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MINERAL FILLERS -ADDITIONAL FILLERS-

HYSAFE®

DESCRIPTION:

Hysafe products are synthetic, fine white powders used as lead oxide replacements in halogenated polymers to scavenge acid byproducts which are detrimental to many polymeric processing and physical properties. J.M. Huber, Engineered Materials Sector, holds the application patent for using hydrotalcites to scavenge acidic substances in polymeric compounds. Chemically, Hysafe 310 is tricalcium hexahydrate and Hysafe 510 is magnesium aluminum hydroxy carbonate a.k.a. hydrotalcite. Hysafe 539 is a smaller particle size, stearate-treated hydrotalcite to enhance dispersion in polymers. Hysafe 310, Hysafe 510 and Hysafe 539 have the added benefit of releasing water at 260°C and 300°C, respectively (higher than ATH, safer processing) thus are used as flame retardants and smoke suppressants. Hysafe products are environmentally safe, non-toxic, non-corrosive and non-volatile.

TYPICAL PROPERTIES:

	Hysafe 310	Hysafe 510	Hysafe 539
Average Particle Size (Horiba, µm)	1.5	2.0	1.0
5% pH	10.5	9.5	8.5 ²
Surface Area (m ² /gm. BET)	8.0	20.0	10.0
Specific Gravity	2.52	2.09	2.1
Moisture, 1 hrs./105°C	0.50	0.50	0.50
Oil Absorption, cc/100gr	30	85	48
Brightness, Gardner %	97.0	95.0 ¹	95.0 ¹

¹ blue reflectance, %, ² 2% in ethanol

APPLICATIONS:

Hysafe products are primarily utilized as a lead oxide replacement to scavenge acidic byproducts in halogenated polymers such as: polychloroprene (CR), chlorosulfonated polyethylene (CSM), chlorinated polyethylene (CPE), epichlorohydrin (ECO), polyvinylchloride (PVC) and halobutyls (BIIR, CIIR). In many formulations, these additives have successfully replaced lead oxides without disrupting any processing or physical properties of the compounds. In addition, these antacids provide superior water swell to magnesium oxides in all the elastomers stated above. In most formulations, lead oxides do show slightly improved water swell behavior compared to Hysafe products. Hysafe 510 can improve color of EPDM's by scavenging the acid chlorides left over from the polymerization process. Hysafes have a special attribute of an internal decomposition and water release from 260°C to 300°C acting as flame-retardants and smoke suppressants. These products have been added to other flame retardant systems as inorganic stabilizers and smoke suppressants, especially with halogenated systems. Hysafes are also utilized in electrical applications for their anti-tracking properties.

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

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