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MINERAL FILLERS
-SILICAS-

MANSIL®- SILICA PRODUCTS

PRODUCT DESCRIPTION:

Mansil silica products are white, amorphous, precipitated silica. They are reinforcing fillers used in synthetic and natural rubber compounding. Mansil products come in two distinct forms: spray-dried and granulated. The advantage of the spray dried form is faster incorporation time and less viscosity buildup while maintaining excellent dispersion. The granulated products reduce "fly-loss" during mixing and provide a cleaner plant environment.

TYPICAL PROPERTIES: Spray-dried Products

Grades: Mansil	*190*	*175*	*160*	*130*	*125*	*120 S*	*055*	*030*
Appearance	white	white	white	white	white	white	white	white
Form	powder	powder	powder	powder	powder	powder	powder	powder
Moisture Loss (2 hrs @ 105°C), % max.	6.0	5.0	6.0	6.0	6.0	5.0	6.0	6.0
pH (5% slurry)	6-7	6-7	6–7	6-7	6–7	6.5–7.3	7.7-8.3	8.0-8.5
Approx. Average Particle Size (d-50), µ	18	18	22	28	28	20-24	35	10-12
Surface Area (BET), m^2/g	190-210	170-190	150-170	120-150	115-135	115-135	50-60	30
SiO2 anhydrous (bone dry), % min	98.5	98.5	98.5	98.5	98.0	98.0	98.0	99.0
Oil Absorption (DBP), ml/100g (+/- 30)	240	240	230	220	220	240	170	200
Bulk Density (tapped), g/liter (+/- 30)	250	250	250	250	200	180	210	240

TYPICAL PROPERTIES: Granular Products

Grades: Mansil "G" Series	*190G*	*175G*	*160G*	*130G*	*125G*
Appearance	white	white	white	white	white
Form	granules	granules	granules	granules	granules
Moisture Loss (2 hrs @ 105°C), % max	6.0	6.0	6.0	6.0	6.0
pH (5% slurry)	6–7	6–7	6–7	6–7	6–7
Average Particle Size (d-50), µ	18-20	18-20	20-22	28	28
Surface Area (BET), m^2/g	190-210	170-190	150-170	120-150	115-135
SiO2 anhydrous (bone dry), % min	98.5	98.5	98.5	98.5	98.0
Oil Absorption (DBP), ml/100g (+/- 30)	240	240	230	220	220
Bulk Density (tapped), g/liter (+/- 30)	330	330	330	330	280

APPLICATIONS:

Precipitated silicas increase hardness, tensile strength, abrasion and tear resistance. For mechanical rubber goods, Mansil products can be used as the primary filler or in combination with carbon black. In tire applications, these silicas improve rolling resistance, flex fatigue and enhance traction. In adhesives compounding, silica provides an additional method of promoting improved adhesion, as well as providing reinforcement. Silicas are universally applied to provide increased abrasion resistance, green strength and translucence in the formulating of shoe sole compounds.

DOSAGE:

Lightly loaded compounds are prepared using 5 - 20 phr while highly loaded, oil extended compounds can use 75 - 100 phr.

PEG-3350 is the most often used activator to improve silica dispersion, cure rate and state of cure. AKROSORB® 29471, which is dry liquid dispersion of 72% DEG, functions like PEG-3350 with the added advantage of further reduction of compound viscosity.