



ALMATIS

PREMIUM ALUMINA



Global Product Data

Almatis Hydral[®] Series Aluminum Trihydroxides

Product Description

Almatis Hydral is a specially precipitated white aluminum trihydroxide $\text{Al}(\text{OH})_3$. Hydral 710 has an extra-fine, uniform median particle size of about 1.0 micron in diameter. Hydral PGA has the same crystalline structure as Hydral 710, but in a spray-dried form. This results in higher bulk densities, better material flow properties, and allows more economical bulk handling. The dispersant used in PGA causes the material to disperse readily when added to water, forming a stable high solid suspension. All Hydral products are finely divided high-purity white powders with a Z percent brightness value of +99.

Benefits

- Hydral is halogen-free and is an outstanding flame retardant and smoke suppressant for thermoset and thermoplastic materials. It also improves arc-track resistance in many plastics used in electrical applications.
- When used as fillers, Hydral products can significantly increase the opacity and brightness of most papers including text and cover papers.
- In coating applications, Hydral is used to impart brightness and gloss for annual report stock and paperboard. It has the added benefit of providing high ink receptivity.
- Hydral is compatible with a full range of paper processing pH levels (4-10), and other paper fillers and chemicals.
- When compared to clays, silicas, and carbonates, Hydral has a lower Einlehner abrasivity for paper applications.
- As a reinforcing pigment in adhesives and adhesive tapes, Hydral products improve cold flow properties, maintain neutrality or alkalinity of the composition, and increase cohesion.
- Hydral products are useful in waxes and polishes when a relatively soft and extremely fine polishing agent is required.
- Hydral's extreme fineness and smooth texture make it an excellent ingredient in cosmetic powders and lotions.
- It is a good mild polishing agent in dentifrices.
- Spray-dried Hydral PGA, an agglomerated material, disperses easily into particle sizes identical to Hydral 710.

Think alumina, think Almatis.

GP-SH/018/R05/1207/MSDS 839



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Product	Hydral 710			PGA		
	Shipping ⁽¹⁾	Average	Typical	Shipping ⁽¹⁾	Average	Typical
Chemical Composition (%)						
Al(OH) ₃		99.5	99.4 - 99.6		99.5	99.4 - 99.6
SiO ₂		0.004	0.002 - 0.009		0.004	0.002 - 0.009
Fe ₂ O ₃		0.007	0.004 - 0.013		0.007	0.004 - 0.013
Na ₂ O (total)		0.24	0.17 - 0.37		0.24	0.17 - 0.37
Na ₂ O (soluble)	0.04 max	0.016	0.004 - 0.030	0.04 max	0.027	0.016 - 0.044
Moisture	0.40 max	0.20	0.10 - 0.40	0.40 max	0.17	0.11 - 0.26
Physical Properties						
Loose bulk density (g/cm ³)		0.30	0.26 - 0.35		0.41	0.32 - 0.47
Packed bulk density (g/cm ³)		0.51	0.46 - 0.54		0.69	0.61 - 0.74
Surface area (m ² /g)	3.0 min, 5.0 max	4.0	3.4 - 4.4	3.5 min, 5.5 max	4.5	4.0 - 5.0
Particle Size						
% on 325 mesh by wet screen	0.02 max	0.003	0.001 - 0.010	0.01 max	0.002	0.001 - 0.005
d ₉₅ (μ) by Sedigraph 5100	Median (μ) 0.9 min 1.3 max	2.1	2.0 - 2.4	Median (μ) 0.9 min 1.3 max	2.1	2.0 - 2.4
d ₅₀ (μ) by Sedigraph 5100		1.1	1.0 - 1.2		1.1	1.0 - 1.2
d ₁₀ (μ) by Sedigraph 5100		0.7	0.6 - 0.8		0.67	0.6 - 0.8
Other Physical Properties						
LOI (%; 110-1100°C)				34.5		
Density (g/cm ³)				2.42		
Mohs hardness				2.5-3.5		
Refractive index				1.57		
Brightness (% Z)				99+		
Color				White		
Test Methods						
Al(OH) ₃	By difference					
SiO ₂ , Fe ₂ O ₃ , and total soda	DC Arc Optical Emission Spectrometry					
Soluble soda	Flame Emission Photometry					
Moisture	Microwave					
Loose bulk density	Modified ASTM B212-89					
Packed bulk density	Modified ASTM B527-85					
Surface area	Brunauer-Emmett -Teller method of nitrogen adsorption					
Z percent brightness	Z value of the XYZ tristimulus divided by 1.18103					

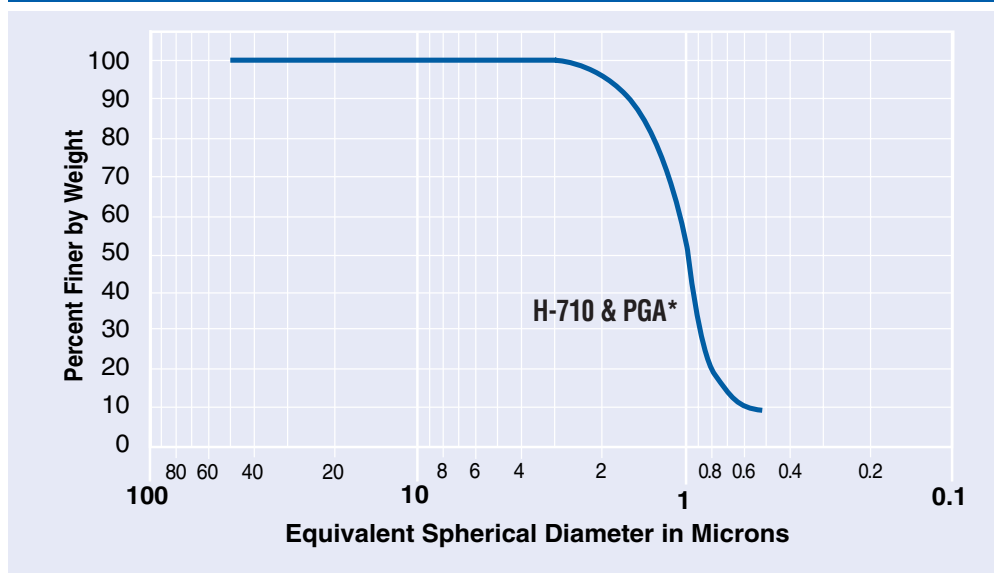
(1) Almatis general shipping specifications

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.



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Typical Particle Size Analysis by Sedigraph



* PGA particles as deagglomerated. Actual agglomerated particles are larger.



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