# EXPANDA®

SOURCED FROM THE HIGHEST QUALITY BENTONITE DEPOSITS IN THE WORLD



# who we are

# BPM HAS MINED AND PROCESSED CLAY MINERALS FOR MORE THAN 90 YEARS.

Our products have been used in a variety of household and consumer products for decades, and our EXPANDA line of bentonite products are targeted to meet the demanding needs of the cosmetic industry. The clays in our EXPANDA portfolio are sourced from some of the highest-quality bentonite deposits in the world, which enables us to offer unique performance with minimal processing. Our focus on sustainability guarantees our mine sites are ultimately restored to their original condition, and our vendors are thoroughly vetted for social concerns like human trafficking and conflict mineral trade. With our long-standing reputation in the bentonite market, you can rely on BPM to deliver outstanding products competitively and responsibly.



# WHAT IS BENTONITE?

The products in the EXPANDA portfolio are bentonite clay. Bentonite clay is composed primarily of the active swelling mineral montmorillonite, a member of the smectite group, along with a variety of inert accessory minerals. Bentonite is formed naturally when volcanic ash is deposited in shallow marine environments and geochemically altered over a period of several millennia. Deposits occur globally, with major reserves located in the United States, China, Greece, and Turkey.

At a microscopic level, bentonite is composed of millions of tiny leaflike structures called platelets. Due to their enormous surface area and electrochemical charge, these platelets impart unique swelling, absorption, and rheological properties to bentonite. These properties are what make bentonite a compelling natural alternative to traditional thickeners, emulsifiers, and opacifiers used in cosmetics.

Each of the products in the EXPANDA portfolio undergoes rigorous testing to ensure the highest quality. Heavy metals content is monitored for each product and industry specifications are used to set acceptable levels. Select products are also sterilized by irradiation to prevent microbial contaminants such as yeast, mold, and bacteria.



## **BENEFITS OF THE EXPANDA PRODUCT LINE**

#### **Sourcing & Compatibility**

EXPANDA bentonite is comprised of naturally occurring minerals. Small additions of sodium carbonate are added to ensure product specifications. Being entirely inorganic, bentonite has a practically infinite shelf life and is resistant to microbial degradation. Bentonite is also compatible with a wide range of anionic and nonionic additives and may be used across a wide range of pH values and temperatures.

#### **Opacifier**

Like other mineral pigments, bentonite forms opaque solutions when dispersed in water. EXPANDA NICKEL and EXPANDA SILVER impart a grayish hue, while EXPANDA GOLD and EXPANDA WHITE lend a bright white hue that can reduce the need for traditional brighteners such as titanium dioxide.

#### Stabilizer

Bentonite is known to impart stability to traditional oil-in-water emulsions by reducing the potential for creaming. By thickening the water phase, the mobility of oil droplets is reduced and their tendency to coalesce decreases. Under certain conditions bentonite can create a "Pickering" emulsion by forming an envelope of colloidal solids around dispersed oil droplets that prevents their coalescence. This effect can be further enhanced in the presence of traditional cationic and nonionic surfactants.

#### **Viscosifier, Suspension Aid**

Solutions of bentonite in water form a threedimensional gel network that helps suspend particles. This can prevent settling and segregation of pigments and improve product shelf life. Bentonite solutions are also shear-thinning, which means they are less viscous under higher levels of shear compared to lower ones. This effectively allows formulations to be thick and creamy yet spread smoothly and apply easily onto the skin. Synergistic viscosity effects can also be obtained when bentonite is combined with conventional polymer thickeners such as polyacrylate (carbomer), xanthan gum, and hydroxyethylcellulose (HEC).

#### **Binder, Anticaking Agent**

Bentonite can be used as a binding agent to help adhere ingredients together in pressed powders. Bentonite as a loose powder may also be used as an anticaking agent to prevent powders or granules from clumping together by absorbing excess moisture.



### **HOW TO MIX**

To obtain maximum benefit from the EXPANDA line, proper mixing is critical. Longer mixing times and higher energy mixing promote exfoliation of individual clay platelets, maximizing the available surface area and promoting viscosity development. Bentonite is tolerant of low electrolyte concentrations, but higher concentrations and multivalent salts can inhibit performance. For this reason, mix water should preferably be low in hardness and have a pH that is neutral to slightly basic. Due to its extreme swelling capability, bentonite must be added slowly to water as it is being stirred and never in the reverse order.

Property	Unit	EXPANDA GOLD*	EXPANDA WHITE*	EXPANDA SILVER*	EXPANDA NICKEL
Color	-	White	White	Gray	Gray
Brightness	%	High	Very High	Low	Low
Viscosity	-	High	Low/Medium	Medium	Medium
Swelling Power	mL	24 min	24 min	24 min	24 min
Fineness of Powder	-	No Grit	No Grit	No Grit	No Grit
рН	-	9.5-10.5	9.5-10.5	9.5-10.5	9.5-10.5
Moisture Content	%	5-8	5-8	5-8	5-8
Sterilized	-	Yes	Yes	Yes	No

\*Meets the requirements of the USP Monograph for bentonite





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