**ACB Bamboo Bioferment PF**

**BACKGROUND**

Consider bamboo as a natural, exotic alternative to silicone! Typically bamboo is used for decorative applications such as furniture, flooring and artwork. Historically it has been used in Ayurvedic and Tibetan medicines as well as a food source. Now bamboo may also be used for a broad range of applications in the cosmetics and personal care industries. Although most think bamboo is a type of wood, it is actually a grass that grows at surprisingly fast speeds, which vary per species between 10 cm per day and 5 cm per hour. There are approximately 87 genera of bamboo worldwide and over 1,500 different species. Although many believe that bamboo only grows in Asia, bamboos are also native to North, Central and South America as well as the Caribbean Islands, and the annual global harvest of bamboo is 10 million tons per year.

Arundinaria is a genus of small to medium sized hardy running bamboos with numerous branches at each node and persistent culm sheaths. Arundinaria gigantea also referred to as Giant Bamboo is native to the United States and typically grows along rivers and streams as far north as New York down to Florida and Texas with some growth in the mid-west states of southern Ohio, Indiana, Illinois, Missouri, Oklahoma as well as other southern states. Giant Bamboo is capable of withstanding freezing conditions of -10°F (-23°C) and may grow to a height of twenty feet tall with a diameter of one inch.

**SCIENCE**

Bamboo serves as a natural source of silica. Although the function of silica in bamboo is unclear, researchers postulate that silica provides structural support for the plant. Deposits occur in the plant in the form of hydrated amorphous silica that forms through the polymerization of monosilicic acid, which is absorbed by the roots. The bio-silicate isolated from bamboo has typically been used in supplements targeted for the treatment of arthritis.

In cosmetic and personal care products silicone creates a smooth, soft feel also referred to as slip, which is desirable for most skin care applications. It is also useful for creating a glossy shine on hair while improving combability and may be added to hair care products such as shampoo, conditioner, shine serums and hairsprays. The standard process for obtaining silicon for making silicone typically involves precipitating silica in a reaction mixture that is kept in the alkaline pH region. The solution is then simultaneously mixed with sulfuric acid, sodium silicate and water.

**BENEFITS**

The idea of using a natural bio-silicate derived from exotic bamboo is rather alluring when compared to visions of sulfuric acid and test tube creations! **ACB Bamboo Bioferment PF** is a natural alternative to silicone. The manufacturing process
begins by macerating bamboo leaves. The mixture is then fermented with *Lactobacillus lactis* which complexes with the bio-silicate from the plant matrix without using harsh chemicals, thus leaving us with a slightly acidic solution containing biochelated silica. **ACB Bamboo Bioferment PF** is suitable for improving epidermal slip and aesthetics, and it may be used in applications such as lotions, creams, shampoos, conditioners, leave in treatments, and make-up.

**EFFICACY DATA**

A 20 subject sensory panel was assembled to determine the *in-vivo* improvement in epidermal slip using **ACB Bamboo Bioferment PF**. Panelists were asked to compare the improvement in slip using **ACB Bamboo Bioferment PF** to a biological control. A 10% concentration of **ACB Bamboo Bioferment PF** was prepared in a standard aqueous solution; a 50µl dose was then applied to the subjects’ left hand. The results demonstrate that **ACB Bamboo Bioferment PF** increases epidermal slip by more than 60% when compared to the biological control.

**Figure 1. In-vivo improvement in epidermal slip using **ACB Bamboo Bioferment PF**.**