C.Biotec Inc.**
	C			
13	DOW CORNING 245	Cyclopentasiloxane	2.00	Dow Corning
	D			
14	Purified Water	Water (Aqua)	5.39	
15	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
16	Mahakanni	Eclipta prostrata extract & water	1.50	**M.C.Biotec Inc.**
17	Sodium Metabisulfite	Sodium Metabisulfite	0.05	**M.C.Biotec Inc.**
	E			
18	Black Walnut Extract	Black Walnut Extract	0.10	Vegetech
19	D-Panthenol	Panthenol	0.10	Seltzer Chemical Inc.
20	BOTANISTAT PF-64	Phenoxyethanol (and) Caprylyl Glycol (and) Ethylhexylglycerin (and) Hexylene Glycol	1.00	Botanigenics, Inc.
21	SEPIGEL 305	Polyacrylamide (and) C13-14 Isoparaffin (and) Laureth-7	1.20	Seppic
22	Fragrance	Perfume	0.50	
23	Lactic Acid	Lactic Acid	0.59	Univar USA
	F			
24	PLANTAREN 2000	Decyl Glucoside	7.00	Cognis Corp
	G			
25	PHOENOMULSE CE-1	Polyhydroxystearic Acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Methyl Perfluorobutyl Ether (and) Methyl Perfluoroisobutyl Ether	15.00	Phoenix Chemical, Inc.
	Total		100.00	

Procedure:

1. Add STABILEZE QM to water of phase A and mix until completely hydrated. Add 50% NaOH, then add BOTANIMOIST G-26 and the VERSENE NA, heat to 70-75°C and mix until substantially uniform.
2. Heat Phase B to 70-75°C to dissolve all solids with stirring.
3. Add Phase B to Phase A at 70-75°C and mix for about 15-30 minutes to emulsify. Cool to 60-65°C.
4. Add phase C to above "3" and mix well.
5. Mix phase D and then add to above "4" at 40°C, and mix well.
6. Add ingredients in Phase E to above "5" and mix well.
7. Add Phase F to above "6" and mix well and then cool to 12-18°C.
8. Add phase G to above "7" and mix well.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self Foaming Self tanning Lotion
Containing PHOENOMULSE CE-1 and MFA Complex

FL-ERY-00801

	Ingredient	INCI Name	Wt.%	Supplier
	A			
1	Purified Water	Water (Aqua)	44.60	
2	Glycerin 99.5%	Glycerin	2.00	Norman, Fox & Co.
	B			
3	ENDIMULSE 165-V	Glyceryl Stearate (and) PEG-100 Stearate	4.50	Coast Chemicals
4	CRODAMOL CAP	Cetearyl Ethylhexanoate (and) Isopropyl Myristate	2.50	Croda
5	ADOL 52	Cetyl alcohol	0.80	Ashland Chemicals
6	LIPONATE NEB	C12-C15 Alkyl Benzoate	1.60	Lipo Chemicals
	C			
7	DOW CORNING 245	Cyclopentasiloxane	8.20	Dow Corning
	D			
8	BOTANISTAT PF-64	Phenoxyethanol (and) Caprylyl Glycol (and) Ethylhexylglycerin (and) Hexylene Glycol	1.00	Botanigenics, Inc.
9	SEPIGEL 305	Polyacrylamide (and) C13-14 Isoparaffin (and) Laureth-7	2.00	Seppic
	E			
10	CRODAROM NUT A	Water (and) Propylene Glycol (and) Walnut Extract	0.10	Croda
11	Fragrance		0.50	
	F			
12	Water		5.00	
13	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec**
14	Sodium Metabisulfite		0.10	**M.C.Biotec**
	G			
15	MFA Complex	Saccharum Offic. (sugar cane) Extract (and) Citrus Medica Limonum (lemon) Extract (and) Pyrus Malus (apple) Extract (and) Camellia Sinensis Leaf Extract	0.10	Barnet Products Corp.
16	PLANTAREN 2000	Decyl Glucoside	7.00	Cognis Corp
	H			
17	PHOENOMULSE CE-1	Polyhydroxystearic Acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Methyl Perfluorobutyl Ether (and) Methyl Perfluoroisobutyl Ether	15.00	Phoenix Chemical, Inc.
	Total		100.00	

Procedure:

1. Add Glycerin to water of phase A, and mix at 70-75°C until uniform.
2. Heat Phase B to 70-75°C until all solids are dissolved.
3. Add above "2" to "1" at 70-75°C and mix for approximately 15-30minutes to emulsify. Cool to 60-65°C
4. Add Phase C to above "3", and mix well.
5. At 55-60°C add ingredients in Phase D to above "4"
6. At 45°C add Phase E to above "5", and mix well.
7. Premix Phase F and then add to above "6" at 40°C and mix well.
8. Add Phase G to above "7" and mix well. Cool to 12-18°C, and then add Phase H and mix well.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Light Tan Lotion with Erythrulose containing humectant and sun-screening agent and Penetration enhancer

FL-ERY-00901

	Ingredient	INCI Name	Wt.%	Supplier
	A			
1	Cremophor A6	Ceteareth-6 and Stearyl Alcohol	2.00	BASF
2	Cremophor A25	Ceteareth-25	2.00	BASF
3	Tegin M Pellets	Glyceryl Stearate	1.00	Evonik
4	Tego Alkanol 16	Cetyl Alcohol	1.50	Evonik
5	Tegosoft TN2	C12-15 Alkyl Benzoate	7.00	Evonik
6	DC200fluid/200cts	Dimethicone	1.00	Dow Corning
7	DC345fluid	Cyclomethicone	1.50	Dow Corning
8	Parsol MCX	Ethylhexyl Methoxycinnamate	2.00	DSM Nutritional
9	Parsol 1789	Butyl Methoxydibenzoylmethane	1.00	DSM Nutritional
	B			
10	Deionized Water		57.50	
11	Butane-1,3-diol	BUTYLENE GLYCOL	4.00	Kyowa Hakko Chemical
12	Keltrol CG-RD	Xanthan Gum	0.30	CP Kelco
13	Euxyl PE9010	Phenoxyethanol & Ethylhexylglycerin	0.50	Schulke
14	1% sodium hyaluronate	Sodium hyaluronate (and) water	4.00	**M.C.Biotec Inc.**
	C			
15	Deionized Water	Water (Aqua)	4.00	
16	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
17	Arlasolve DMI	Dimethyl isosorbide	5.00	Croda
	D			
18	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
	Total		100.00	

Procedure:

1. Add Xanthan Gum to water of phase B and mix until uniform. Add remaining Phase B ingredients.
2. Separately heat Phase A and Phase B to 75°C.
3. Add Phase B to Phase A under moderate mixing. Homogenize briefly. Begin cool down.
4. Add Phase C at 40°C or below. Mix until uniform. Add Phase D.
5. Adjust pH to 4.0—4.5 if necessary.
6. Mix until uniform. Discontinue batch at 30°C.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

W/O Self Tanning Lotion with flavonoids

FL-ERY-01001

	Ingredients	INCI	Wt.%	Supplier
	A			
1	ABIL® EM 97	Bis-PEG/PPG-14/14 Dimethicone, cyclopentasiloxane	1.50	Evonik Goldschmidt GmbH
2	ABIL® EM 90	Cetyl PEG/PPG-10/1 Dimethicone	1.30	Evonik Goldschmidt GmbH
3	DC345fluid	Cyclomethicone	13.00	Dow Corning
4	Dermol.TM. 816	Ethylhexyl Palmitate	2.00	Alzo, Inc.
5	USG 103	Cyclopentasiloxande, Dimethicone/Vinyldimethicone, crosspolymer	5.00	Shin-Etsu Silicones of America
6	Tegosoft® DEC	Diethylhexyl Carbonate	5.00	DegussaAG
7	Fragrance	Perfume	0.30	
8	(-)-alpha-Bisabolol natural	Bisabolol	0.2	Symrise
	B			
9	Sodium Metabisulfite	Sodium Metabisulfite	0.50	**M.C.Biotec**
10	Troxerutin	Troxerutin	2.50	**M.C.Biotec**
11	Colorona® Bronze	Mica and Iron oxides	5.00	Merck KGaA
12	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
13	Rona®Care Ecotin	Ecotine	0.30	EMD Chemicals Inc.
14	Butane-1,3-diol	Butylene glycol	17.80	Kyowa Hakko Chemical
15	Arlasolve DMI	Dimethyl isosorbide	5.00	Croda
16	Magnesium Sulfate	Magnesium Sulfate	2.00	
17	Alcohol	Alcohol	8.00	
18	Phenonip	phenoxyethanol, methylparaben, ethylparaben, butylparaben, propylparaben, isobutylparaben	0.80	Clariant
19	Deionized water	Aqua (water)	29.80	
	Total		100.00	

Procedure:

1. Add magnesium sulfate to water of Phase B with stirring, and subsequently add the remained ingredients of Phase B.
2. Slowly add Phase B to phase A with stirring, and the mixture is homogenized.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

W/Si Self Tanning Gel

FG-ERY-00101

	Ingredients	INCI	[%]	Suppliers
	A			
1	Dow Corning 5225 C	Cyclopentasiloxane, PEG/PPG-18/18 dimethicone	20.00	Dow Corning
2	DM-Fluid-A-6cs	Dimethicone	4.00	S. Black GmbH
3	Simmondsia chinensis (Jojoba) Seed Oil	Simmondsia chinensis (Jojoba) Seed Oil	3.00	Jan Dekker International
4	Tocopherol Acetate	Tocopheryl acetate	0.50	**M.C.Biotec Inc.**
	B			
5	RonaCare® Ectoin	Ectoin	0.30	Merck KGaA
6	Butane-1,3-diol	Butylene glycol	28.00	Kyowa Hakko Chemical
7	Glycerin	Glycerin	3.00	
8	Dipropylenglycol	Dipropylene glycol	10.00	BASF AG
9	Sodium chloride	Sodium chloride	1.00	Merck KGaA
10	Ethanol 96%	Alcohol	5.00	Merck KGaA
11	1% Caramel in water	Caramel	2.00	D.D.Williamson
12	Black Walnut Extract	Black walnut extract	0.50	Vegetech
13	Water, demineralized	Aqua (water)	9.00	
	C			
14	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
15	Water, demineralized	Aqua (water)	8.50	
	D			
16	Fragrance	Parfum	0.20	
	Total		100.00	

Procedure:
Mix phase B and incorporate it into phase A. subsequently add phases C and D with stirring. Homogenize.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Sunless Tanning Gel Containing Stabileze QM

FG-ERY-00201

	Ingredients	INCI Name	Wt.%	Suppliers
	A			
1	Stabileze QM	PVM/MA Decadiene Crosspolymer	1.00%	ISP
2	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem Inc.
3	Demineralised water	Water (Aqua)	83.30%	
4	Sodium hydroxide solution	Sodium hydroxide (and) water	Adjusting pH to 3.7	
	B			
5	Demineralised water	Water (Aqua)	9.00%	
6	**Erytan**	**Erythrulose**	5.00%	**M.C.Biotec**
7	Troxerutin	Troxerutin	0.75	**M.C.Biotec**
8	Black Walnut Extract	Black Walnut Extract	0.25	Vegetech
	Total		100%	

Procedure:

1. Mix together the ingredients in Phase A, adjust the pH to 3.7 with sodium hydroxide solution.
2. Add Phase B to Phase A, mix well.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self-Tanning Gel with Tanning Accelerator

FG-ERY-00301

	Ingredients	INCI Name	% W/W	Supplier
	A			
1	Deionised Water	Aqua	89.20	
2	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
3	Titriplex III	Disodium EDTA	0.10	Merck
4	**Erytan**	**Erythrulose, Aqua**	4.00	**M.C.Biotec Inc.**
5	Troxerutin	Troxerutin	2.50	M.C.Biotec
6	Arlasolve DMI	Dimethyl isosorbide	2.50	Croda
	B			
7	Amaze XT	Dehydroxanthan Gum	1.00	National Starch
	Total		100.00	

Procedure:

1. Premix the ingredients in Phase A in order, mixing well.
2. Add phase B slowly to phase A with stirring until uniform.

Self Tanning Hydrogel Comprising Flavonoids

FG-ERY-00401

	Raw Materials	INCI	Wt.%	Supplier
	Phase A			
1	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
2	Sodium Metabisulfite	Sodium Metabisulfite	0.50	**M.C.Biotec Inc.**
3	Troxerutin	Troxerutin	2.50	**M.C.Biotec Inc.**
4	Colorona® Bronze	Mica and Iron oxides	5.00	Merck KGaA
5	N-acetyl tyrosine	Acetyl tyrosine	0.20	**M.C.Biotec Inc.**
6	Black Walnut Extract	Black Walnut Extract	0.10	Vegetech
7	Transcutol CG	Ethoxydiglycol	8.00	Gattefosse
8	RonaCare® Ectoin	Ecotine	0.30	Merck KGaA
9	Butane-1,3-diol	Butylene glycol	2.50	Kyowa Hakko Chemical
10	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
11	Sorbitol F liquid	Sorbitol	2.50	Merck KGaA
12	Deionized water	Aqua (water)	15.20	
	Phase B			
13	Deionized water	Aqua (water)	56.00	
14	Natrosol 250 HHR	Hydroxyethylcellulose	1.50	Aqualon GmbH
	Total		100.00	

Procedure:

1. Add Natrosol 250 HHR to the vortex of the vigorously agitated water of phase B. The rate of addition must be slow enough to permit the particles to separate and their surfaces to become individually wetted, but it should be fast enough to minimize viscosity build up of the aqueous phase while the polymer is being added.
2. Mix Phase A, then combine phase A and B and homogenize.

Note:

Recommend to store at room temperature to avoid a decrease of viscosity at about 40° C

Sunny Radiance Quick Drying Pump Spray

FP-ERY-00101

	Ingredient	INCI Name	Wt. %	Supplier
	A			
1	Dow Corning® 9011	Cyclopentasiloxane & PEG-12 Dimethicone Crosspolymer	15.00	Dow Corning
2	Dow Corning® 245 FLUID	Cyclomethicone	17.00	Dow Corning
3	Huile de Palmotene	Palmoten Oil	0.30	Bertin
4	RonaCare® Bisabolol nat.	Bisabolol	0.20	Merck KGaA
5	Promyristyl PM-3	PPG-3 Myristyl Ether	1.00	Croda, Inc.
6	Fragrance	Perfume	0.30	
	B			
7	Water	Water	56.50	
8	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
9	Sodium Metabisulfite	Sodium Metabisulfite	0.10	**M.C.Biotec Inc.**
10	Sodium Chloride	Sodium Chloride	0.50	VEL
11	Dow Corning® HMW 2220	Divinyldimethicone / Dimethicone Copolymer (and) C12-13 Pareth-3 (and) C12-13 Pareth-23	0.50	Dow Corning
12	Empicol ESB-3	Sodium Laureth Sulfate	1.50	Albright & Wilson
13	Mahakanni	Eclipta prostrata extract & water	1.50	**M.C.Biotec Inc.**
14	10% Citric Acid	Citric acid (and) water	0.10	
	C			
15	Sepicide HB2	Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Butylparaben (and) Isobutylparaben (and) Propylparaben	0.50	Seppic S.A.
	Total		100.00	

Procedure:

1. Mix all ingredients of the phase A until homogeneous
2. Mix all ingredients of Phase B together.
3. Add phase B quickly to phase A while moderate stirring. Continue to stir for 10 minutes.
4. Add phase C and mix 5 min.
5. The product will show its complete phase separation a few hours after production.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self Tanning Spray Containing Self Foaming Agent

FP-ERY-00201

	Raw material	INCI Name	Wt.%	Supplier
	A			
1	Purified Water	Water (Aqua)	41.90	
2	Witch Hazel Extract	Witch Hazel Extract	10.50	Vegetech
3	Butylene Glycol	Butylene Glycol	4.00	Ashland Chemicals
4	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
5	Black Walnut Extract	Black Walnut Extract	0.10	Vegetech
6	TRANSCUTOL CG	Ethoxydiglycol	15.50	Gattefosse
7	EMERESSENCE 1160	2-Phenoxyethanol	0.50	Pacific Coast Chemicals
	B			
8	Fragrance		0.50	
	C			
9	PLANTAREN 2000	Decyl Glucoside	7.00	Cognis Corp
	D			
10	PHOENOMULSE CE-1	Polyhydroxystearic Acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Methyl Perfluorobutyl Ether (and) Methyl Perfluoroisobutyl Ether	15.00	Phoenix Chemical, Inc.
	Total		100.00	

Procedure:

1. Charge water of phase A into a mixing tank, the other ingredients in phase A are added one at a time, with enough stirring after each is added.
2. Add phase B to above "1", followed by PLANTAREN 2000, mix well and then cool to 12-18°C. Add phase D and mix well

Self Tanning Lotion for Pump-Spray Comprising Aqueous-alcoholic System

FP-ERY-00301

	Ingredients	INCI	[%]	Suppliers
1	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
2	Mahakanni	Eclipta prostrata extract & water	1.00	**M.C.Biotec Inc.**
3	Troxerutin	Troxerutin	1.50	**M.C.Biotec Inc.**
4	Ethanol 96%	Alcohol	38.50	Merck KGaA
5	Tagat L 2	PEG-20 Glyceryl Laurate	7.00	Degussa-Goldschmidt AG
6	Butylene glycol	Butylene glycol	5.00	
7	Water, demineralized	Aqua (Water)	42.00	
	Total		100.00	

Procedure:
Mix together all materials while stirring.

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self-tanning milk (W/O)

FM-ERY-00101

	Ingredient	INCI Name	Wt.%	Supplier
	A			
1	Dow Corning 3225 C		23.6	Dow Corning
	B			
2	**Erytan**	**Erythrulose**	5.0	**M.C.Biotec Inc.**
3	Butane-1,3-diol	Butylene glycol	29.35	Kyowa Hakko Chemical
4	TRANSCUTOL CG	Ethoxydiglycol	5.00	Gattefosse
5	Euxyl PE9010	Phenoxyethanol, Ethylhexylglycerin	0.8	Schulke & Mayr
6	RonaCare TM ectoin	ectoine	1.0	Merck KGaA
7	Troxerutin	Troxerutin	0.75	**M.C.Biotec Inc.**
8	Water, demineralised	Aqua (Water)	34.50	
	Total		100.00	

Procedure:
Dissolve phase B and subsequently stir into phase A

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self tanning mousse for pump with tyrosine enhancer

FO-ERY-00101

	Raw Material	INCI Name	Wt.%	Supplier
	A			
1	Deionised Water	Water (Aqua)	78.19	
2	Plexajel ASC	Aqua, Glycerin, Polyacrylimidomethylpropane Sulfonate, Polyquaternium-4, Phenoxyethanol	10.00	Guardian
	B			
3	Phenonip	Phenoxyethanol, Methylparaben, Ethylparaben, Butylparaben, Propylparaben, Isobutylparaben	1.00	Clariant
4	**Erytan**	**Erythrulose, Aqua**	4.50	**M.C.Biotec Inc.**
5	N-acetyl tyrosine	acetyl tyrosine	0.2	**M.C.Biotec Inc.**
6	BHT	BHT	0.1	**M.C.Biotec Inc.**
7	Transcutol P	Ethoxydiglycol	5.00	Gattefossé
8	EMAL 228 D/JM	Sodium Laureth Sulfate	1.00	Kao Chemicals Europe
	C			
9	25% Citric Acid	Citric Acid, Aqua	0.01	**M.C.Biotec Inc.**
	Total		100.00	

Procedure:

1. Premix the ingredients in Phase A until uniform
2. Add phase B to phase A in order, homogenizing until uniform
3. Adjust the pH to 3.5 to 4.0 using phase C

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

Self Tanning Shower Solution

FS-ERY-00101

	Ingredients	INCI	[wt.%]	Suppliers
1	Water demineralized	Aqua (water)	71.35	
2	**Erytan**	**Erythrulose**	5.00	**M.C.Biotec Inc.**
3	Troxerutin	Troxerutin	0.75	**M.C.Biotec Inc.**
4	Ronacare® Ectoin	Ectoine	0.30	Merck KGaA
5	Colorona® Bronze	Mica and Iron oxides	5.00	Merck KGaA
6	Butane-1,3-diol	Butylene glycol	4.00	Kyowa Hakko Chemical
7	Glycerin	Glycerin	2.00	Merck KGaA
8	Transcutol CG	Ethoxydiglycol	5.00	Gattefosse
9	Arlasolve DMI	Dimethyl isosorbide	2.50	Croda
10	Polysorbate 80	Polysorbate 80	0.50	**M.C.Biotec Inc.**
11	Crodarom Nut A	Water (and) Butylene glycol (and) Walnut Extract	1.50	Croda
12	Aloe Barbadensis Leaf extract	Aloe Barbadensis Leaf extract	1.00	**M.C.Biotec Inc.**
13	Caramel	Caramel	0.10	
14	Diocide	Caprylyl Glycol, Phenoxyethanol, Hexylene Glycol	0.70	Centerchem
15	Perfume	Perfume	0.30	
	Total		100.00	

Procedure:

All materials are stirred to uniform

M.C.Biotec hopes that the technical information and suggestions for use contained herein will be of interest to you, but they are not to be construed as warranties or inducements to infringe any particular patent.

8.1 How to Make Self Tanning Wet Wipes?

It's very simple! Just mix emulsion concentrate with water, self tanning agent, preservatives and Parfum.

1. Suppliers of emulsions concentrate for wet wipes			
EVONIK Goldschmidt GmbH Cognis - Care Chemicals AP Res Pharma Croda Dow Corning			
Company	Trade Name	INCI Name	Function
Cognis	Emulgade® CM	Cetearyl Isononanoate (and) Ceteareth-20 (and) Cetearyl Alcohol (and) Glyceryl Stearate (and) Glycerin (and) Ceteareth-12 (and) Cetyl Palmitate	This product is a o/w emulsion concentrate of a cosmetic oil, non-ionic emulsifiers and wax-like constituents. The product can be used for the simple cold preparation of most types of o/w emulsions. It contains the typical ingredients of cosmetic o/w emulsions, including wax-like constituents. Thus, skin care products with good sensory properties can be manufactured even by a cold process. Emulgade CM is manufactured by means of a new technology that gives a liquid and pumpable emulsions concentrate in spite of the presence of solid high-melting waxes.
	EMULGADE® CPE	INCI Name:Olus Oil (Vegetable Oil)(and) Glycerin (and) Lauryl Glucoside (and) Polyglyceryl-2-Dipolyhydroxystearate (and) Glyceryl Oleate (and) Dicaprylyl Carbonate.	Emulgade® CPE is an ECOCERT approved concentrated microemulsion for personal care wipe applications.
	EUMULGIN® VL 75	Lauryl Glucoside (and) Polyglyceryl-2 Dipolyhydroxysetarate (and) glycerin	universally applicable nonionic emulsifier for the production of cosmetic O/W emulsions
Res Pharma	EMULPHARMA® CME-2	Water (aqua) (and) Ethylhexyl Palmitate (and) Caprylic/Capric Triglyceride (and) Glycerin (and) Glyceryl Stearate (and) Cetyl Palmitate (and) Cetearyl Alcohol (and) Paraffinum Liquidum (Mineral) Oil (and) Phenoxyethanol (and) Benzoic Acid (and) Dehydroacetic Acid (and) Ethylhexylglycerin	Concentrated fluid emulsion. It can be simply diluted by cold processing. Base formulation for wet wipes production.
	EMULPHARMA® CM3-2	Water (aqua) (and) C12-15 Alkyl Benzoate (and) Triisostearin (and) Diglycerin (and) Glyceryl Stearate (and) Cetyl Palmitate (and) Cetearyl Alcohol (and) Dimethicone (and) Phenoxyethanol (and) Benzoic Acid (and) Dehydroacetic Acid (and) Ethylhexylglycerin	Concentrated fluid emulsion. It can be simply diluted by cold processing. Standard formulation for wet wipes production. Use level: 5.0-10.0% Suppler: Kinetik Technologies Tel: 1-732-335-5775
	EMULPHARMA® CM 5-2	Water (aqua) (and) Triisostearin (and) Octyldodecyl Lactate (and) Lauryl Alcohol (and) C12-15 Pareth-3 (and) Myristyl Alcohol (and) Ceteth-2 (and) Ceteareth-25 (and) Cyclopentasiloxane (and) Oryza Sativa (Rice) Extract (and) Diglycerin (and) C12-15 Alkyl Benzoate (and) Glyceryl Stearate (and) Cetyl Palmitate (and) Cetearyl Alcohol Panthenol (and) Dimethicone (and) Phenoxyethanol (and) Benzoic Acid Dehydroacetic Acid (and) Ethylhexylglycerin	Concentrated fluid emulsion. It can be simply diluted by cold processing. Formulation for the production of wet wipes, enriched with panthenol for a smoother skin feel. Use level: 5.0-10.0%
	EMULPHARMA® PGF E	Water (aqua) (and) Caprylic/Capric Triglyceride (and) Glyceryl Stearate (and) Glycerin (and) Cetyl Palmitate (and) Cetearyl Alcohol (and) Ethylhexyl Palmitate (and) Phenoxyethanol (and) Benzoic Acid (and) Dehydroacetic Acid (and) Ethylparaben (and) Methylparaben	PEG free concentrated fluid emulsion. It can be simply diluted by cold processing. Base formulation for wet wipes production. Use level: 5.0-10.0%

	EMULPHARMA® PGF 3	C12-15 Alkyl Benzoate (and) C10-18 Triglycerides (and) Triisostearin (and) Glyceryl Stearate (and) Cetyl Palmitate (and) Dimethicone (and) Water (aqua) (and) Diglycerin (and) Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Propylparaben (and) Butylparaben (and) Isobutylparaben	PEG free concentrated fluid emulsion. It can be simply diluted by cold processing. Standard formulation for wet wipes production. USE LEVEL: 5.0-10.0%
	EMULPHARMA® PGF 5	Water (aqua) (and) C12-15 Alkyl Benzoate (and) Triisostearin (and) C10-18 Triglycerides (and) Diglycerin (and) Glyceryl Stearate (and) Cetyl Palmitate (and) Cetearyl Alcohol (and) Phenoxyethanol (and) Ethylparaben (and) Propylparaben (and) Butylparaben (and) Isobutylparaben	PEG free and silicone free concentrated fluid emulsion. It can be simply diluted by cold processing. Enriched formulation for the production of wet wipes. USE LEVEL: 5.0-10.0%
EVONIK Goldschmidt GmbH	TEGO® WIPE DE	Diethylhexyl Carbonate (and) Polyglyceryl-4 Laurate (and) Phenoxyethanol (and) Methylparaben (and) Dilauryl Citrate (and) Butylparaben (and) Ethylparaben (and) Propylparaben (and) Isobutylparaben	Ready-to-use concentrate for simple processing of o/w nanoemulsions with an excellent stability profile; suitable for the formulation of PEG-free impregnating lotions for wet wipes; excellent make-up removing properties; provides a light, non-oily skin feel
	TEGO® WIPE DE PF	Diethylhexyl Carbonate (and) Polyglyceryl-4 Laurate (and) Phenoxyethanol (and) Dilauryl Citrate	Ready-to-use PEG-free concentrate for cosmetic wet wipes. It is cold processable and can be used to create facial,body and baby care wet wipes and O/W sprays and lotions.
	Tego Wipe Lux	Ethylhexyl Stearate (and) Sorbitan Laurate (and) Gossypium Herbaceum (Cotton) Seed Oil (and) Polyglyceryl-4 Laurate (and) Dilauryl Citrate	Innovative EO-free concentrate for cosmetic wet wipes containing natural cotton seed oil; formulation of low viscous o/w impregnating liquids with a rich and caring skin feel . Use level: 3%--8%.
	TEGO® CARE PL 4	Polyglyceryl-4 Laurate	PEG-free emulsifier for o/w lotion wipes; forms emulsions with very fine particle size and excellent long-term heat and cold stability; suitable for the formulation of PEG-free empregnating liquids
Sasol	Ceralution® CC	Aqua (And) Caprylic/Capric Triglyceride (And) Glycerin (And) Ceteareth-25 (And) Disodium Ethylene Dicocoamide PEG-15 Disulfate (And) Acacia Senegal Gum (And) Behenyl Alcohol (And) Glyceryl Stearate (And) Glyceryl Disulfate (And) Glyceryl Stearate Citrate (And) Phenoxyethanol (And) Xanthan Gum (And) Benzyl Alcohol	a powerful pre-emulsion concentrate which allows the production of O/W-emulsions in a cold-cold process.

2. Formulation			
2.1 Example 1			
A			
Tego Wipe Lux	Ethylhexyl stearate; sorbitan laurate; phenoxyethanol; cotton seed oil; polyglyceryl-4 laurate; dilauryl citrate	5.0	Evonik Industries AG
B			
Water, demineralized	Aqua	92.0	
Erytan	**Erythrulose**	5.0	M.C.Biotec Inc.
Arlasolve DMI	Dimethyl isosorbide	3.0	
C			
Euxyl PE 9010	Phenoxyethanol; ethylhexylglycerin	0.3	Schülke & Mayr GmbH

D			
Parfum		0.2	

Procedure:
Charge the vessel with phase A and add phase B with stirring. Adjust pH value to 4.0 if necessary. Add phase C and the fragrance while stirring.

2.2 Example 2: Self Tanning Solution Wipes				
	Ingredients	INCI	[%]	Supplier
A	Arlamol E	PPG-15 stearyl ether, BHT	3.50	Croda
	Prisorine 2021	Isopropyl isostearate	8.00	Croda
	Prisorine 2034	Propylene glycol isostearate	1.00	Croda
	Arlasolve 200	Isoceteth-20	3.78	Croda
	Arlacel 987	Sorbitan isostearate	1.12	Croda
	Atlas G-2330	Sorbeth-30	1.50	Croda
B	Erytan	Erythrulose	5.00	M.C.Biotec Inc.
	Water, demineralized	Aqua (water)	ad 100	
	Arlasolve DMI	Dimethyl isosorbide	3.00	Croda
C	Euxyl PE 9010	Phenoxyethanol; ethylhexylglycerin	0.3	Schülke & Mayr GmbH
D	Fragrance	Parfum	0.08	

Procedure:
Mix phase A to obtain a homogeneous solution. Mix phase B to a transparent solution. Stir phase A into phase B.
Homogenize for 5 minutes. Adjust pH value to 4.0 if necessary. Add phase C and the fragrance while stirring.

Notes:
pH value: 4.0
Appearance: opaque

8.2 Self Tanning Wet Wipes with Erythrulose (Erytan)

8.2.1 Self Tanning Agent Available

	Dihydroxyacetone	**Erythrulose**
Characteristics	Quick Tan (produce tan effect within 2 hours after application)	Slow Tan (Tan produces after repeat use of One or two days

8.2.2 Why eythrulose is better than dihydroxyacetone as self tanning agent?

	Dihydroxyacetone	**Erythrulose**
Tanning results	Irregular and mottled, undesired streaks. The tan is temporary and become more uneven and blotchy because of irregular peeling	Natural, homogenous and long-lasting tan
Body odor after use	Nasty smell	No special odor
Skin drying effect	Intense drying effect	Rehydrate skin
Formaldehyde risk	Liberate formic acid, formaldehyde	No
Safety on skin	Irritation, contact dermatitis, skin itching, eczema, etc.	Safe
Stability	Poor	Better than DHA

8.2.3 Consumers inquires: where can I buy DHA-free Products?

To meet blindly the needs of quick tanning effect from consumers, dealers always like to add DHA in their formulations regardless of its flaws.

The below inquiries directly from the consumers.

Consumer 1:

Hi

I am inquiring to see if you have any tanning creams which would give me a hint of colour, but cream that has no DHA in it.

I think I may be allergic to the DHA in tanning creams.

I come out in a very itchy rash that really takes a grip on my skin.

I believe that if I use a self tanning cream with no DHA but Erythrulose instead I would be ok.

Could you a dvise me on this and inform me of a product that you may sell.

Thank you for your time

Julie

Consumer 2:

I tried to find the erythrulose only self tanners listed on your website but have not been able to find them. Are they still manufactured and available in America? Will you please send me a link? I searched the websites but could not find the product. Thank you very much!

Janie Charles

(continued)
Thank you. Do you know of an erythrulose self tanner without DHA?
Sent from my Verizon Wireless BlackBerry

8.2.4 What is erythrulose?

INCI/CTFA Name : Erythrulose

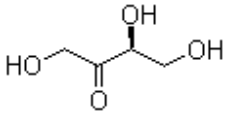
Synonyms : L-(+)-Erythrulose; (3S)-1,3,4-trihydroxybutan-2-one

CAS No. : 533-50-6

Molecular Formula : $C_4H_8O_4$

Molecular Weight : 120.10

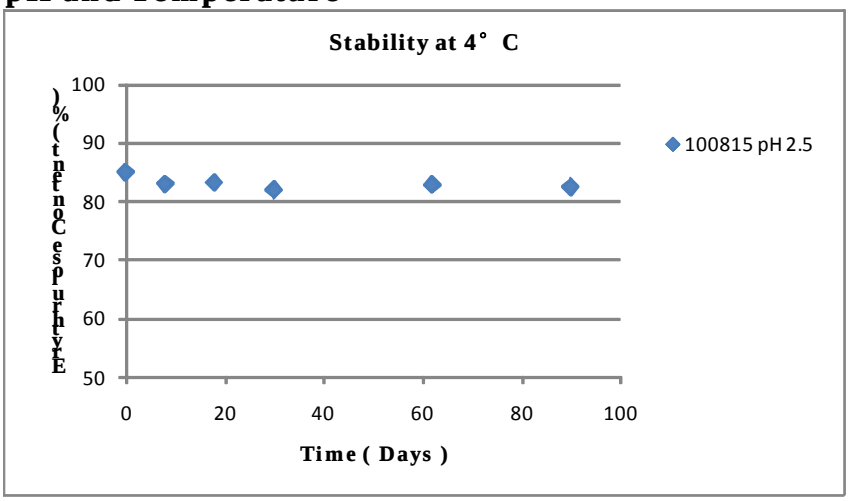
Structure :

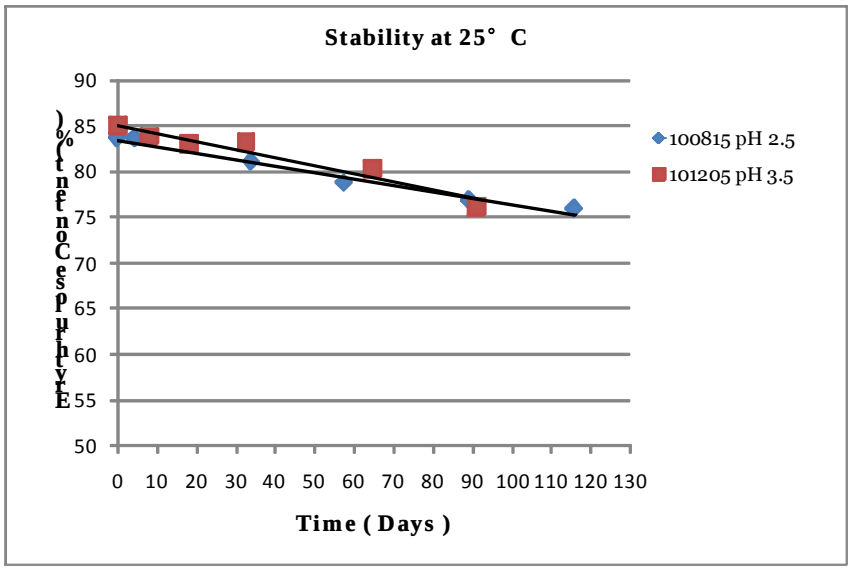


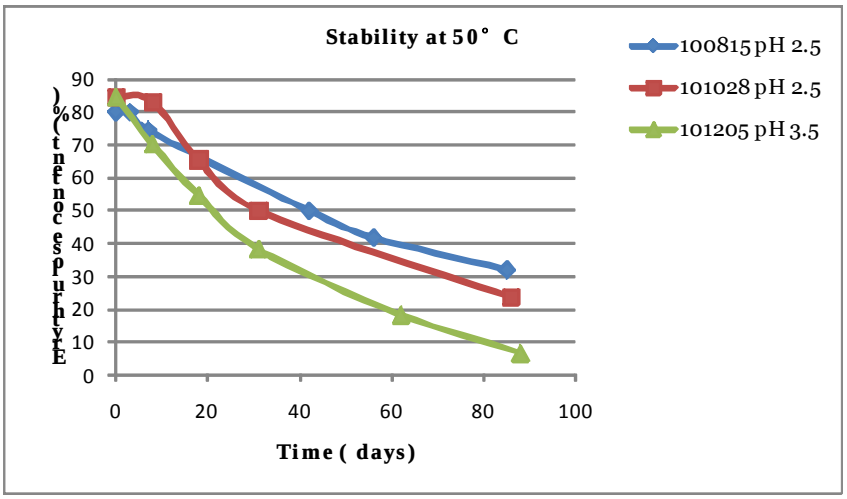
8.2.5 Specifications

Controls	Unit	Low Limit	Upper Limit	Method
Appearance		Light yellow to orange-brown coloured, highly viscous liquid		visuell
Odour		Characteristic		visuell
Water content	%		24	Karl Fischer, titration
pH (in 50 % water)		2.0	3.5	Potentiometrical
Erythrulose content (m/m)	%	75	90	HPLC
Total nitrogen	%		0.1	Kjeldahl
Sulfated ash	%		1.5	Ph. Eur. 2.4.14
Preservatives		None		
Total plate count	CFU/g		100	Ph. Eur. 2.6.12
Specified pathogens		Negative		Ph. Eur. 2.6.13
PACKAGE & STORAGE		1. 1kg, 5kgs, 25kgs in well closed containers 2. Store between 1 and 10°C, never expose to above 45°C 3. Avoid secondary microbial contamination on opening drum. 4. Shelf life: 3 years under the recommended conditions.		

8.2.6 Stability to pH and Temperature







8.2.7 **What should be considered on designing formulation containing erythrulose?**

8.2.7.1 Compatibility

- Avoid amines and elevated temperatures
- Ensure pH range at 2.0-5.0
- Prevent from contact with α-Hydroxy acids, oxides like iron or zinc oxide or titanium dioxide
- Beware of high amounts of gel formers (e.g. Carbomers, Xanthan gum) or high amounts of ethanol
- Keep buffers at a minimum

8.2.7.2 How to increase the tanning effect of erythrulose?

		Trade Name/supplier
Penetration Enhancer	Ethoxydiglycol	TRANSCUTOL CG/Gattefosse
	Dimethyl isosorbide	Arlasolve DMI/Croda
	alpha bisobola	
Tanning Accelerator / magnifier	Troxerutin	M.C.Biotec Inc.
	Acetyl tyrosine	M.C.Biotec Inc.
	Potassium Caproyl Tyrosine	TYROSTAN/ Sinerga S.p.A.
	Oleoyl Tyrosine (and) Butylene Glycol (and) Oleic Acid	Tyr-Ol / Croda
	Eclipta alba Hassk extract (Mahakanni)	
	Sorbitol	Sorbitol F liquid/Merck KGaA
Antioxidants	Sodium metabisulfite	
	Ellagic acid	M.C.Biotec Inc.
	BHT (butylated hydroxytoluene)	
	Tocopheryl Acetate	
Chelating agent	Disodium EDTA	
Skin Care	Aloe Barbadensis Leaf extract	M.C.Biotec Inc.
Thicker	Hydroxyethyl Cellulose	Natrosol 250 HHR/Hercules Inc.
Colorant	Caramel	