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## FIRE RETARDANTS

### ALUMINA TRIHYDRATE

#### PRODUCT DESCRIPTION:

Alumina Trihydrate (ATH or hydrated alumina) is a non-toxic, non-corrosive, flame retardant and smoke suppressant utilized in elastomeric applications. It is the most frequently used flame retardant in the world. ATH is a very effective flame retardant due to its thermodynamic properties which absorb heat and release water vapor. Alumina trihydrate releases its 35% water of crystallization as water vapor when heated above 205°C. The resulting endothermic reaction cools the product below flash point, reducing the risk of fire and acts as a vapor barrier to prevent oxygen from reaching the flame. Typical loadings vary from 20 phr to 150 phr. Because many polymers like polyethylene and polypropylene process above 200°C, these polyolefins should use magnesium hydroxide as a flame retardant filler since its water of hydration releases at approximately 325°C.

#### TYPICAL PROPERTIES:

Chemical Decomposition .....	Al(OH) <sub>3</sub> → Al <sub>2</sub> O <sub>3</sub> - 3H <sub>2</sub> O
Al(OH) <sub>3</sub> .....	99.2%
Loss on Ignition .....	34.6%
SiO <sub>2</sub> .....	0.005%
Fe <sub>2</sub> O <sub>3</sub> .....	0.007%
Na <sub>2</sub> O .....	0.30%

Typical Grades:	<i>SB-36</i>	<i>SB-136</i>	<i>SB-222</i>	<i>SB-432</i>	<i>SB-805</i>
Median Particle Size μ	25.0	18.5	14.5	9.0	2.6
Surface Area m <sup>2</sup> /g	1.0	1.5	1.5	2.0	5.0
Oil Absorption	----	21	23	28	34
Free Moisture % (105°C)	0.15	0.2	0.2	0.3	0.5

Typical Grades:	<i>Micral® 632</i>	<i>Micral® 916</i>	<i>Micral® 932</i>	<i>Micral® 1500</i>	<i>Micral® 9400*</i>
Median Particle Size μ	3.5	1.3	2.0	1.5	1.1
Surface Area m <sup>2</sup> /g	8.0	16.0	13.0	10.0	4.5
Oil Absorption	32	46	38	34	29
Free Moisture % (105°C)	0.4	0.9	0.7	0.3	0.2

\* Note: MICRAL 9400 is a precipitated ATH product.

There are several other grades available incorporating special attributes such as: unique and precise particle size distribution, high brightness, low moisture and surface modifications to aid in processing and enhance physical properties with the use of silanes, stearates and wetting agents. These grades may be made-to-order items with limited inventory. Please check with your sales representative for current product status and minimum purchase requirements.

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