

Hair Care Emulsion Selection Guide

Product Name	INCI Name	Emulsifier Type	Active Content (%)	Shampoo						Conditioner					
				Wet Combing	Dry Combing	Wet Smoothing	Dry Smoothing	Wet Damage Repair	Dry Damage Repair	Wet Combing	Dry Combing	Wet Smoothing	Dry Smoothing	Wet Damage Repair	Dry Damage Repair
SeraShine EM 121	Dimethicone (and) C12-14 sec-Pareth-5 (and) C12-14 sec-Pareth-9	Non-ionic	50	••	•••	•	•			•••	••	•••	•••	••	••
SeraShine EM 221-E	Dimethiconol (and) TEA-Dodecylbenzenesulfonate	Anionic	50	•	•					•••	•••	•••	•••	•••	••
SeraShine EM 222	Dimethiconol (and) C11-15 sec-Pareth-12 (and) Sodium Dodecylbenzenesulfonate	Anionic	50				•	•	•	•••	•••	•••	•••	••	•••
SeraShine EM 223-E	Dimethiconol (and) TEA-Dodecylbenzenesulfonate	Anionic	60							•••	••	•••	•••	••	••
SeraShine EM 224C-E	Dimethiconol (and) TEA-Dodecylbenzenesulfonate (and) Laureth-23	Anionic	25	••	••		••			••			••		
SeraShine EM 308	Amodimethicone (and) Steartrimonium Chloride	Cationic	70	•••	••		•			•••	••	•••	•••	••	•
SeraShine EM 321-E	Amodimethicone (and) Cetrimonium Chloride (and) Trideceth-12	Cationic	35	•••	••	•	•			•••	••	••	•••	••	••
SeraShine EM 337-E	Amodimethicone (and) Cetrimonium Chloride (and) Trideceth-12	Cationic	35	••	••		•	•		•••	••	••	•••		••
SeraShine EM 322C	Amodimethicone (and) C12-14 sec-Pareth-5 (and) C12-14 sec-Pareth-9	Anionic	20	•••	•••	••	•	••	•	•••	••	•		•	
SeraShine EM 338C	Amodimethicone (and) C12-14 sec-Pareth-5 (and) C12-14 sec-Pareth-9	Anionic	20	•••	•	•		•	•	•••	••	••	•••	••	••
SeraShine EM 421C	Silicone Quaternium-17 (and) C12-14 sec-Pareth-5 (and) C12-14 sec-Pareth-9	Anionic	20	••	•	•				•••	•••	•	••	•	•
SeraShine EM 501C	Phenyl Trimethicone (and) Silicone Quaternium-17 (and) Laureth-4 (and) Laureth-23	Non-ionic	20	••	•	••		•		•••	••	••	••	•	•
SeraShine EM 505	Amodimethicone (and) Dimethicone (and) Laureth-23 (and) Laureth-6	Non-ionic	60	••	••		•	•	•	•••	••	••	••	•	••
SeraShine EM 506	Dimethicone (and) Silicone Quaternium-17 (and) C12-14 sec-Pareth-9 (and) Laureth-4	Non-ionic	64	•	•		•			•••	•••	••	•••	•	••
SeraShine EM 801	Argania Spinosa (Argan) Kernel Oil (and) C12-14 sec-Pareth-5 (and) C12-14 sec-Pareth-9	Non-ionic	52	•	••	•				•••	•	•	••	•	•
SeraShine EM 802	Dimethicone (and) Argania Spinosa (Argan) Kernel Oil (and) Laureth-4 (and) C12-14 sec-Pareth-9	Non-ionic	52	•	••	•	•	•		•••	••	•••	••	•	••
SeraShine EM 807	Cocos Nucifera (Coconut) Oil (and) Olea Europaea (Olive) Fruit Oil (and) Laureth-4 (and) C12-14 sec-Pareth-9	Non-ionic	52	••			•		•	•••			•		•
SeraSilk EM 602	Dimethicone/Vinyl Dimethicone Crosspolymer (and) C12-14 sec-Pareth-7	Non-ionic	58	•	••	••	•			•••	••	•			

•••excellent fit ••very good fit •good fit

Standard Test Formulations

Shampoo

Ingredient	Control % w/w	Macroemulsion Base % w/w	Microemulsion Base % w/w
Aqua (Water)	to 100	to 100	to 100
Carbomer	-	-	1.00
Glycerin	0.20	0.20	0.20
Polyquaternium-10	0.20	0.20	0.20
Sodium Laureth Sulfate (28%)	33.68	33.68	33.68
Cocamidopropyl Betaine (30%)	8.57	8.57	8.57
Sodium Hydroxide (32%)	-	-	0.20
Preservative	q.s.	q.s.	q.s.
KCC Beauty Emulsion	-	2% active	1% active
Citric Acid	q.s.	q.s.	-
Sodium Chloride	2.00	2.50	2.50
PEG-150 Pentaerythrityl Tetrastearate (and) PPG-2 Hydroxyethyl Cocamide (and) Aqua	-	-	0.30

Specification: Viscosity 8,000 - 10,000cP (Brookfield RVT, Sp 3, 10rpm), pH 4.4 - 4.9
The SeraShine EM 801, 802 and 807 shampoo was pH 5.5 - 6.5

Conditioner

Ingredient	Control % w/w	Conditioner Base % w/w
Aqua (Water)	to 100	to 100
Disodium EDTA	0.20	0.20
Glycerin	1.50	1.50
Hydroxyethylcellulose	1.50	1.50
Citric Acid	0.20	0.20
Cetyl Alcohol	0.50	0.50
Stearyl Alcohol	0.50	0.50
Behentrimonium Chloride (and) Isopropyl Alcohol	0.20	0.20
KCC Beauty Emulsion	-	2% active
Phenoxyethanol (and) Benzyl Alcohol (and) Potassium Sorbate (and) Aqua (and) Tocopherol	1.00	1.00

Specification: Viscosity -10,000cP (Brookfield Helipath T Bar C, 10rpm), pH 3.0 - 4.0

Water Hardness

Classification	Hardness in mg/L	Hardness in mmol/L	Hardness in dGH/°dH	Hardness in gpg	Hardness in ppm
Soft	0-60	0-0.60	0-3.37	0-3.50	less than 60
Moderately hard	61-120	0.61-1.20	3.38-6.74	3.56-7.01	60-120
Hard	121-180	1.21-1.80	6.75-10.11	7.06-10.51	120-180
Very hard	≥181	≥1.81	≥10.12	≥10.57	>180

For our experiments, water with a hardness of 7°dH German degrees is used.