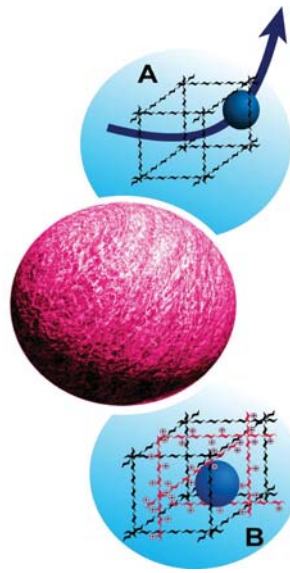


# Softspheres

Agar-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-agar matrix and the bonded molecule is thus trapped within the soft bead.



In a plain Agar-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.

## Composition

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

## 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

## Formulations

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

- ▶ Transparent gel
- ▶ Shower gel & shampoo
- ▶ Emulsion
- ▶ Tooth Paste, soap

## Eye Gel Treatment

KFL-009A

### Part 1

- |                                    |        |
|------------------------------------|--------|
| • Deionized Water                  | 79.80% |
| • Ultrez 10 - Protameen : Carbomer | 0.25%  |
| • Allantoin                        | 0.20%  |
| • Methylparaben                    | 0.25%  |

### Part 2

- |   |       |
|---|-------|
| • RITA HA-1C-1 - RITA Corp. : Sodium Hyaluronate  | 1.00% |
| • RITAmectant - RITA Corp. : Sodium PCA   | 0.20% |
| • Gs-GT - Kobo Products : Water (And) Camellia Sinensis Extract (And) Palmitoyl Hydroxypropyltrimonium Amylopectin/Glycerin Crosspolymer (and) Phenoxyethanol (And) Methylparaben (And) Hydrogenated Lecithin (And) Butylparaben (And) Ethylparaben (And) Propylparaben | 0.50% |
| • Crosilk 10,000 - Croda : Hydrolyzed Silk  | 0.50% |

### Part 3

- |                   |       |
|-------------------|-------|
| • Water           | 2.00% |
| • Triethanolamine | 1.00% |

### Part 4

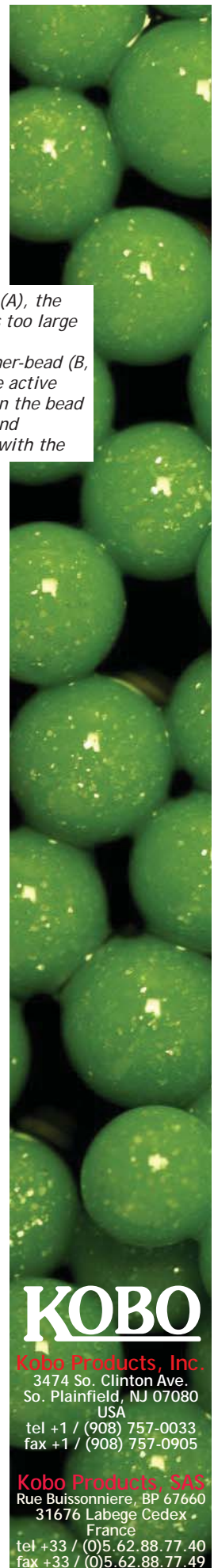
- |   |       |
|---|-------|
| • Water                                 | 3.00% |
| • Germall® II - ISP : Diazolidinyl Urea | 0.30% |

### Part 5

- |  |        |
|--|--------|
| • Lubrajel MS - ISP : Glycerol Polymethylmethacrylate  | 10.00% |
| • Sp-VApGP41b - Kobo Products : Water (And) Propylene Glycol (And) Polyquaternium 11 (And) Agar (And) Retinyl Palmitate (And) Imidazolidinyl Urea (And) Mica (And) Phenoxyethanol (And) Titanium Dioxide (And) Methylparaben (And) Iron Oxide (CI 77491) (And) Ethylparaben (And) Butylparaben (And) Propylparaben | 1.00%  |

## Manufacturing Procedure

1. Charge water into main tank and begin mixing with propeller agitation.
2. Sift in Carbomer and mix until fully dispersed. Add remaining Part 1 ingredients and heat to 75° C. Hold temperature for 15 minutes and begin cooling.
3. In a small side container, combine Part 2 ingredients. When batch temperature has cooled to 45° C, add to main batch. Mix for 15 minutes.
4. In a small side container, combine Part 3 ingredients and mix until solution is clear. Add to main batch. Batch will thicken upon addition.  
\*\*Switching to Side Sweep Agitation is preferred at this point
5. In a side container, combine Part 4 ingredients and mix until completely dissolved. Add to main batch and mix for 15 minutes.
6. Charge Lubrajel and mix for 30 minutes.
7. Add the Softspheres and mix for an additional 20 minutes or until uniform.



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# Softspheres

Trade Name	Average Size	Color	Active Ingredients	INCI Name
Sp-AOPL41a Sp-AOPL41b Sp-AOPL41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Light Pink	Almond Oil	Water (And) Propylene Glycol (And) Sweet Almond Oil (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Mica (And) Phenoxyethanol (And) PEG-40 Hydrogenated Castor Oil (And) Titanium Dioxide (And) D&C Red 30 (And) Tocopheryl Acetate (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-BkFEB41a Sp-BkFEB41b Sp-BkFEB41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Metallic Grey	-	Water (And) Propylene Glycol (And) Mica (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Titanium Dioxide (And) Phenoxyethanol (And) Iron Oxides (C.I. 77499) (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-JbOTIO41a Sp-JbOTIO41b Sp-JbOTIO41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	White	Joboba Oil	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Simmondsia Chinensis (Joboba) Seed Oil (And) Phenoxyethanol (And) Titanium Dioxide (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-RUM41a Sp-RUM41b Sp-RUM41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Purple	-	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Phenoxyethanol (And) Ultramarines (And) Methylparaben (And) PEG-40 Hydrogenated Castor Oil (And) D&C Red 30 (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-SfOVEaUMDC41a Sp-SfOVEaUMDC41b Sp-SfOVEaUMDC41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Pearlescent Blue	Sunflower Oil & Vitamin E Acetate	Water (And) Propylene Glycol (And) Mica (And) Sunflower (Helianthus annuus) Seed Oil (And) Tocopheryl Acetate (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Ultramarines (And) Titanium Dioxide (And) Phenoxyethanol (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-UM41a Sp-UM41b Sp-UM41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Deep Blue	-	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Ultramarines (And) Phenoxyethanol (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VAPGP41a Sp-VAPGP41b Sp-VAPGP41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Yellow	Vitamin A Palmitate	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Retinyl Palmitate (And) Imidazolidinyl Urea (And) Mica (And) Titanium Dioxide (And) Phenoxyethanol (And) Methylparaben (And) Iron Oxides (C.I. 77491) (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VCTIOGH41a Sp-VCTIOGH41b Sp-VCTIOGH41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Light Green	Magnesium Ascorbyl Phosphate	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Phenoxyethanol (And) Chromium Hydroxide Green (And) Magnesium Ascorbyl Phosphate (And) Titanium Dioxide (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VCYOTR56a Sp-VCYOTR56b Sp-VCYOTR56m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Orange	Magnesium Ascorbyl Phosphate	Water (And) Propylene Glycol (And) Tocopheryl Acetate (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Phenoxyethanol (And) D&C Red 30 (And) Magnesium Ascorbyl Phosphate (And) Iron Oxides (C.I. 77492) (And) PEG-40 Hydrogenated Castor Oil (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VEaAVGrP41a Sp-VEaAVGrP41b Sp-VEaAVGrP41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Pearlescent Green	Aloe Vera & Vitamin E Acetate	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Tocopheryl Acetate (And) Imidazolidinyl Urea (And) Aloe Barbadensis Extract (And) Mica (And) Phenoxyethanol (And) Chromium Hydroxide Green (And) Chromium Oxide Green (And) Titanium Dioxide (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VEaDC56a Sp-VEaDC56b Sp-VEaDC56m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Pearlescent White	Vitamin E Acetate	Water (And) Propylene Glycol (And) Mica (And) Tocopheryl Acetate (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Titanium Dioxide (And) Phenoxyethanol (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben (And) Iron Oxides (C.I. 77491)
Sp-VEaGH56a Sp-VEaGH56b Sp-VEaGH56m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Green	Vitamin E Acetate	Water (And) Propylene Glycol (And) Tocopheryl Acetate (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) Phenoxyethanol (And) Chromium Hydroxide Green (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben
Sp-VEaTR41a Sp-VEaTR41b Sp-VEaTR41m	2.20 - 2.80 mm 1.60 - 2.20 mm 1.00 - 1.60 mm	Red	Vitamin E Acetate	Water (And) Propylene Glycol (And) Agar-Agar (And) Polyquaternium 11 (And) Imidazolidinyl Urea (And) PEG-40 Hydrogenated Castor Oil (And) Phenoxyethanol (And) Tocopheryl Acetate (And) D&C Red 30 (And) Methylparaben (And) Butylparaben (And) Ethylparaben (And) Propylparaben

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