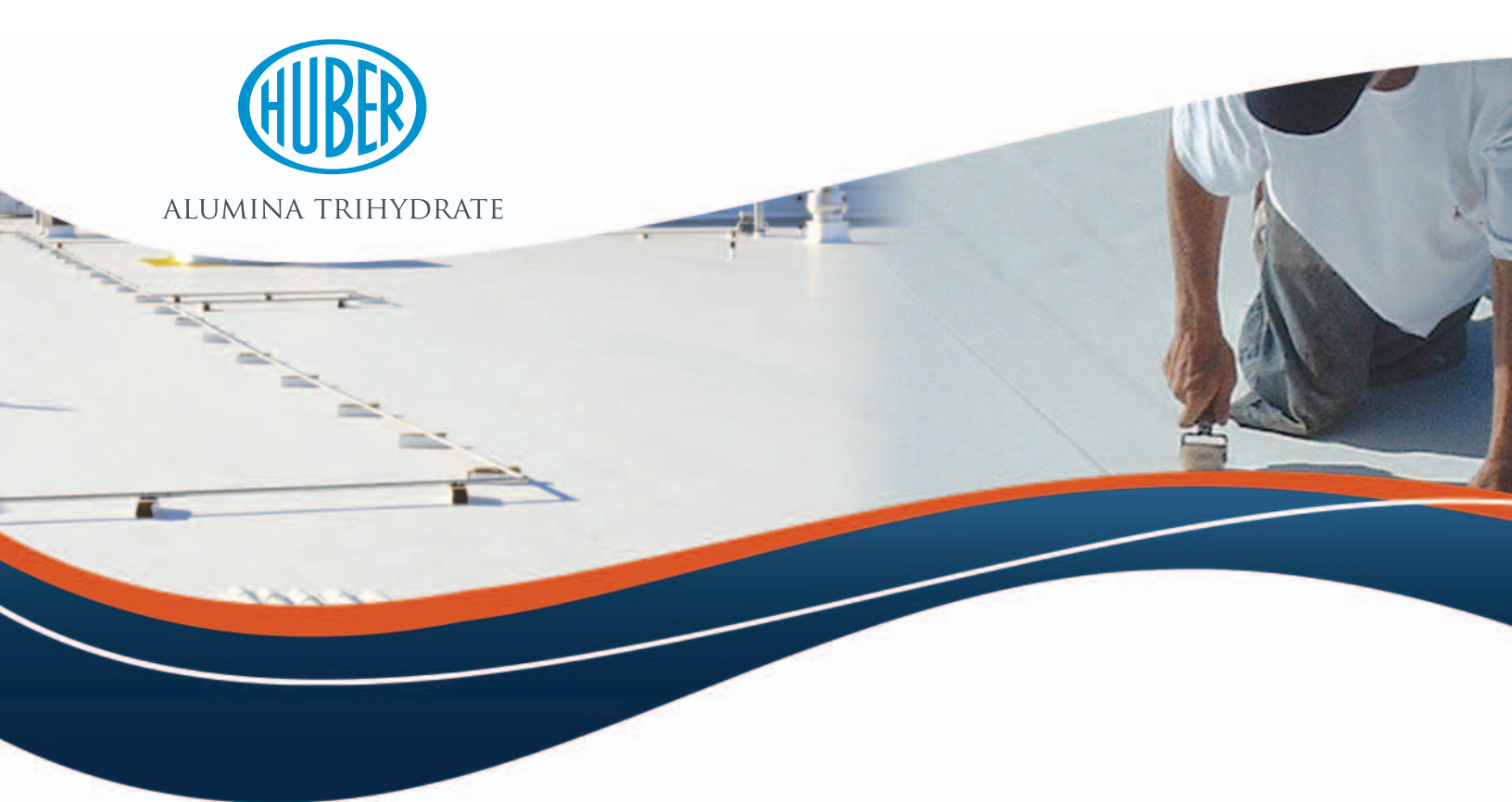




ALUMINA TRIHYDRATE



SB-432 and SpaceRite® S-3 Alumina Trihydrate (ATH)

Imparting Fire Retardance and Reducing Titanium Dioxide (TiO₂) in Elastomeric Roof Coatings

Huber Engineered Materials has been supplying ground alumina trihydrate (ATH) for fire retardant elastomeric roof coatings for more than three decades. SB-432 ground ATH has been used in place of calcium carbonate to reduce flame propagation for commercial roofs or other applications requiring fire retardance.

With ever increasing prices, formulators are searching for creative ways to maintain performance at lower total formulation costs.

SpaceRite® S-3 is an extremely high brightness, ultrafine particle size ATH grade designed initially to extend TiO₂ in industrial coatings. The back page provides formulation data on the performance of SpaceRite S-3 when replacing TiO₂ in an elastomeric roof coating formulation published by The Dow Chemical Company.

In addition to offering an innovative products like SB-432 and SpaceRite S-3, Huber offers superior technical support and unparalleled customer service. Huber's unsurpassed technical expertise is its foundation in developing ATH products the meet the exacting requirements for each application.

For more information on SB-432 and SpaceRite S-3 or to order product samples, contact us:

Call: 1-866-JMHUBER (1-866-564-8237)
Click: www.hubermaterials.com/nofire
Email: hubermaterials@huber.com



Typical Physical Properties

	SB-432	SpaceRite® S-3
Median Particle Size (microns)	9	1
Brightness (% Z)	89	99
Refractive Index	1.57	1.57
Mohs Hardness	3	3
Density (g/cm ³)	2.42	2.42
Pounds per Gallon	20.2	20.2
Gallons per Pound	0.0495	0.0495
Oil Absorption (g/100g)	28	31
pH Value (not a buffer)	9	9.8
Color	White	White

These typical physical properties cannot be considered as specifications.



SB-432 Alumina Trihydrate (ATH) is a key raw material to impart fire retardance in elastomeric roof coatings. These charts indicate that replacing up to 20% of TiO₂ with SpaceRite® S-3 double precipitated ATH results in a coating with comparable performance of these three key properties at right:

- ✓ Mechanical Properties Before and After Artificial Weathering
- ✓ Optical Performance
- ✓ Water Sensitivity



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Example Elastomeric Roof Coating Formulation Based on Rhoplex® EC-1791 Acrylic Emulsion

Material Name and Formulation Process	Control Formulation ARM 91-3D		Alternative 20% TiO ₂ Replacement	
	Pounds	Gallons	Pounds	Gallons
Grind				
Water	151.8	18.3	151.4	18.2
Tamol® 851	5.0	0.5	5.0	0.5
KTPP	1.5	0.1	1.5	0.1
Dee Fo® 1015	1.5	0.2	1.5	0.2
Rocima® BT 2S	2.5	0.3	2.5	0.3
SB-432 ATH	374.5	18.6	373.4	18.5
SpaceRite® S-3	-	-	14.9	0.7
Ti-Pure® R-960 Titanium Dioxide	74.9	2.3	59.7	1.8
Kadox® 915	44.9	1.0	44.8	1.0
Grind Subtotal	656.6	41.2	654.7	41.4
LetDown				
Rhoplex® EC-1791	474.3	54.5	473.0	54.4
Dee Fo® 1015	1.5	0.2	1.5	0.2
UCAR™ Filmer IBT	6.0	0.8	6.0	0.8
Rocima® 200	5.5	0.6	5.5	0.6
Aqueous Ammonia, 28%	1.0	0.1	1.0	0.1
Premix PG and Thickener before Addition				
Propylene Glycol	14.0	1.6	13.9	1.6
Cellosize® QP 52000H	4.5	0.4	4.5	0.4
Water	4.8	0.6	4.7	0.6
Totals	1168.1	100.0	1164.8	100.0
Latex Solids, %		55.0		55.0
PVC, %		43.0		43.0
Volume Solids, %		50.8		51.0
Weight Solids, %		64.7		64.7
VOC, g/l		49.0		48.8

Example Performance Comparison[†]

Coating ID	Control Formulation ARM 91-3D	Alternative 20% TiO ₂ Replacement	ASTM D6083 Requirement
Viscosity KU (initial)	128	134	
pH (initial)	9.2	9.2	
Viscosity, 30 Days @ 120°F	124	130	
pH, 30 Days @ 120°F	9	9	
Tear Resistance, fpi	94	98	>60
Tensile Initial (max, psi)	285	298	>200 psi
Elongation @ Break (initial)	247%	232%	>100%
Tensile Weathered (max, psi)	364	364	
Elongation @ Break (weathered)	152	150	>100%
Low Temp Flex -15°F 1/2" Mandrel	Pass	Pass	
Adhesion PUF, Dry, pli	4.1 Foam Failure	5.3 Foam Failure	
Adhesion PUF, Wet, pli	2.2 Foam Failure	2.6 Foam Failure	>2.0 pli
Adhesion Aluminum, Dry, pli	4.7	4.8	
Adhesion Aluminum, Wet, pli	1.9	1.9	
Permeance, Perms (face down)	49	48	<50
Water Swelling at Maximum after 7 days	9%	10%	<20%
Solar Reflectivity	84%	83%	
L*	96.59	96.33	
a*	-0.61	-0.60	
b*	1.98	2.00	

[†]The data in the chart above was generated in side-by-side testing of one sample of each product. Dry films were prepared by an initial coating of 20 wet mils, dried for four hours, followed by a second coating of 20 wet mils, and then dried at room temperature for 14 days before initial testing.

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