New BENTONE GEL® PTIS V: an Easy-to-use Rheology Modifier that Brings an Elegant Cushiony Feel to the Skin

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Abstract

Certainly cosmetic chemists know the value of adding smectite clay into their formulations. Hectorite clays function by their ability to swell in many types of media. Whether supplied as beneficiated clays for aqueous systems or as organoclays tailored for hydrophobic media these highly functional types of clays provide the desirable thixotropic rheological properties required for easy dispersal and spread-ability of cosmetics, increased stability, suspension of dispersed phases, a silky-smooth skin feel and even enhanced SPF of sunscreens.

Pentaerythrityl Tetraisostearate (and) Disteardimonium Hectorite (and) Propylene Carbonate (Trade Name: Bentone Gel® PTIS V) is our latest offering. It is an elegant new naturally derived rheology modifier for many different types of cosmetic formulations. Like all of our other Mastergels, we pre-activated the rheology enhancing *natural* smectite organoclay for you. This allows the easiest possible incorporation into your formulation; thus saving valuable time and energy while minimizing inventory.

This article presents the chemistry, prototype formulations and data highlighting the benefits for improved product rheology (increased viscosity, thixotropy and yield value), stability on ageing at elevated temperatures and performance (better pigment dispersion, lubricity and enhanced SPF).

Introduction

Bentone Gel® PTIS V is a dispersion of fully activated Disteardimonium Hectorite (Bentone® 38 VCG) organoclay. Like all smectite clays, hectorite is a mineral of volcanic origin. After we beneficiate natural hectorite from our mine in Newberry Springs, California we use a quaternary ammonium compound of vegetable origin (palm oil) to make the lipophilic organoclay, either Bentone® 38 V (INCI name: Disteardimonium Hectorite) or Bentone® 27 V (INCI name: Stearalkonium Hectorite) for medium to high polarity systems. In Bentone Gel® PTIS V, we disperse the organoclay powder into Pentaerythrityl Tetraisostearate and add a polar activator, Propylene Carbonate, using a specially developed high-shear/ high-pressure homogenization process. This process builds gel structure by delaminating and promoting hydrogen bonding between adjacent clay platelets. (See figure 1a).

Bentone Gel® PTIS V delivers a combination of benefits in a single, easy to use product. Of course, the primary function is as a rheology modifier for non-aqueous systems. It is especially well suited for building the viscosity of low to medium polarity solvents like mineral oil, fats, oils and other aliphatic compounds. Therefore, it provides beneficial rheological modifications for the oil phase of emulsions, which leads to enhanced product stability, and increased viscosity without overloading the formula with excessively high levels of long chain fatty alcohols. Its rheological characteristics include a high yield value, which enhances suspension of particulates and retards the coalescence of the dispersed phase. Its highly thixotropic flow properties facilitate dispersal from a wide range of packaging delivery forms and rapid viscosity recovery. Furthermore, It provides excellent distribution and organoclays have a silky feel.