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Celatom® Diatomaceous Earth Products General Classification

Diatomaceous earth (DE, diatomite, diatomaceous silica, kieselguhr, infusorial earth) is a fine-grained siliceous sediment of biogenic origin. It is composed of the skeletal remains of microscopic single-celled aquatic plants called diatoms. These plants flourish in lakes and oceans, dating back to those which covered portions of the earth millions of years ago. DE is predominantly amorphous silica (non-crystalline silicon dioxide). It may also contain small amounts of crystalline silica (quartz), adhering water insoluble oxides of calcium, magnesium, iron and aluminum and certain trace elements which occur naturally in the earth's crust.

Diatomite ore is processed in three different ways after excavation of the ore using surface mining methods. These processes are used depending upon the end product desired: natural, calcined, or flux-calcined grade.

NATURAL PRODUCT

The crude ore is milled, dried at relatively low temperatures and classified to remove extraneous matter and to produce a variety of particle size grades. These natural powders are generally off-white in color, and may contain small percentages (less than 1%) of quartz. Celatom® FN and MN grades, AFA, All-Gone, and Cropguard are all natural products.

CALCINED PRODUCT

Calcined product is made from the natural material by calcination at high temperatures (typically 1500° - 1800°F) in a rotary kiln. Depending upon the application it may be again milled and classified into different grades with selected particle size ranges. During calcination the organics and volatiles are removed, the color typically changes from off-white to pink, and some of the amorphous silica is converted to crystalline silica, mainly cristobalite. Calcined DE typically contains up to 20% cristobalite. Celatom® FP and MP grades fall within this category.

FLUX-CALCINED PRODUCT

This product is made from the natural grade by calcining in a rotary kiln at high temperatures in the presence of a flux, generally soda ash. During flux calcination, the diatoms fuse together, become white in color, and again some of the amorphous silica is converted to crystalline silica (cristobalite). Further milling and air separation control particle size distribution. Flux-calcined material typically contains up to 60% cristobalite. Celatom® FW and MW grades fall within this category.