

## CAB-O-SIL® FUMED SILICA IN PERSONAL CARE

### APPLICATION OVERVIEW

#### Available Oil-in-Water Emulsifiers

##### COMMON O/W EMULSIFIERS:

- ♦ Ionic stabilizers (charge)
- ♦ Nonionic stabilizers (steric)
- ♦ Polymeric stabilizers (zero-shear viscosity)
- ♦ Liquid crystalline stabilizers (lamellar phase, gel network)

##### INNOVATIVE O/W EMULSIFIERS:

- ♦ Pickering emulsion stabilizers (particle stabilized):
  - ♦ **CAB-O-SIL M-5 fumed silica**

#### Why Oil-in-Water Pickering Emulsions with CAB-O-SIL M-5 Fumed Silica

- ♦ **It's free\*** – fumed silica enables the formulator to produce a cream that is free\* of petrochemicals, PEGs, dioxane, ethylene oxide, formaldehyde, animal products, GMOs and parabens.
- ♦ **It's new** – fumed silica as a Pickering emulsion stabilizer is not new to the world of colloid science, especially in food applications, but a relatively new concept for cosmetic applications
- ♦ **It's different** – fumed silica as a Pickering emulsion stabilizer is not different just for the sake of being different, but enables a very different aesthetic, one that dries very quickly on the skin
- ♦ **It's versatile** – fumed silica can be used to formulate daily facial sunscreens, high performance moisturizers, beach sunscreens, protective hand lotions, liquid foundations



## Benefits of CAB-O-SIL M-5 fumed silica in oil-in-water emulsions

### Stability

- ◆ Can enable stability with water-soluble actives
- ◆ Can enable stability at low pH: at 46° C, 40° C, room temperature, and through freeze/thaw cycles
- ◆ Can enable stability at high pH: at 40° C, room temperature, and through freeze/thaw cycles (Slight instability at 46° C)

### Enables process improvements

- ◆ Cold processing
- ◆ Limited homogenization required (less mixing)
- ◆ Can enable low emulsifier use level (e.g. 2%)

### Enables aesthetic improvements

- ◆ Emulsions with fast absorption into skin

### Enables products that are

- ◆ Petrochemical-free\*
- ◆ Dioxane-free\*
- ◆ PEG-free\*
- ◆ Not animal derived
- ◆ Surfactant-free\* (including soap-free\*)

### Makes O/W emulsions a more viable platform for

- ◆ Daily facial sunscreens
- ◆ High performance moisturizers
- ◆ Beach sunscreens
- ◆ Protective hand lotions
- ◆ Liquid foundations

\*Not intentionally added and not expected to be present above trace concentrations (low ppm or less)