



## Alumina Trihydrate (ATH)

A Versatile Pigment for Coatings, Inks,  
Adhesives, Caulks, Sealants, Potting  
and Encapsulating Applications

## Pergopak<sup>®</sup> Organic Matting Agents

Designed for Reducing Gloss in  
Specialty Industrial Coatings  
and Overprint Varnishes



## Huber's Alumina Trihydrate (ATH)

Alumina trihydrate (ATH) is often associated with its role as a non-halogen flame retardant and smoke suppressant, and for good reason, as ATH is the largest selling fire retardant additive in the world. Synonyms for ATH you might be familiar with include:

- ✓ Hydrated Alumina
- ✓ Aluminum Hydroxide
- ✓ Aluminum Trihydroxide

ATH is an extremely functional and versatile pigment and useful in coatings, inks, adhesives, caulks and sealants applications. Because ATH is an inert functional pigment available in a wide array of particle size distributions, it offers a number of key features and benefits:

Features	Benefits
Dehydration at 428°F (220°C)	<ul style="list-style-type: none"> <li>✓ Flame retardance</li> <li>✓ Smoke suppression</li> </ul>
High brightness	<ul style="list-style-type: none"> <li>✓ Extends titanium dioxide (TiO<sub>2</sub>) and colors without darkening</li> </ul>
Median particle size: Sub micron to 80 microns	<ul style="list-style-type: none"> <li>✓ Reduces or maintains gloss, depending on the particle size</li> <li>✓ Good anti-settling characteristics</li> <li>✓ Hegman grind values as high as 7</li> </ul>
Low oil absorption: Specific gravity 2.42	<ul style="list-style-type: none"> <li>✓ Viscosity stability with high pigment loadings</li> </ul>
Refractive index of 1.57	<ul style="list-style-type: none"> <li>✓ Imparts little tint strength, which means transparency or translucency in some resin systems, especially UV cured systems</li> </ul>
Non-abrasive: Mohs hardness 2-3	<ul style="list-style-type: none"> <li>✓ Disperses effortlessly</li> <li>✓ Easy on equipment</li> </ul>
Chemically inert	<ul style="list-style-type: none"> <li>✓ Exterior durability</li> <li>✓ Stain, scrub and water resistant</li> <li>✓ UV transparent</li> </ul>
Metallic hydroxide chemistry	<ul style="list-style-type: none"> <li>✓ Modest thermal conductivity*</li> <li>✓ Disperses effortlessly</li> </ul>
Composition	<ul style="list-style-type: none"> <li>✓ Source of aluminum in the production of color pigments</li> <li>✓ Low impurities mean faster cure in thick UV cured systems</li> <li>✓ Non-toxic</li> <li>✓ Non-halogen</li> </ul>
Compatible with cationic or anionic systems	<ul style="list-style-type: none"> <li>✓ Complete flexibility in choosing polymers</li> </ul>

\*For increased thermal conductivity, please contact us and ask about our exclusive Martoxid® TM Calcined Alumina Thermally Conductive Fillers.



## Extending with Stain Resistance/Scrub Resistance

Huber's ATH is inert, low in oil absorption and completely insoluble in water, alcohol and other solvents. In cast polymer and solid surface applications, ATH is the ideal choice to provide stain resistance for kitchen countertops. In some coating systems, ATH outperforms calcium carbonate, hydrous clays and other fillers which are more water sensitive.

Huber produces grades of ATH with a hydrophobic surface treatment to impart outstanding water resistance. Treated grades are available on any particle size ATH.

## Two ATH Processes

There are two processes used to produce ATH in coatings, inks, adhesives, caulks and sealants applications which yield different particle size distributions and purity.

### Ground ATH

- Relatively broad particle size distribution
- Economical

### Double Precipitated ATH

- Narrower particle size distribution/relatively low surface area
- Higher purity
- Very high whiteness, brightness

To minimize the use of  $\text{TiO}_2$  or organic colorants, Huber's high brightness grades of ATH are much higher in brightness (lower b values) than commonly used extenders. Masstone colors can be extended using high brightness precipitated ATH with more clarity than most other fillers.

## The Physical Properties of ATH

Physical Form	Powder
Particle Morphology	Hexagonal Platelet
Brightness (Standard Grades)	90 – 92
Brightness (Double Precipitated)	100
Specific Gravity, g/cm <sup>3</sup>	2.42
pH Value	9 – 10
Mohs Hardness	2.5 - 3.0
Refractive Index	1.57
Decomposition Temperature	428°F/220°C
Heat of Decomposition, cal/g	280
Theoretical Loss on Ignition, %	34.6%

## Introducing Pergopak® Organic Matting & Effect Agents for the Coating & Ink Industries

In addition to offering its array of ATH non-toxic fire retardants, Huber is home to the matting agent problem solver: our exclusive line-up of Pergopak® Organic Matting Agents. Pergopak products allow for the creation of surface properties and visual and physical effects, which cannot be achieved by standard matting agents like silicas or waxes. Compared to silica, Pergopak grades provide improved mar and abrasion resistance at lower viscosities.

For more information on the Pergopak grades available, visit:  
[www.hubermaterials.com/pergopak](http://www.hubermaterials.com/pergopak)





ALUMINA TRIHYDRATE

Huber’s Key ATH Product Offerings for Coatings, Inks, Adhesives, Caulks, Sealants, Potting and Encapsulations

Typical Properties and Application Compatibility Grid																				
Note: All ATH products are halogen-free flame retardants and smoke suppressants.																				
ATH Product	Brightness	Median Particle Size	Hegman Grind	Oil Absorption	Surface Area	Attributes	Architectural Coatings	Industrial Coatings - OEM	Industrial Coatings - Maintenance	Paper Coatings	Flame Retardant Elastomeric Roof Coatings	Powder Coatings	Pigments/ Dispersions/ Colorants	Inks	Energy Cure	Gel Coats	Epoxy Potting Compounds	Adhesives	Textile Coatings	Caulks/ Sealants
High Brightness Grades																				
Onyx Elite® 431	White	8	4	28	2	High reflectivity; Thick film systems					•	•			•	•				
SpaceRite® S-3*	White	1.1	7	31	4.2	Outstanding brightness; TiO <sub>2</sub> and color extension		•	•	•	•		•	•	•	•				
Standard Grades																				
SB-136	Off-white	19	0	21	1	Flame retardance; Modest thermal conductivity**											•	•	•	
SB-336	Off-white	15	2	23	1.2	Flame retardance; Modest thermal conductivity**					•						•	•	•	
SB-332	Off-white	11	3	29	1.5	Flame retardance; Flatting					•						•	•	•	•
SB-432	Off-white	9	4	28	2	Flame retardance; Flatting	•	•			•	•					•	•	•	•
Micral® 532	Off-white	5	5	28	6.4	Flatting; Stain resistance; Scrub resistance	•	•	•			•				•			•	
Micral® AM550	Off-white	5	6	32	3.5	Flatting; Stain resistance; Scrub resistance	•	•	•			•			•	•	•	•	•	•
Micral® 632	Off-white	3.5	6	32	7.5	Flatting; Stain resistance; Scrub resistance	•	•	•			•				•			•	
Micral® 932	Off-white	2	6	38	13	Flatting; Stain resistance; Scrub resistance		•	•	•		•				•				
Micral® 1500	Off-white	1.5	6+	34	10	TiO <sub>2</sub> extension		•	•	•			•			•				
Treated Grades																				
Hymod® SB432 SG	Off-white	9	4	28***	2	Hydrophobic; High loadings; Non-aqueous systems		•	•		•							•		•
Hymod® M9400 SG*	Off-white	1	7	31***	5	Hydrophobic; High loadings; Non-aqueous systems		•	•				•	•	•					
Pergopak® Organic Matting Agents																				
Pergopak® M3	Transparent	7.5	6	310	18	Matting at low viscosity and burnish resistance		•						•	•					
Pergopak® M4	Transparent	6	7	310	18	Matting at low viscosity and burnish resistance		•						•	•					
Pergopak® M5	Transparent	5	7	265	18	Matting at low viscosity and burnish resistance		•						•	•					
Pergopak® M6	Transparent	3.5	7	240	18	Matting at low viscosity and burnish resistance		•						•	•					

These typical properties cannot be considered as specifications. \*Double precipitated grades. \*\*For increased thermal conductivity, please contact us and ask about our exclusive Martoxid® TM Calcined Alumina Thermally Conductive Fillers. \*\*\*Oil absorption of the base ATH product.



# The Versatility of ATH Results in Application Flexibility and Options

ATH has the physical properties and performance capabilities to be used in many coatings, inks, adhesives, caulks and sealants applications. They include:

## Fire retardant coatings, adhesives and construction materials

- Releases water molecules at 428°F (220°C)
- The reaction is endothermic, taking heat away from the flame
- The resulting aluminum oxide ( $Al_2O_3$ ) forms a char

## Epoxy encapsulating compounds

- Excellent thermal conductor, taking heat away from the exothermic epoxy curing mechanism
- Arc track resistance
- Less expensive than tabular alumina

## Elastomeric roof and wall coatings

- Flame retardant
- High brightness
- Not water soluble
- Low oil absorption
- Easily replaces calcium carbonate
- Maintains mechanical properties

## Corrosion resistant coatings

- Not water soluble
- Lower density than barium sulfate
- Hydrophobic-treated ATH grades available
- Wide variety of grades available to optimize particle packing

## Powder coatings

- Enhances transfer of the paint
- Reduces gloss (some grades)

## Colored coatings and inks

- Offers extreme high brightness and purity
- Minimal effect on  $L^*a^*b$  color space values
- Minimal effect on gloss compared with mineral extenders
- Lack of milkiness in masstone colors compared with other extenders

## Polyurethane sealants

- Not water sensitive
- Lower density than barium sulfate
- Grades are available with narrow particle size distributions

## Premium semi-gloss and high gloss architectural coatings

- Efficient  $TiO_2$  spacing/replacement
- Precipitated ATH is higher brightness than  $TiO_2$
- Extends without darkening like mineral extenders
- Imparts excellent balance of:
  - Contrast ratio
  - Tint strength



Huber Engineered Materials has been supplying ATH and Pergopak® organic matting agents for more than a quarter century. In addition to an innovative product portfolio for use in a myriad of applications, Huber offers superior technical support and unparalleled customer service. Huber's unsurpassed technical expertise is its foundation in developing innovative ATH and Pergopak products that meet the exacting requirements for each application. Huber has a deep dedication toward customer care and strives to provide fast, personalized service to ensure a rewarding experience for its customers, time after time.



HUBER ENGINEERED MATERIALS

Let us go to work for you. For more information about our high-performing ATH and Pergopak® products or to order a sample, contact us:

**Call:** 866-JMHUBER (866-564-8237)

**Click:** [www.hubermaterials.com/ath](http://www.hubermaterials.com/ath)  
[www.hubermaterials.com/pergopak](http://www.hubermaterials.com/pergopak)

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