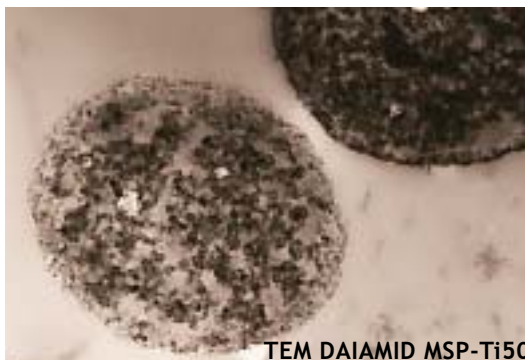


# Spherical Non-Nano UV Filters

Kobo offers **Spherical Non-Nano UV Filters**. These powders consist of a large size microsphere (**over 100nm**) with attenuation grade Titanium Dioxide or Zinc Oxide on the inside. The following benefits can be achieved:

- High UVA/B attenuation
- No whitening effect
- Improved physical and chemical stability
- Excellent sensorial feel
- Easily dispersed without homogenization



TEM DAIAMID MSP-Ti50

## DAIAMID MSP-Ti50 & DAIAMID MSP-Zn50

These Nylon-12 spheres are created by a unique plastic compounding technology making it possible to load them with 50% Titanium Dioxide (DAIAMID MSP-Ti50) or 50% Zinc Oxide (DAIAMID MSP-Zn50). They offer UVA/B protection along with the luxurious feel of polyamide-12.

Trade Name	INCI Name	Outside Particle Size	Inside pps
DAIAMID MSP-Ti50	Nylon-12 (And) Titanium Dioxide	6µm	15nm
DAIAMID MSP-Zn50	Nylon-12 (And) Zinc Oxide	6µm	35nm

## Hybrid Sunscreen

### Formula KSL-1380

#### Part 1

- Deionized Water - *Water* 44.10%
- Liposorb® L-20 - Lipo Chemicals: *Polysorbate 20* 1.00%

#### Part 2

- Propylene Glycol - Symrise: *Propylene Glycol* 1.50%
- Keltrol® CG - CP Kelco: *Xanthan Gum* 0.30%

#### Part 3

- Neo Heliopan® HMS - Symrise: *Homosalate* 15.00%
- **DAIAMID MSP-Ti50** - Daicel-Evonik/Kobo Products: *Nylon-12 (And) Titanium Dioxide* 11.80%
- Neo Heliopan® OS - Symrise: *Ethylhexyl Salicylate* 10.00%
- Lipo® GMS 450 - Lipo Chemicals: *Glyceryl Stearate* 3.00%
- Neo Heliopan® BB - Symrise: *Benzophenone-3* 3.00%
- Neo Heliopan® 357 - Symrise: *Butyl Methoxydibenzoylmethane* 3.00%
- Lipomulser® 165 - Lipo Chemicals: *Glyceryl Stearate (And) PEG-100 Stearate* 2.00%
- Ceraphyl® 368 - ISP: *Ethylhexyl Palmitate* 2.00%
- Lipowax® D - Lipo Chemicals: *Cetearyl Alcohol (And) Cetareth-20* 0.50%
- Covi-ox® T-50 - Cognis Corp.: *Tocopherol* 0.50%
- Liposorb® TS - Lipo Chemicals: *Sorbital Tristearate* 0.30%

#### Part 4

- Botanistat PF-64 - DD Chemco: *Phenoxyethanol (And) Caprylyl Glycol (And) Ethylhexylglycerin (And) Hexylene Glycol* 1.00%

#### Part 5

- Aculynt™ 44- Rohm & Haas: *PEG-150/Decyl Alcohol/SMDI Copolymer* 1.00%

### Manufacturing Procedure

1. In main kettle, combine Part 1 ingredients and heat to 78-80°C.
2. Add Part 2 to Part 1 and mix until uniform.
3. Combine Part 2 ingredients and heat to 80°C. Mix until uniform using propeller mixer.
4. Combine Part 3. Heat to 80°C and add to batch with propeller mixing.
5. Add Part 4 while cooling.
6. Homogenize for approximately 2 minutes at 4000 rpm.
7. Add Part 5 to batch.
8. Homogenize for approximately 1 minute at 4000 rpm.
9. Cool batch to 30°C.

### Description

This high SPF and high PFA sunscreen contains DAIAMID MSP-Ti50, which has ultrafine Titanium Dioxide entrapped in a Nylon-12 sphere for SPF and and great feel.

### Active Ingredient(s) :

Homosalate	15.00%
Benzophenone-3	3.00%
Titanium Dioxide	5.00%
Ethylhexyl Salicylate	10.00%
Butyl Methoxydibenzoylmethane	3.00%

SPF/PA Testing: In vivo on 3 subjects

**in vivo SPF 47  
PFA 21**

# KOBO

**Kobo Products, Inc.**  
3474 So. Clinton Ave.  
So. Plainfield, NJ 07080  
USA  
tel +1 / (908) 757-0033  
fax +1 / (908) 757-0905

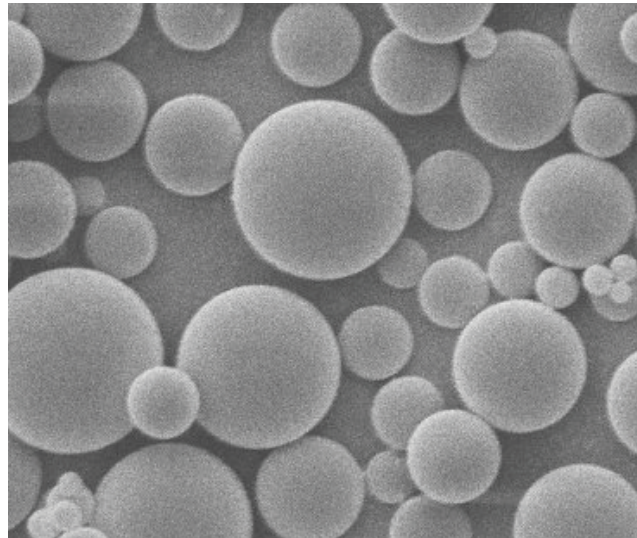
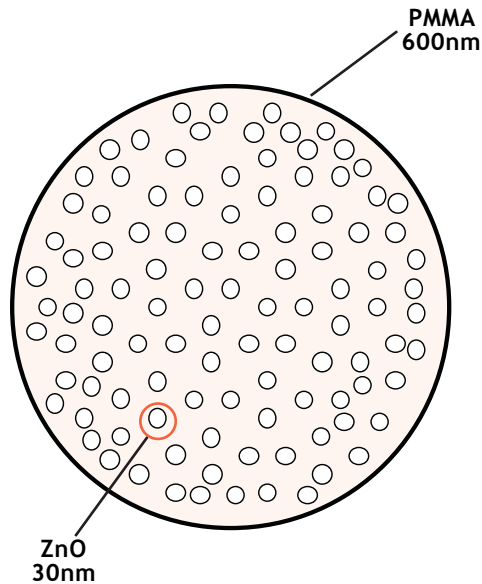
**Kobo Products, SAS**  
Rue Buissonniere, BP 67660  
31676 Labege Cedex  
France  
tel +33 / (0)5.62.88.77.40  
fax +33 / (0)5.62.88.77.49

# Spherical Non-Nano UV Filters

## HMZ-50

This Polymethyl Methacrylate sphere contains 50% Zinc Oxide.

Trade Name	INCI Name	Outside Particle Size	Inside pps
HMZ-50	Polymethyl Methacrylate (And) Zinc Oxide	600nm	30nm



SEM HMZ-50, picture supplied by Sumitomo Osaka Cement  
*UNDER DEVELOPMENT*

## Inorganic Sunscreen With HMZ-50 & DAIAMID MSP-Ti50

Formula KSL-172

**in vivo SPF 17  
PFA 5**

### Part 1

- **HMZ-50** - Sumitomo Osaka Cement/Kobo Products: *Polymethyl Methacrylate (And) Zinc Oxide* 18.50%
- Salacos 99 - Ikeda Corporation: *Isononyl Isononanoate* 15.90%
- **DAIAMID MSP-Ti50** - Daicel-Evonik/Kobo Products: *Nylon-12 (And) Titanium Dioxide* 5.00%
- ABIL® WE 09 - Evonik: *Polyglyceryl-4 Isostearate (And) Cetyl PEG/PPG-10/1 Dimethicone (And) Hexyl Laurate* 5.00%
- **SILSOFT 034** - Momentive/Kobo Products: *Caprylyl Methicone* 3.00%
- **SF96-350** - Momentive/Kobo Products: *Dimethicone* 1.00%
- **LUCENTITE SAN-P** - Kobo Products: *Quaternium-18 Hectorite* 1.00%
- Crill 3 NF - Croda: *Sorbitan Isostearate* 0.50%
- Propylene Carbonate - Spectrum Chemical Mfg. Corp: *Propylene Carbonate* 0.10%

### Part 2

- Deionized Water - *Water* 46.50%
- Sodium Chloride - Morton Salt: *Sodium Chloride* 1.00%
- Germaben® II - ISP: *Propylene Glycol (And) Diazolidinyl Urea (And) Methylparaben (And) Propylparaben* 1.00%

- Aculyn™ 44- Rohm & Haas: *PEG-150/Decyl Alcohol/SMDI Copolymer* 1.00%
- Liposorb® L-20 - Lipo Chemicals: *Polysorbate 20* 0.50%

### Manufacturing Procedure

1. In main kettle, combine Part 1 ingredients and heat to 60-65°C.
- 2 Mix Part 2 ingredients until uniform and add to Part 1 under propeller. Mix until uniform.
3. Cool to 28°C and pour.

### Description

This Sunscreen uses entrapped physical sunscreens HMZ-50 and DAIAMID MSP-Ti50 to be non nano. The spheres also give protection to the sunscreen and give excellent application and drydown. This non nano sunscreen is also non whitening on skin.

Active Ingredient(s) :  
Titanium Dioxide 2.50%  
Zinc Oxide 9.28%

SPF/PA Testing: In vivo on 3 subjects

**KOBO**

www.koboproducts.com