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MINERAL FILLERS -HDS SILICAS-

ZEOPOL®

DESCRIPTION:

Zeopol brand fillers are highly dispersible, precipitated amorphous silicon dioxides (HDS) utilized in all types of rubber applications. J.M. Huber, Engineered Materials Sector engineered a patented silica production method to manufacture a unique and very special silica filler to enhance the properties of the “green tire” being pursued by all the major tire manufacturers. The resultant silica has successfully contributed to superior processing and performance characteristics when compared to conventional grade silica in tire and other compounds and is currently available to all markets of the rubber industry. Improved properties include: lower processing viscosities, enhanced tear, fatigue, abrasion and hysteresis (heat build-up) resistance. Zeopol products are packaged in a low dust granular form.

TYPICAL PROPERTIES:

	Zeopol 8745	Zeopol 8755LS
pH (5%)	6.4 - 7.4	6.0 - 7.0
Surface Area (m ² /gm. CTAB)	130 - 150	140 - 170
Surface Area (m ² /gm. BET)	165 - 195	150 - 170
Specific Gravity	2.0	2.0
Sodium Sulfate, % max.	2.0	2.0
Moisture, 2 hrs. @ 105°C	4.0 - 7.0	4.5 - 7.5

APPLICATIONS:

Huber’s patented process of Zeopol silicas is very special in many respects, but three major characteristics are especially important:

- ⇒ agglomerates easily breakdown to aggregates less than 1 micron in size (not the case with competitive HDS)
- ⇒ higher structure promotes more polymer/filler interfacial activity
- ⇒ higher surface activity (-OH groups) produces more interaction with polymer and coupling agents

These attributes promote a variety of processing and performance benefits. Easy mixing Zeopol silicas produce lower viscosities than conventional grades improving milling, flow and calendaring properties and a less “boardy” or stiff compound. In addition, improved dispersion contributes to superior physical properties such as: tensile strength, tear and abrasion resistance and improved dynamic properties like flex fatigue and lower hysteresis (using coupling agents). Higher surface activity, basically -OH groups, lets the compounder reduce costs by using less coupling agent with these HDSs. Zeopol 8745 and 8755LS require 10% less coupling agent and retain the same level of performance of that of conventional grades with increased loadings of coupling agents. One more benefit is the consistency of physical properties produced with Zeopols allowing for increased product quality control. Traditional silica-loaded compounds usually produce more erratic tensile and tear values which can lead to less predictable quality of the product.

® Zeopol is a registered trade name of J.M. Huber, Engineered Materials Sector

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