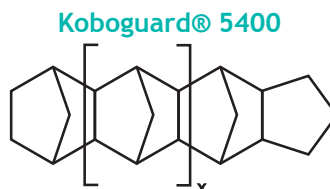


# Koboguard® 5400

## Oil soluble film former

Koboguard® 5400 is an oil soluble polymer that helps to enhance adhesion and substantivity of the cosmetic formulation to the skin, lashes, hair or nail. Therefore, it improves water-resistance, rub-resistance, and stability of the film, imparts gloss and helps suspend pigments. It has no odor and excellent color stability which makes it an ideal substitute for rosins and their counterparts. Its recommended levels of use in formulation are 5-20% actives.



INCI Name : Hydrogenated Polycyclopentadiene  
 CAS# : 68132-00-3  
 Average molecular weight : 500  
 Glass Transition Temperature (Tg) : 54 °C  
 Specific Gravity : 1.10  
 Refractive Index : 1.55 - 1.57

| Product Name        | INCI Name   | Active |
|---------------------|---|--------|
| Koboguard® 5400 IDD | Hydrogenated Polycyclopentadiene (And) Isododecane                  | 70%    |
| Koboguard® 5400 CCT | Hydrogenated Polycyclopentadiene (And) Caprylic/Capric Triglyceride | 50%    |
| Koboguard® 5400 SQ  | Hydrogenated Polycyclopentadiene (And) Squalane                     | 50%    |

All ingredients in these solutions are vegetable, mineral or synthetically derived.

## Koboguard® Waterproof Lengthening Mascara

Formula KMA-013

### Part 1

● **KOBOGUARD® 5400 IDD** - Kobo Products: 14.29%  
*Hydrogenated Polycyclopentadiene (And) Isododecane*

● Permethyl 99A - Presperse: *Isododecane* 21.64%

### Part 2

● **LUCENTITE SAN-P** - Kobo Products:  
*Quaternium-18 Hectorite* 2.00%

● Ethanol SD 39C (95%) Warner-Graham:  
*SD Alcohol-39C* 1.00%

### Part 3

● **BLACK 2-WBG45** - Kobo Products: *Black 2 (And) Butylene Glycol (And) Water* 10.00%

● **TOSPEARL 2000B** - Momentive/Kobo Products:  
*Polymethylsilsesquioxane* 2.00%

● **MSS-500/20N** - Kobo Products: *Silica* 1.00%

● **KTZ® INTERFINE BLUE** - Kobo Products:  
*Mica (And) Titanium Dioxide* 1.00%

● **SF1540** - Momentive/Kobo Products:  
*Cyclopentasiloxane (And) PEG/PPG-20/15 Dimethicone* 3.00%

● Permethyl 99A - Presperse: *Isododecane* 10.00%

### Part 4

● Sodium Chloride - Morton Salt:  
*Sodium Chloride* 0.25%

● Deionized Water 11.50%

● Methyl Paraben NF - International Sourcing:  
*Methylparaben* 0.10%

### Part 5

● Syncrowax HGL-C - Croda:  
*C18-36 Tryglycerides* 5.00%

● Beeswax SP422 - Strahl & Pitsch: *Beeswax* 6.00%

● Carnauba Wax - Frank B. Ross:  
*Copernicia Cerifera (Carnauba) Wax* 3.00%

● Polyethylene 617A - Honeywell:  
*Polyethylene* 3.00%

● Propyl Paraben NF - International Sourcing:  
*Propylparaben* 0.10%

### Part 6

● Deionized Water 2.00%

● dl-Panthenol - Roche: *Panthenol* 0.35%

● Germall® 115 - ISP: *Imidazolidinyl Urea* 0.25%

### Part 7

● Permethyl 99A - Presperse: *Isododecane* 2.00%

● **CELL-U-LASH 150** - Kobo Products:  
*Cellulose* 0.50%

● Vanillin - Citrus & Allied Essence: *Vanillin* 0.02%

### Manufacturing Procedure

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

- Combine Part 1 materials. Add the Lucentite SAN-P slowly to Part 1. Stir with a Cowles Dissolver in a stainless steel beaker at high speed for 20 minutes. Add the Ethanol and stir an additional 20 Minutes.
- Combine ingredients in Part 3 in a stainless steel beaker and stir at high speed with a Cowles Dissolver for 45 minutes. Add gel Parts 1 and 2 to Part 3 to form the base.
- Combine aqueous Part 4 ingredients and stir until clear.
- Add Part 4 slowly to the base and continue homogenizing while heating to 85 °C.
- Add the waxes (Part 5) at 85 °C to the base and continue to homogenize for 5 minutes. Begin air cooling.
- At 65 °C, QS solvent loss.
- At 42 °C add the Panthenol/Germall® solution.
- At 38 °C add the Cell-U-Lash slurry. Continue homogenizing and cool to 25 °C. Fill into appropriate containers.



# KOBO

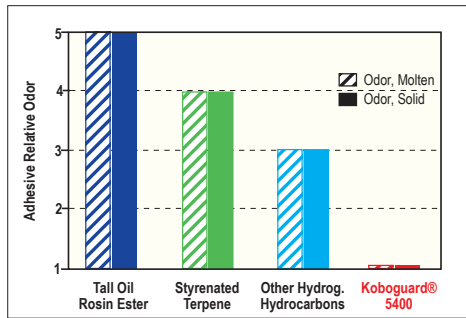
**Kobo Products, Inc.**  
 3474 So. Clinton Ave.  
 So. Plainfield, NJ 07080  
 USA  
 tel +1 / (908) 757-0033  
 fax +1 / (908) 757-0905

**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

[www.koboproducts.com](http://www.koboproducts.com)

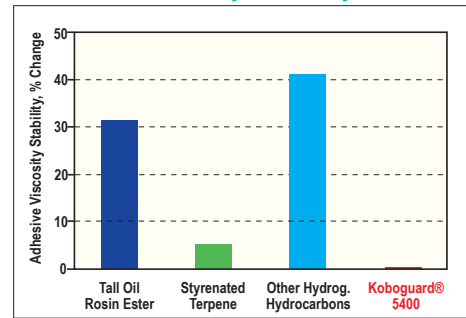
# Koboguard® 5400

## Odor relative to other film-formers



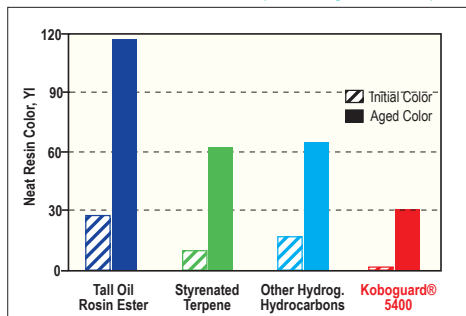
Panel test ratings 1=excellent, 5=poor

## Viscosity Stability



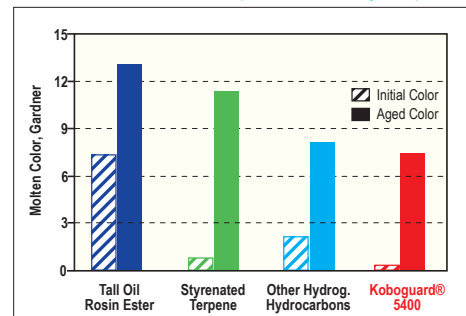
Viscosity aging condition: 96

## Neat Resin Color (Solid powder)



Aged Color = 5 hours @ 175° C

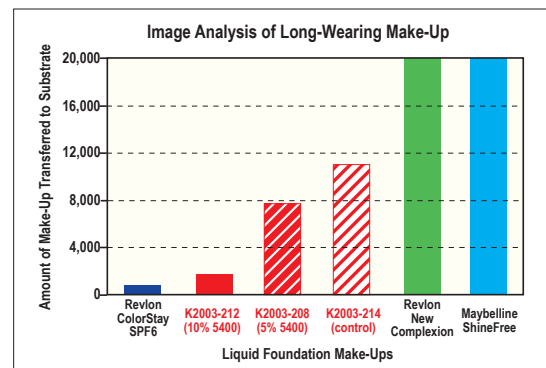
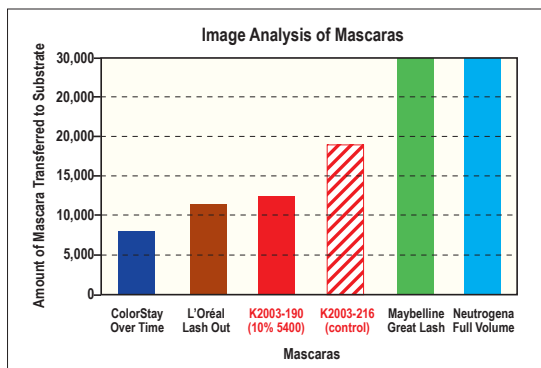
## Molten Color (Viscous liquid)



Aged Color condition: 96 hours @ 177° C

## How does Koboguard® 5400 work in color cosmetics and sunscreen systems ?

- Koboguard® 5400 helps in creating a continuous film when present in sufficient concentration
- The film encapsulates the pigments and binds them, imparting water-resistance and film stability on the skin, preventing creasing
- The adhesive properties of Koboguard® anchor the pigment particles to the skin, improving the rub-resistance



## Koboguard® 5400 vs. Rosins

- Rosins have variable properties as a result of their natural origin and structure
- Directional agreement in a number of areas, including the cosmetic industry, to avoid the use of rosin and derivatives due to their allergenic profile
- High odor and color changes are sometimes associated with rosins and derivatives

## Modifying Koboguard® 5400 Properties

- The addition of Microspheres to a Koboguard-based formulation will decrease 'tack'
- Koboguard® 5400 may be used in combination with other hydrocarbon-based polymers such as polyethylene or polybutene to further improve the film-forming properties

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