

White Elastomeric
with
INTERFIBER
cellulose fiber
Roof Coatings



Incorporating Interfibe Cellulose Fibers

A study was conducted by an independent research lab to determine whether adding Interfibe Cellulose Fibers to White Elastomeric Roof Coatings would produce positive results in:

Tensile strength

Mud Cracking

Elongation

Bridging

Swelling

D-6083: Standard Specification for Liquid-Applied Acrylic Coating used in Roofing used for Evaluating the Formulation

ASTM

- **ASTM 2370** – Test method for determining the elongation, tensile strength and stiffness (modulus of elasticity) of organic coatings when tested as free film
- **ASTM – 4798** - Test for accelerated weather conditions for testing bituminous materials (xenon – arc method)
- **ASTM D471** – Water Swelling - Procedure to evaluate the comparative ability of rubber and rubber-like compositions to withstand the effect of liquids
- **ASTM 624** – Tear Strength - Procedure for measuring a property of conventional vulcanized thermoset rubbers and thermoplastic elastomers called
- **ASTM 522** – Flexibility - Determination of the resistance to cracking of organic coatings on substrates of sheet metal or rubber-type material

Use this page as your ASTM reference through the presentation

Raw Material Formulation

Raw Materials	Supplier
KTPP	
Tamol 901	Rohm & Haas
Nopco NXZ	Henkel
Snowwhite 12	Omya
TiPure R-960	Dupont
Rhoplex EC-2540	Rohm & Haas
Texanol	Eastman
Natrosol 250	Hercules
5FT Cellulose Fiber	Interfibe

Rohm & Haas White Elastomeric Formulation

Acrylic Coating

Material	Lbs/100.93 gal	Lbs/1 gal
Water	161.6	1.616
KTPP	1.51	0.0151
Tamol 901	5.02	0.0502
Nopco NXZ	2.01	0.0201
Snowwhite 12	385.79	3.8579
Tipure	74.09	0.7409
EC 2540	496	4.96
Nopco NXZ	2.01	0.0201
Texanol	7.32	0.0732
Water	26.7	0.267
Natrosol 250 MXR	4.42	0.0442
Total	1166.47	11.6647
Property	Rohm & Haas Spec	Actual
Wt/gal	11.6	11.6
Viscosity, Ku	95-105	93
Wt. % Solids	62.8	66.1

4 Different Blends Were Prepared:

Blend #	1	2	3	4
materials in lbs.				
Acrylic Coating	100.00	99.00	98.00	97.00
Interfibe 5FT	0.00	1.00	2.00	3.00
Total	100.00	100.00	100.00	100.00

The Interfibe 5FT was a *POST ADD* material

Testing of Blends

Property	No fiber	1.00	2.00	3.00	D6083 Requirement
Viscosity	93.00	97.00	109.00	124.00	85-141
Volume Solids, %	49.00	51.50	52.30	55.10	>50
Initial Tensile, psi	111.00	158.00	189.00	207.00	200 min
Elongation, %	428.00	252.00	153.00	112.00	100 min
Water Swelling %	44.80	23.50	20.70	17.60	20 max
Tear Resistance lbs/in	78.00	88.00	78.00	78.00	>60
Permeance, perms	12.60	12.30	16.40	20.40	50 Max
Tensile, psi after 1000 h D4798	153.00	257.00	277.00	301.00	NR
LTF degrees F after 1000 h D4798	10.00	15.00	15.00	15.00	-15 min

Benefits

- Addition of approximately 2% fiber by weight:
 - **Increases tensile strength by a significant amount.**
 - **The addition of fiber brought the formulation within the ASTM 6083 requirement for tensile strength with an acceptable decrease in elongation**
 - **Meets the ASTM D 2370 elongation requirement**
 - **Meets the desired water swelling standard (ASTM D471)**
 - **Minimal effect on tear resistance. (ASTM 624)**
 - **Increased the volume solids to meet the ASTM D6083 standard**

Color Measurement

- Color reflectance was measured with a Hunter Lab Colorimeter
- The Colorimeter measures L,a,b color values.
 - The “L” value measures lightness and varies from 100 for perfect white to zero for black approximately as the eye would evaluate it
 - The “a” value measures redness when positive, gray when 0, and greenness when negative
 - The “b” measures yellowness when positive, gray when 0, and blueness when negative

Results on next two screens...

Reflectance Before Exposure Time

Sample	ASTM D 2824 Reflectance	Color Values		
		L	A	B
1	90.00	95.35	-1.07	4.56
2	89.00	94.96	-0.88	4.22
3	87.00	93.44	-0.92	5.50
4	85.00	92.34	-0.77	6.15

Reflectance After 3 Months Exposure

Sample	ASTM D 2824 Reflectance	Color Values		
		L	A	B
1	90.00	95.35	-1.07	4.56
2	89.00	94.96	-0.88	4.22
3	87.00	93.44	-0.92	5.50
4	85.00	92.34	-0.77	6.15

Conclusions

- **Addition of 2% fiber by weight result in the following:**
 - Significantly increases **tensile strength** of the coating
 - Promotes “**Bridging effect**” over alligator surfaces
 - Increases **volume solids** while reducing total weight
 - Helps **prevent mud-cracking**
 - Reduces **water-swelling**
 - Affect on **color** was not visible to the naked eye.
 - With a slight modification to a formulation, a 2% addition of **Interfibe 5FT** will help obtain the **ASTM D6083** requirement for roof coatings

In Summary

- Fiber is an excellent way to improve **tensile** and **elongation** relationship to the coating
- Fiber is also an excellent way to significantly **improve water swelling**
- Fiber provides ‘**bridging**’ effects over alligator surfaces
- Very cost effective way of improving white elastomeric coatings

Interfibe's long term commitment to the

Paint Industry

- Interfibe has been providing the Paint and Coatings industry with innovative products and technical support since 1987
- Interfibe is committed to providing the industry with products that conform to the highest quality standards
- Interfibe is committed to providing a stable source of cellulose fiber delivered on time, and always in specification

Interfibe's Current Involvement with the **Paint and Coatings Industry**

- Interfibe is approved for use in over 100 **FSCT, NPCA** and **RCMA** member manufacturing plants worldwide
- Interfibe has established relationships with independent formulators in the industry
- Interfibe has established relationships with independent testing facilities in the industry
- Interfibe has provided **formulations and testing** services for customers

Quality

- Interfibe Corp manufactures the highest quality post-consumer cellulose available anywhere in the world
- Our proprietary ***JET PROCESS*** technology allows us to provide you with a consistent fiber length, color, moisture level and absorption properties

White Elastomeric

with

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Interfibe Fibers

For more information please call

1-800-262-3771 or see us at

WWW.INTERFIBE.COM