The Trusted and Reliable Source for Dental Silicas

High performing products. Rigorous quality systems. Unparalleled customer technical support and care. A global technology and support team. Worldwide distribution network. More than mere statements and words, these are the attributes and promises delivered upon by the associates of the only name you need to know and trust when it comes to dental silica: Evonik.

EVENIK MANUFACTURES AND SUPPORTS ITS ZEODENT® DENTAL SILICAS ACROSS THE GLOBE

You can count on Evonik as your partner in achieving the desired level of cleaning safely for your dentifrice products.

www.zeodent.com  ask-si@evonik.com
High Performing Products

The ZEODENT® family of dental silica products is designed to provide superior performance in toothpaste applications. Selecting from the broad range of ZEODENT® products, toothpaste producers can optimize the important characteristics of each toothpaste formulation, including cleaning and whitening performance, abrasivity and sponginess, optical clarity, stability and compatibility with other ingredients.

ZEODENT® Dental Cleaning Silicas

ZEODENT® silica is an important ingredient in toothpaste, providing safe and effective cleaning with minimal impact on hard tissues of the oral cavity. Evonik works collaboratively with customers to select the optimal cleaning silica to achieve the goals of each formulation. Included in this technical bulletin are descriptions of recognized test methods, so as to those specific to quantifying the efficacy and safety of ZEODENT® dental cleaning silicas.

The Einlehner and Plastic Test Methods

The Einlehner test method and the Plastic Test Methods

THE RELATIVE DENTIN ABRASION (RDA) TEST METHOD

The American Dental Association (ADA) monitors toothpaste safety using RDA, which is measured using a rotator method developed by John J. Hafele (in 1971). For this method, human dentin is brushed with a dentifrice using a well controlled brushing apparatus, the V8 Cross Brushing Machine. The quantity of dentin that is removed via profilometry is measured.

The Einlehner test method utilizes a cylindrical PVC bushing that is rotated under load against a bronze screen in the presence of silica. The level of wear is then determined gravimetrically. As this method produces a very strong correlation of silica slurry. The level of wear is then determined gravimetrically. The Einlehner method utilizes a cylindrical PVC bushing that is rotated under load against a bronze screen in the presence of silica. The level of wear is then determined gravimetrically.

THE PLASTIC TEST METHOD

The Plastic method correlates to RDA for toothpastes containing standard dental grade silica. Changes in particle shape, abrasive type or other ingredients skew the relationship with RDA significantly. Fig. 4 shows this correlation, which is very good for standards. However, a larger particle silica type deviates considerably.

Figure 1: The Einlehner test method
Figure 2: Correlation of the Einlehner method to the RDA method
Figure 3: Cross section of worn specimens showing increasing levels of abrasion described by roughness values (Ra)
Figure 4: Correlation Ra vs. RDA value

The All-Star Dental Cleaning Silica Lineup

DESIGNED FOR SUPERIOR PERFORMANCE, EFFECTIVE CLEANING, RELIABLE SAFETY

ZEODENT® 103 is our highest cleaning silica offering excellent cleaning and whitening when used alone or as a “booster” in combination with our ZEODENT® 113 or ZEODENT® 116 cleaning silicas. At varying dosage levels, ZEODENT® 103 allows formulators to achieve a broad range of cleaning and whitening performance.

ZEODENT® 124 is our medium to high cleaning silica, offering improved optical performance over ZEODENT® 103, ZEODENT® 124 cleaning silica that has reduced abrasiveness, making it more gentle on tooth enamel. Like ZEODENT® 103, ZEODENT® 124 can be used as a base for a “booster” to provide cleaning performance in standard toothpaste formulations. When greater clarity is required along with the cleaning efficiency of ZEODENT® 124, ZEODENT® 120 is the perfect choice.

ZEODENT® 113 offers gentle cleaning with the highest ratio of cleaning to abrasion, making it ideally suited for formulations where either tooth is required. ZEODENT® 116 also offers clarity and contrast for clean gel toothpastes.