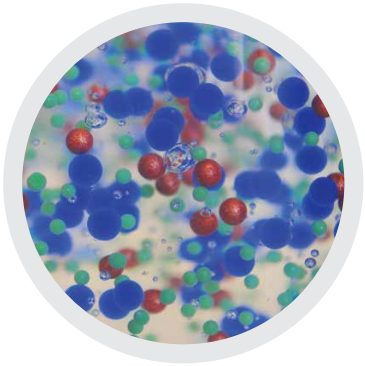
Softspheres™

Europe and China Program



Agar is a natural polysaccharide, extracted from algae, able to form aqueous gels by natural cross-linking.
To be soft enough for being crushed onto the skin and deliver the entrapped active material, the gel should present a very large mesh size, which is not compatible with efficient retention of small molecules. Softspheres™ use the properties of a cationic and amphiphilic polymer, a copolymer to interact with active molecules by means of ionic bonds and / or hydrophobic interactions.
The complex is too large to move through the agar matrix and the bonded molecule is thus trapped within the soft bead.

Composition

- *Agar*
- *Restraining Polymer:*
  - Polyquaternium-11
  - PG-Hydroxyethylcellulose Stearyldimonium Chloride
- *Colorants / Pigments*
- *Active Ingredients / Oils / Vitamins / Fragrances / ...*

Formulations

Recommended use levels range from 2.5 to 10% depending on the diameter:

- *Transparent gel*
- *Shower gel & shampoo*
- *Emulsion*
- *Soap*

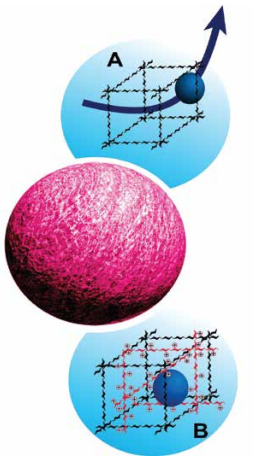
Size

- *Size range : 1.0 to 2.8 mm*
- *3 standard sizes:*
  - **a** = 2.20 - 2.80 mm
  - **b** = 1.60 - 2.20 mm
  - **m** = 1.00 - 1.60 mm
- *Stable in pH 2 - 10, in surfactants, at temperatures up to 60°C*

Applications

Examples of active ingredients we have successfully entrapped in Softspheres™:

- ***Anionic:*** *colorants, hyaluronic acid*
- ***Lipophilic:*** *tocopherol, vitamin A, natural oils, ceramides*
- ***Macromolecules:*** *enzymes*
- ***Pigments:*** *iron, titanium & zinc oxides*
- ***Miscellaneous:*** *emulsions, fragrances*



In a plain Agar bead (A), the mesh size of the matrix is too large to trap active molecules.

In a mixed agar/copolymer-bead (B, Softsphere™ structure), the active molecule is trapped within the bead by means of ionic bonds and hydrophobic interactions with the copolymer.

- **US 8025892B2**
  Cosmetic particulate gel carriers for topically applied active agents
- **US 7993677B2**
  Density-controlled particulate suspensions for foodstuff, cosmetic, pharmaceutical and other uses

KFL-135C

Revitalizing Clear Serum with Softspheres™ – Pearl Tan & Pearl White

Part 1

- Deionized Water - *Water* 43.50%
- Carbopol® Ultrez 10 - Lubrizol, Inc.: *Carbomer* 0.20%

Part 2

- Glycerin U.S.P. Natural 96% - Ruger Chemical: *Glycerin* 40.40%
- **CES-1104** - Avantor/Kobo Products: *Dimethicone (And) Water (And) Glycerin (And) Pentylene Glycol (And) Dimethicone/Vinyl Dimethicone Crosspolymer (And) Amodimethicone (And) Carbomer (And) Phenoxyethanol (And) Sodium Hydroxide (And) Disodium Edta* 10.50%
- Euxyl® PE 9010 - Schulke & Mayr: *Phenoxyethanol (And) Ethylhexylglycerin* 0.90%

Part 3

- Sodium Hydroxide 5 N (20%) weight/volume) - Ricca Chemical Company: *Water (And) Sodium Hydroxide* 0.50%

Part 4

- **SpS-5coral56a** - Kobo Products: *Water (And) Propylene Glycol (And) Pentylene Glycol (And) Mica (And) Tocopheryl Acetate (And) Polyquaternium-11 (And) Agar (And) Iron Oxides (CI 77491) (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Titanium Dioxide* 2.00%
- **SpS-VEADC56a** - Kobo Products: *Water (And) Propylene Glycol (And) Pentylene Glycol (And) Tocopheryl Acetate (And) Mica (And) Polyquaternium-11 (And) Agar (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Titanium Dioxide (CI 77891) (And) Iron Oxides (CI 77491)* 2.00%

Manufacturing Procedure:

1. Slowly disperse carbomer into water under slow mixing.
2. Add Part 2 to Part 1 and mix slowly until homogeneous.
3. Neutralize to the desired viscosity with Part 3.
4. Hand mix in Part 4.

Description:

This clear revitalizing serum contains CES-1104, an encapsulated elastomer gel which breaks upon application offering an instantly refreshing feel follow by a velvety silicone after feel. The Softspheres™, Sp-VEaDC56a and SpS-5coral56a, add a colorful visual effect to the serum. Both of these Softspheres™ contain entrapped active Tocopheryl Acetate which is delivered to the skin upon breakage of the Softspheres™.

Trade Name	Average Size (mm)	Color	Delivered Ingredients	INCI Name
SpS-5Coral56a SpS-5Coral56b SpS-5Coral56m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Pearlescent Tan	Tocopheryl Acetate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Mica (And) Tocopheryl Acetate (And) Polyquaternium-11 (And) Agar (And) Iron Oxides (CI 77491) (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Titanium Dioxide*
SpS-BkFEO41a SpS-BkFEO41b SpS-BkFEO41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Black	-	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Polyquaternium-11 (And) Agar (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Iron Oxides (CI 77499)*
SpS-AOPL41a SpS-AOPL41b SpS-AOPL41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Pearlescent Pink	Prunus Amygdalus Dulcis (Sweet Almond) Oil & Tocopheryl Acetate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Prunus Amygdalus Dulcis Oil (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Mica (And) PEG-40 Hydrogenated Castor Oil (And) Titanium Dioxide (CI 77891) (And) Tocopheryl Acetate (And) Red 30 Lake (CI 73360)*
SpS-BkFEB41a SpS-BkFEB41b SpS-BkFEB41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Metallic Grey	-	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Mica (And) Agar (And) Polyquaternium-11 (And) Titanium Dioxide (CI 77891) (And) Iron Oxides (CI 77499) (And) 1,2-Hexanediol (And) Caprylyl Glycol*
SpS-JbOTiO41a SpS-JbOTiO41b SpS-JbOTiO41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	White	Simmondsia Chinensis (Jojoba) Seed Oil	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Agar (And) Polyquaternium-11 (And) Simmondsia Chinensis (Jojoba) Seed Oil (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Titanium Dioxide (CI 77891)*
SpS-UM41a SpS-UM41b SpS-UM41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Deep Blue	-	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Ultramarines (CI 77007)*
SpS-VApGP41a SpS-VApGP41b SpS-VApGP41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Gold	Retinyl Palmitate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Agar (And) Polyquaternium-11 (And) Retinyl Palmitate (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Mica (And) Titanium Dioxide (CI 77891) (And) Iron Oxides (CI 77491)*
SpS-VCYOTR56a SpS-VCYOTR56b SpS-VCYOTR56m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Orange	Tocopheryl Acetate & Magnesium Ascorbyl Phosphate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Tocopheryl Acetate (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Magnesium Ascorbyl Phosphate (And) Red 30 Lake (CI 73360) (And) Iron Oxides (CI 77492) (And) PEG-40 Hydrogenated Castor Oil*
SpS-VEaDC56a SpS-VEaDC56b SpS-VEaDC56m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Pearlescent White	Tocopheryl Acetate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Tocopheryl Acetate (And) Mica (And) Polyquaternium-11 (And) Agar (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Titanium Dioxide (CI 77891) (And) Iron Oxides (CI 77491)*
SpS-VEaTR41a SpS-VEaTR41b SpS-VEaTR41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Red	Tocopheryl Acetate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) PEG-40 Hydrogenated Castor Oil (And) Tocopheryl Acetate (And) Red 30 Lake (CI 73360)*
SpS-SfOVEaUMDC41a SpS-SfOVEaUMDC41b SpS-SfOVEaUMDC41m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Pearlescent Blue	Sunflower Oil & Tocopheryl Acetate	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Helianthus Annuus (Sunflower) Seed Oil (And) Tocopheryl Acetate (And) Mica (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Ultramarines (CI 77007) (And) Titanium Dioxide (CI 77891)*
SpS-VCPL56a SpS-VCPL56b SpS-VCPL56m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Pink	-	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Tocopheryl Acetate (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Ascorbic Acid (And) Mica (And) PEG-40 Hydrogenated Castor Oil (And) Titanium Dioxide (CI 77891) (And) Red 30 Lake (CI 73360)*
SpS-VEaGH56a SpS-VEaGH56b SpS-VEaGH56m	2.2 - 2.8 1.6 - 2.2 1.0 - 1.6	Green	-	*Water (And) Propylene Glycol (And) Pentylene Glycol (And) Tocopheryl Acetate (And) Agar (And) Polyquaternium-11 (And) 1,2-Hexanediol (And) Caprylyl Glycol (And) Chromium Hydroxide Green (CI 77289)*