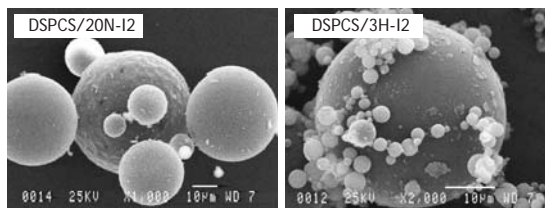


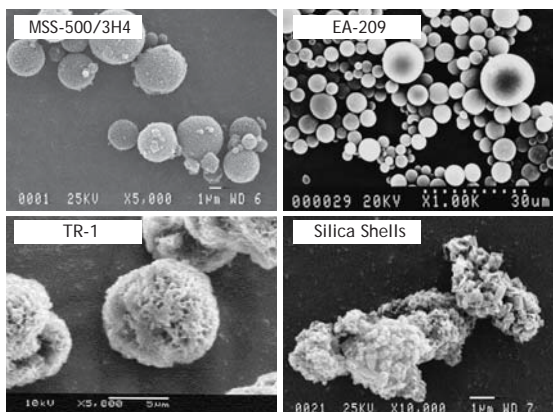
# Microspheres

## Latin America Program

**Microspheres** are discrete spherical particles ranging in average particle size from 1 to 50 microns. Because of their size and shape, Microspheres are able to **scatter light** to diminish the look of fine lines on the skin. This effect is also known as "optical blurring" or "soft focus". In addition, Microspheres offer a **ball-bearing effect** which will impart finished products with an elegant silky texture, increased payoff, and enhanced slip. This ball-bearing effect promotes better blendability on the skin and a more natural finish. Some microspheres also act as **carriers for oils** and can be used for **sebum control**.



**Microsphere Complexes** are produced using Kobo's patented technology, Isopropyl Titanium Triisostearate treatment that covalently bonds two unlike materials, at least one of which being a spherical particle, to yield a complex that has the best **balance of properties** possible. They offer all the benefits of microspheres while bringing a lightweight feel to many other product forms.



Since they can be used in all product forms (powders, anhydrous hot pours, emulsions, etc...), microspheres and microsphere complexes, whether used individually or in combination, have become indispensable to formulation of state-of-the-art cosmetic products.

## Moisturizing Lotion with Microspheres

KFL-010

### Part 1

- SF1528 - Momentive: *Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone* 11.50%
- SF1202 - Momentive: *Cyclopentasiloxane* 8.50%
- SF1214 - Momentive: *Cyclopentasiloxane (And) Dimethicone* 7.50%
- *Fragrance* - Bell Flavors & Fragrances 0.10%

### Part 2

- EA-209 - Kobo Products: *Ethylene/Acrylic Acid Copolymer* 7.50%

### Part 3

- *Deionized Water* 50.60%
- Dowicil 200 - Dow Chemical: *Quaternium-15* 0.10%
- RITAbate 80 - RITA Corp.: *Polysorbate 80* 0.20%
- Sodium Chloride - Morton Salt: *Sodium Chloride* 1.00%
- Glycerin U.S.P Natural 96% - Univar USA: *Glycerin* 13.00%

### Manufacturing Procedure

**\*Use explosion-proof mixers and equipment during batching process.\***

1. Combine Part 1 liquid ingredients into main tank and homogenize for 15 minutes.
2. Sift in EA-209 slowly. Continue homogenization for 15 minutes after complete addition of microsphere.
3. In a side container using propeller agitation, mix Part 3 ingredients until solution is homogenous and clear. Add Part 3 to main tank in quarter parts mixing at least 15-20 minutes between each addition.  
\*\*Batch temperature will increase while mixing.\*\*
4. When the batch is homogenous, fill into appropriate containers.

### Description

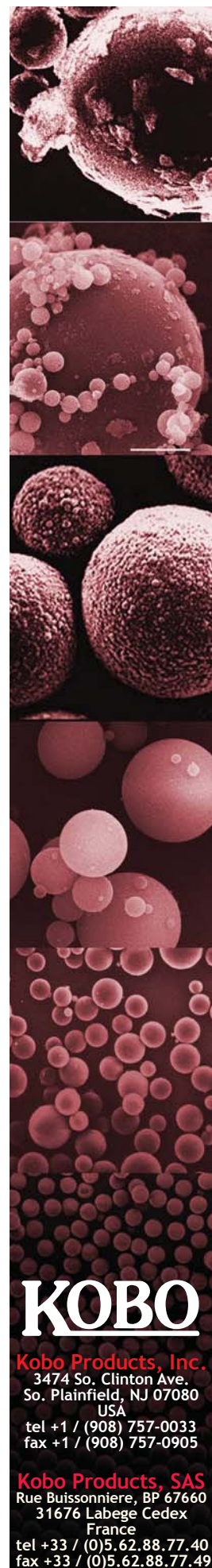
This formula was panel tested and shows a high degree of perceived moisturization, combined with an 'illuminating glow' and 'natural look'. Kobo's EA-209 Microspheres are responsible for achieving these effects within a water-in-silicone base.

### Specifications

Viscosity : RVTC @ 2.5rpm, 24hr = 312,000cps

Stability : 4 weeks @ 50°C

Technical Literature ref MMCLA-003 - October 3, 2011



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# Microspheres

|                              | Trade Name                        | INCI Name  | Size (µm)                              | Oil Abs (g/100g) | Refract Index | Density (g/in <sup>3</sup> ) |
|------------------------------|-----------------------------------|--|--|------------------|---------------|------------------------------|
| Polymer Microspheres         | BPD-500W                          | HDI/Trimethylol Hexyllactone Crosspolymer (And) Silica                                     | 10                                     | 60               | 1.52          | 8.2                          |
|                              | CL-2080*                          | Polyethylene   | 12                                     | 60               | 1.51          | 4.0                          |
|                              | EA-209*                           | Ethylene/Acrylic Acid Copolymer  | 10                                     | 60               | 1.51          | 2.6                          |
|                              | Flo-Beads SE-3107A (Softbeads A)* | Ethylene/Acrylic Acid Copolymer  | 11                                     | 62               | 1.49          | 3.1                          |
|                              | Flo-Beads SE-3207B (Softbeads B)* | Ethylene/Acrylic Acid Copolymer  | 11.6                                   | 62               | 1.49          | 3.9                          |
|                              | MSP-822                           | Polymethyl Methacrylate  | 8.8                                    | 60               | 1.49          | 6.2                          |
|                              | MSP-825                           | Methyl Methacrylate Crosspolymer   | 8                                      | 57               | 1.49          | 6.7                          |
|                              | MSP-930                           | Methyl Methacrylate Crosspolymer   | 9                                      | 210              | 1.49          | 5.0                          |
|                              | MSPH-1215                         | Methyl Methacrylate Crosspolymer   | 11.7                                   | 380              | 1.49          | N.A.                         |
|                              | POMP605                           | Nylon-6  | 6                                      | 170              | 1.53          | 3.3                          |
|                              | POMP610                           | Nylon-6  | 11                                     | 180              | 1.53          | 6.2                          |
|                              | TR-1                              | Nylon-6  | 13                                     | 112              | 1.53          | 4.0                          |
|                              | TR-2                              | Nylon-6  | 20                                     | 141              | 1.53          | 3.5                          |
|                              | SP-10                             | Nylon-12   | 10                                     | 60               | 1.53          | 6.2                          |
|                              | SP-500                            | Nylon-12   | 5                                      | 60               | 1.53          | 4.7                          |
|                              | MST-203                           | Polymethylsilsesquioxane   | 2.9                                    | 50               | 1.41          | 6.5                          |
|                              | MST-547                           | Polymethylsilsesquioxane   | 5                                      | 54               | 1.41          | 7.0                          |
|                              | Diasphere® KS-500                 | Polymethylsilsesquioxane   | 4.5                                    | 55               | 1.41          | 7.0                          |
|                              | Diasphere® KS-1000                | Polymethylsilsesquioxane   | 10                                     | 50               | 1.41          | 5.0                          |
|                              | New                               | MSP-AS04   | Polymethylsilsesquioxane (And) Alumina | 3                | 44            | N.A.                         |
| New                          | MSP-AK06                          | Polymethylsilsesquioxane (And) Alumina   | 6                                      | 54               | N.A.          | 6.2                          |
| New                          | Silcrusta MK03                    | Methyl Methacrylate Crosspolymer (And) Polymethylsilsesquioxane                            | 3                                      | 72               | N.A.          | 4.7                          |
| Silica Microspheres          | MSS-500                           | Silica   | 12                                     | 133              | 1.47          | 5.8                          |
|                              | MSS-500W                          | Silica   | 12                                     | 119              | 1.47          | 6.2                          |
|                              | MSS-500/N                         | Silica   | 12                                     | 38               | 1.47          | 6.7                          |
|                              | MSS-500/7N                        | Silica   | 7.5                                    | 50               | 1.47          | 7.0                          |
|                              | MSS-500/H                         | Silica   | 12                                     | 300              | 1.47          | 3.1                          |
|                              | MSS-500/3                         | Silica   | 3                                      | 135              | 1.47          | 3.5                          |
|                              | MSS-500/3N                        | Silica   | 3                                      | 33               | 1.47          | 6.1                          |
|                              | MSS-500/3H                        | Silica   | 3                                      | 300              | 1.47          | 1.3                          |
|                              | MSS-500/3H4                       | Silica   | 3                                      | 318              | 1.47          | 1.2                          |
|                              | MSS-500/20N                       | Silica   | 20                                     | 40               | 1.47          | 12.9                         |
|                              | Silica Shells                     | Silica   | 3                                      | N.A.             | 1.47          | 0.8                          |
|                              | ST-255                            | Silica (And) Titanium Dioxide  | 5                                      | 84               | 1.80          | 0.8                          |
|                              | STNW-355                          | Silica (And) Titanium Dioxide (And) Triethoxycaprylylsilane                                | 6.5                                    | 76               | -             | 6.5                          |
| Cellulose Microspheres       | Cellulo Beads D-5                 | Cellulose  | 5                                      | 70               | 1.49          | 9.7                          |
|                              | Cellulo Beads D-10                | Cellulose  | 10                                     | 60               | 1.49          | 11.6                         |
|                              | Cellulo Beads D-30                | Cellulose  | 30                                     | 60               | 1.49          | 13.3                         |
|                              | Cellulo Beads D-50                | Cellulose  | 40                                     | 56               | 1.49          | 14.9                         |
|                              | Cellulo Beads D-200               | Cellulose  | 175                                    | 50               | 1.49          | 16.4                         |
|                              | Cellulo Beads D-10(TI-33)         | Cellulose (And) Titanium Dioxide (And) Aluminum Hydroxide                                  | 10                                     | 41               | -             | 16.6                         |
|                              | Cellulo Beads D-10(Y-33P)         | Cellulose (And) Iron Oxides (C.I. 77492)   | 10                                     | 42               | -             | 16.2                         |
|                              | Cellulo Beads D-10(UB-33)         | Cellulose (And) Iron Oxides (C.I. 77499) (And) Silica                                      | 10                                     | 51               | -             | 15.9                         |
|                              | Cellulo Beads D-10(R-33P)         | Cellulose (And) Iron Oxides (C.I. 77491)   | 10                                     | 48               | -             | 16.7                         |
| Surface-treated Microspheres | BPA-515                           | Polymethyl Methacrylate (And) Isopropyl Titanium Triisostearate                            | 10                                     | 50               | -             | 3.8                          |
|                              | Cellulo Beads D-10-PC2**          | Cellulose (And) Hydrogenated Lecithin  | 11                                     | 35               | 1.49          | 5.1                          |
|                              | CT-2 Nylon SP-500                 | Nylon-12 (And) Chitosan  | 5                                      | 65               | -             | 3.0                          |
|                              | MSS500-NS5                        | Silica (And) Methoxy Amodimethicone/Silsesquioxane Copolymer                               | 12                                     | 105              | -             | 8.5                          |
|                              | MSS-510-11SH                      | Silica (And) Triethoxycaprylylsilane   | 7                                      | 110              | -             | 5.3                          |
|                              | POMP 610-LS15                     | Nylon-6 (And) Lithium Stearate   | 11                                     | 89               | -             | 3.3                          |
|                              | PF-5 BPD-500                      | HDI/Trimethylol Hexyllactone Crosspolymer (And) C9-15 Fluoroalcohol Phosphate (And) Silica | 12                                     | 58               | -             | 11.0                         |
|                              | PF-5 MSS-500/3N                   | Silica (And) C9-15 Fluoroalcohol Phosphate   | 3                                      | 35               | -             | 16.4                         |
|                              | PF-5 Nylon SP-10                  | Nylon-12 (And) C9-15 Fluoroalcohol Phosphate   | 10                                     | 68               | -             | 8.2                          |
|                              | PF-5 Nylon SP-500                 | Nylon-12 (And) C9-15 Fluoroalcohol Phosphate   | 5                                      | 77               | -             | 7.2                          |
|                              | Silica Shells-SH                  | Silica (And) Methoxy Amodimethicone/Silsesquioxane Copolymer                               | 3                                      | 500              | -             | 0.7                          |

\*\* Natural Treatment

\* EA-209 & CL-2080 are heat sensitive and will gel if heated above 70°C. Softbeads A & B have a softening point of 80°C and should be added under this temperature.

This chart was prepared to assist in formulating with Microspheres and Microsphere Complexes. The information contained herein is believed to be accurate at the time of printing, but should not be used as a substitute for product specification sheets. N.A. = Not available at the time of printing

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