

TOSPEARL* microspheres

SPECIALTY FLUIDS - PERSONAL CARE



INCI Name: *Polymethylsilsesquioxane*

Tospearl microspheres are a series of mono-dispersed, micro-fine spherical cross-linked siloxane particles. All of these T resins provide an exceptional feel to skin when incorporated into a variety of cosmetic formulations. Each grade has a specific particle size that can result in excellent performance benefits. These benefits include excellent lubricity of skin lotions and lipsticks, reduction of powder agglomeration in pressed powders, good spreadability in skin creams and soft focus effects. Soft focus results in reduction in the appearance of fine lines and wrinkles through the use of facial lotions and color cosmetics.

Key Features and Typical Benefits

- Soft, smooth and dry feel
- Excellent lubricity
- Prevention of powder agglomeration
- Soft focus effect
- Lessen the appearance of fine lines and wrinkles
- Sebum absorption

Potential Applications

- Foundations
- Pressed powders
- Facial creams and lotions
- Lipsticks
- Eye shadows
- Mascara
- Anti-aging products

Typical Physical Properties					
Product Property	Tospearl 120A	Tospearl 145A	Tospearl 2000B*	Tospearl 3000A	Tospearl 1110A
Appearance	White powder	White powder	White powder	White powder	White powder
Average Particle size; μm	2	4.5	4-6	4-7	11
pH	7	7	7	7	7
Specific Gravity (25°C)	1.3	1.3	1.3	1.3	1.3
Specific Surface Area, m ² /g	30	20	20-30	20-30	18
Linseed Oil Absorption Rate, ml/100g	75	60	60	60	56

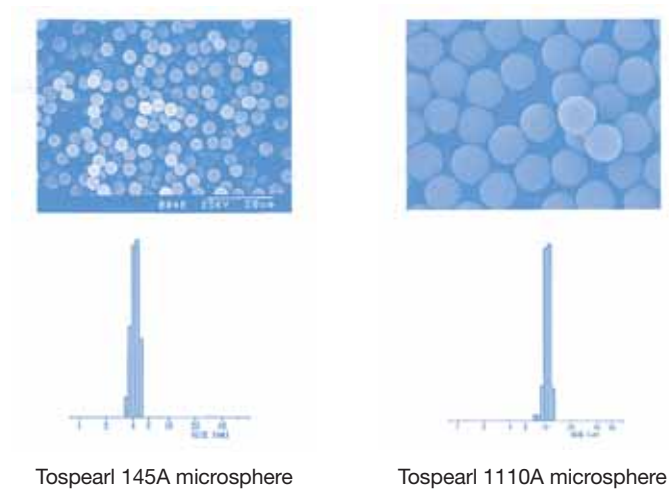
Typical data are average data. The actual values may vary.
Product specifications for specific applications need to be agreed upon individually.

TOSPEARL* microspheres

Information & Data

Particle Size

The microscopic pictures (at a magnification with a factor of 1000) and graphs below show the different size, the smoothness of the surface as well as the uniformity of the particle size present for 2 grades of Tospearl microspheres. These properties result in the special cosmetics properties that Tospearl microspheres can provide to formulations.



Product Guidance

Tospearl 120A microsphere

Tospearl 120A microsphere has the smallest average particle size (2.0 µm). Due to the high oil absorption capacity of all Tospearl microspheres grades, it is particularly useful for sebum absorption in addition to sensory benefits.

Tospearl 145A microsphere

Tospearl 145A microsphere has the narrowest particle size distribution. It is particularly useful if sensory in a cosmetic formulation is the highest priority.

Tospearl 2000B microsphere

With particles (on average) almost as small as Tospearl 145A microsphere and a particle size distribution only slightly broader, Tospearl 2000B microsphere offers a sensational feel in combination with the other benefits Tospearl microspheres can provide.

Tospearl 3000A microsphere

With an average size almost as large as Tospearl 2000B microsphere, this newest member of the Tospearl microspheres family has a slightly broader particle size distribution. Tospearl 3000A microsphere represents the best compromise between cost and performance.

Tospearl 1110A microsphere

This grade represents the material with the largest particles (on average). This property increases the lubricity effect created by the spherical nature of Tospearl microspheres. Tospearl 1110A microsphere is the most effective grade for reducing powder agglomeration. In turn, this results in lower whitening effects caused by pressed powder formulations.

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TOSPEARL* microspheres

Product Guidance (continued)

Formulations

Liquid Foundation

Ingredient	Part/Wt (%)	Function
PART A		
SF 1202	15	Emollient, Volatile Carrier
Tospearl 3000A microsphere	6.0	Sensory Enhancer
SF 1550	3.0	Emollient, Spreading Aid
Velvesil* DM silicone	2.0	Sensory Enhancer
SF 1540	5.0	Emulsifier
Pigment Mixture	6.0	Pigments
PART B		
Water	55.5	
Glycerin	3	Humectant
Propylene Glycol	2	Solvent
SF 1188A	1.5	Silicone Surfactant
Sodium Chloride	1	Stabilizer

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Procedure:

1. Mix all ingredients of phase A except the pigments and homogenize
2. Add pigments and homogenize again
3. Mix all ingredients of phase B and stir until the salt is dissolved
4. Add phase B to A while mixing
5. Add Perfume and Preservative if desired

Suppliers:

Momentive Performance Materials

SF 1540	Cyclopentasiloxane (and) PEG/PPG-20/15 Dimethicone
SF 1202	Cyclopentasiloxane
Tospearl 2000B microsphere	Polymethylsilsesquioxane
Velvesil DM silicone	Dimethicone (and) Cetearyl Dimethicone Crosspolymer
SF 1188A	PEG/PPG20/15 Dimethicone
SF 1550	Phenyl Trimethicone

TOSPEARL* microspheres

Product Guidance (continued)

Formulations (continued)

Men's Refreshing After Shave Lotion Formulation

Ingredient	Part/Wt (%)	Function
PART A		
SF1540	4.00	Emulsifier
SF1202	16.00	Emollient, Volatile Carrier
Tospearl 2000B microsphere	3.00	Sensory Enhancer
Velvesil* 125 silicone copolymer network	4.00	Sensory Enhancer
Silsoft* 034 organosilicone fluid	2.00	Emollient, Spreading Aid
PART B		
Water	68.00	Humectant
Glycerin	1.50	Denaturant
Menthol	0.20	Stabilizer
Sodium Chloride	1.00	Colorant
Vitasyn Blue AE 90	0.10	
PART C		
Phenoxyethanol & Octoglycerin	0.10	Preservative
PART D		
Adischdas	0.10	Perfume

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Product specifications for specific applications need to be agreed upon individually.

Procedure:

1. Combine part A ingredients and stir or homogenize
2. Combine part B ingredients and stir until clear and homogenous
3. Add part B to part A while stirring
4. Add ingredients of part C and D to combined parts A and B while stirring

Suppliers:

Momentive Performance Materials

SF 1540	Cyclopentasiloxane (and) PEG/PPG-20/15 Dimethicone
SF 1202	Cyclopentasiloxane
Tospearl 2000B microsphere	Polymethylsilsequioxane
Velvesil 125 silicone copolymer network	Cyclopentasiloxane (and) C30-45 Alkyl Cetearyl Dimethicone Crosspolymer
Silsoft 034 organosilicone fluid	Caprylyl Methicone

*Tospearl, Velvesil and Silsoft are trademarks of Momentive Performance Materials Inc.

TOSPEARL* microspheres

Product Guidance (continued)

Formulations

Mousse au Matte Make-up Formulation

Ingredient	Part/Wt (%)	Function
PART A		
Velvesil* DM silicone	49.0	Sensory Enhancer, Visual Effect
Silsoft* 034 organosilicone fluid	27.0	Emollient, Spreading Aid, Pigment Dispersion
Tospearl 145A microsphere	2.0	Sensory Enhancer
SF 96-5	10.0	Emollient
Pigment Mixture	12.0	Pigments

Typical data are average data. The actual values may vary. Product specifications for specific applications need to be agreed upon individually.

Procedure:

1. Combine all ingredients and mix at room temperature until homogeneous. If necessary, homogenize
2. If desired, add perfume or preservative

Suppliers:

Momentive Performance Materials

Velvesil DM silicone	Dimethicone (and) Cetearyl Dimethicone Crosspolymer
Silsoft 034 organosilicone fluid	Caprylyl Methicone
Tospearl 2000B microsphere	Polymethylsilsesquioxane
SF 96-5	Dimethicone

Powder Eye Shadow with Superior Feel

Ingredient	Part/Wt (%)	Function
PART A		
Mica (and) Titanium Dioxide	6.4	Pigment
Mica	32.0	Pigment
Iron Oxides	3.0	Pigment
Ultramarines	12.7	Pigment
Iron Blue	18.9	Pigment
PART B		
Polymethylsilsesquioxane Tospearl 145A microsphere, Tospearl 2000B microsphere, Tospearl 3000A microsphere	19.5	Slip/Lubricity/Smooth, silky feel
PART C		
SF 96-5	2.5	Emollient
Squalene	2.5	Moisturizer
Petrolatum	2.5	Moisturizer
Fragrance	as per label	Fragrance
Preservative	as per label	Preservative

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Procedure:

1. Mix pigments in Part A except titanium dioxide and mica.
2. Add the titanium dioxide, mica, Part C (except fragrance and preservative), and Part B to Part A with high shear mixing. Add the fragrance and preservative with the same high shear mixing.
3. Press into suitable container

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Customer Service Centers

Email

4information@momentive.com

Telephone

Americas

+1 888 443 9466

+1 614 986 2497

Europe, Middle East, Africa and India

+00 800 836 43581

+40 212 534754

Asia Pacific

China

+800 820 0202

Japan

+81 276 20 6182

All Other Countries

+60 3 9206 1543

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260 Hudson River Road
Waterford, NY 12188 USA
momentive.com