



## Americas Regional Product Data

# Almatis FlameGard®

### Product Information

Almatis FlameGard ATH (aluminum trihydroxide) is an inorganic hydrated alumina designed for use in polymer systems as a flame retardant and smoke suppressive additive. FlameGard is more accurately designated chemically as aluminum trihydroxide,  $Al(OH)_3$ , and is produced through processing of alumina-bearing feedstocks. Although FlameGard is a dry powder, when heated above approximately 220°C it decomposes into approximately 35% water and 65% alumina by weight. FlameGard is a nonabrasive, low density material with a Mohs hardness index of 2.5 - 3.5 and a specific gravity of 2.42. Almatis FlameGard ATH is compatible with polymer systems.

### Product Description

FlameGard ATH is a ground Bayer hydrated alumina designed for specific application in polymeric adhesive backing of tufted carpeting to provide a level of flame retardancy to the carpet system. It is specially ground to maintain relatively coarse particle distributions in the median range of 22 to 26 microns and provides a high loading potential in high viscosity backing compounds. FlameGard ATH has a slight off-white or ivory color that is acceptable in most applications.

### Flame Retardant, Smoke Suppressant Properties

FlameGard imparts fire retardant properties to a polymer/ATH filled system because it has a high proportion of chemically combined water by weight (34.6 percent) attached to each hydrate molecule. This "water of hydration" is stable to the processing temperatures of most polymer coated textiles. On heating to higher temperatures, e.g. by exposure to flame, FlameGard undergoes an endothermic reaction. This sacrificial absorption of heat significantly reduces the heat available to decompose the textile polymer materials into gaseous fuel elements necessary to sustain combustion.

FlameGard is also nonsmoking and non-halogenated. It decomposes into an inert material: anhydrous alumina and water. Its presence in a polymer system can substantially lower smoke production levels when compared to flame retardant polymers based on phosphates or on brominated or chlorinated paraffin/antimony trioxide filled systems.

### Applications

Primary applications are in the film forming binders based on polymers and copolymers.

- Ethylene vinyl acetate (EVA)
- Natural latex
- Polyurethane
- Polyvinyl acetate (PVA)
- Polyvinyl chloride (PVC)
- Styrene-butadiene rubber (SBR)
- Vinylidene Chloride



## Almatis FlameGard®

Product	FlameGard	
	Average	Shipping <sup>(1)</sup>
<b>Chemical Composition (%)</b>		
SiO <sub>2</sub>	0.02	0.25 max
Fe <sub>2</sub> O <sub>3</sub>	0.015	0.02 max
Na <sub>2</sub> O (total)	0.2	0.35 max
Na <sub>2</sub> O (soluble)	0.03	0.05 max
Moisture	0.2	0.3 max
<b>Physical Properties</b>		
Loose bulk density (lb/ft <sup>3</sup> )	60-70	-
Packed bulk density (lb/ft <sup>3</sup> )	80-85	-
Specific gravity	2.42	-
Mohs hardness	2.3-3.5	-
<b>Particle Size</b>		
wt. % through 325 mesh	60-65	-
d50 (µ)	22-26	-

(1) Almatis general shipping specifications

2003 Data - All data are based upon Almatis standard test methods, and all test methods are available upon request.  
Unless stated otherwise values are typical.



### Contacts for sales, technical information and application assistance

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