

Short Stuff® Fibrillated HDPE in Elastomeric Roof Coatings

MINIFIBERS, INC.

Elastomeric Coatings Market Data

The Elastomeric Coatings market is estimated at \$12.95 Billion globally in 2024, and is expected to reach \$16 Billion by 2029. Asia Pacific is both the largest and fastest growing region.

Elastomeric Coatings provide many benefits including protection from the elements, reduced energy consumption (Cool Roof) and provides a positive esthetic appearance.

Elastomeric Coatings Market Data

The major drivers in global growth include increased use in Architectural and Infrastructure projects, and expanding use of cement based building products requiring protective coatings including the walls.

The major global players are Axalta, BASF, Nippon, PPG and Sherwin-Williams, with many other regional players involved.

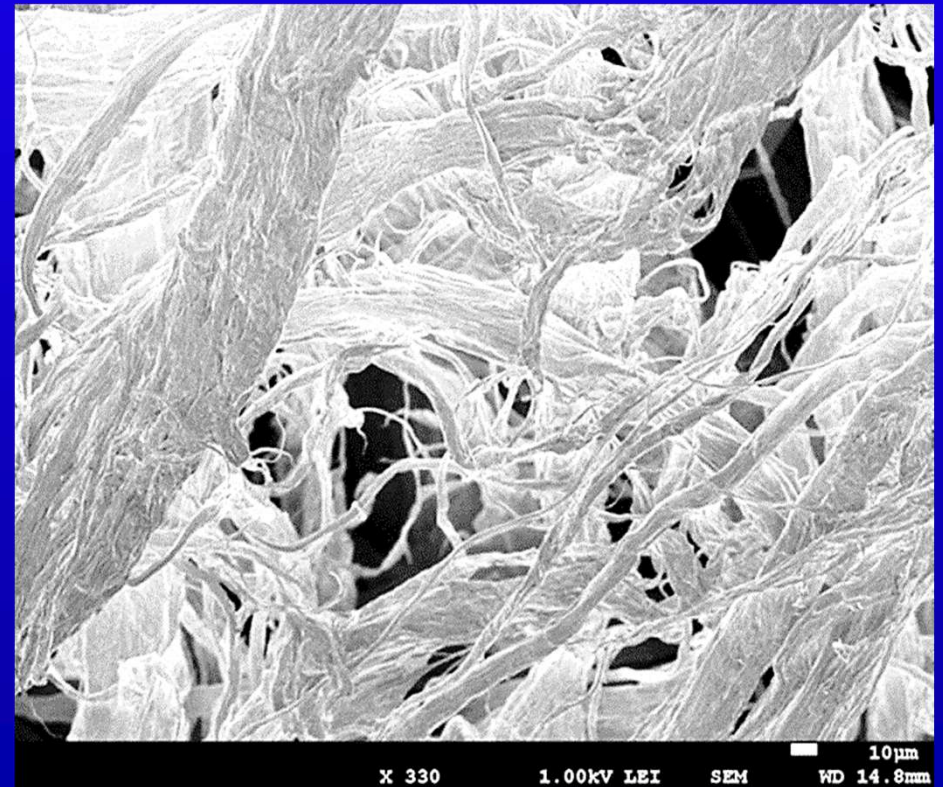
Elastomeric Coatings can be based on Acrylic, Polyurethane, Silicone, and Butyl polymers.

SHORT STUFF® - What is it?

Fibrillated High-Density Polyethylene

Fibrillated – What does that mean?

- Multiple fibrils or filaments in a variety of sizes from a single particle
- NOTE: Each grade size is based upon the largest fibril



Evaluation Background

Several grades of SHORT STUFF® were evaluated with the support of our distribution partners. The grades included were ESS5F, ESS50F, E380F, and E780F.

The Elastomeric Roof Coating formulas were based on Polyurethane, Self X-linking Acrylic, and Styrene Acrylic polymers.

Each formulation was evaluated for compliance with ASTM D6083 roof coating protocol.

ERC Formula w/ Styrene Acrylic

Elastomeric Roof Coating w/ Styrene Acrylic		
Premium ERC w/ SHORT STUFF®		
Function	Weight (Lbs)	Volume (US Gallons)
Grind		
Water	166.9	20.00
In-can biocide	2.0	0.22
Defoamer	3.0	0.41
Celulosic thickener	1.0	0.09
Dispersant, ZnO stability	7.0	0.64
Dispersant, ZnO stability	1.0	0.10
TiO2	75.0	2.25
Durable extender	348.0	16.04
X-linker, Mildewcide	15.0	0.33
	618.9	40.08
Grind 15 mins, add SHORT STUFF slowly grind 5 more mins.		
SHORT STUFF®	10.0	1.25
Film mildewcide	6.0	0.66
Elastomeric binder	469.8	54.00
Grind defoamer	2.0	0.27
Coalescent	6.0	0.88
Buffer	0.5	0.06
Premix next two items and add slowly with good agitation:		
Water	20.5	2.45
HEUR KU Builder	3.0	0.35
Mix at medium speed for 15 minutes		
Totals	1136.7	100.00

Formula Properties	
PVC%	38.7%
Volume Solids%	51.35%
Weight Solids%	64.2%

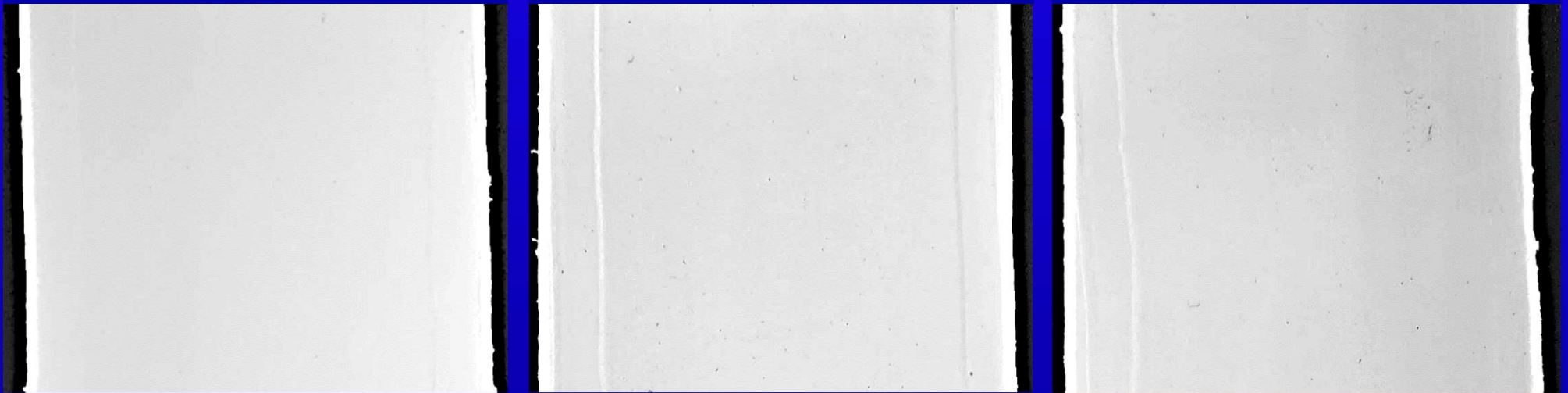
ERC Formula w/ Styrene Acrylic

Film Appearance with SHORT STUFF vs The Control

Control w/ No
HDPE

Control w/ 0.5%
ESS5F

Control w/ 1%
ESS5F



MINIFIBERS, INC.

ERC Formula w/ Styrene Acrylic

Film Appearance with SHORT STUFF vs The Control

Control w/ No
HDPE

Control w/ 0.5%
E780F

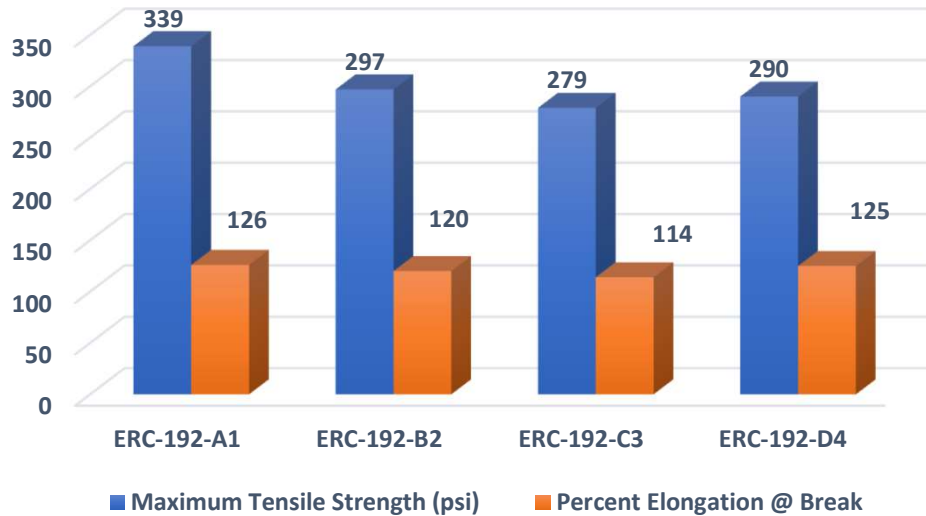
Control w/ 0.25%
E780F



MINIFIBERS, INC.

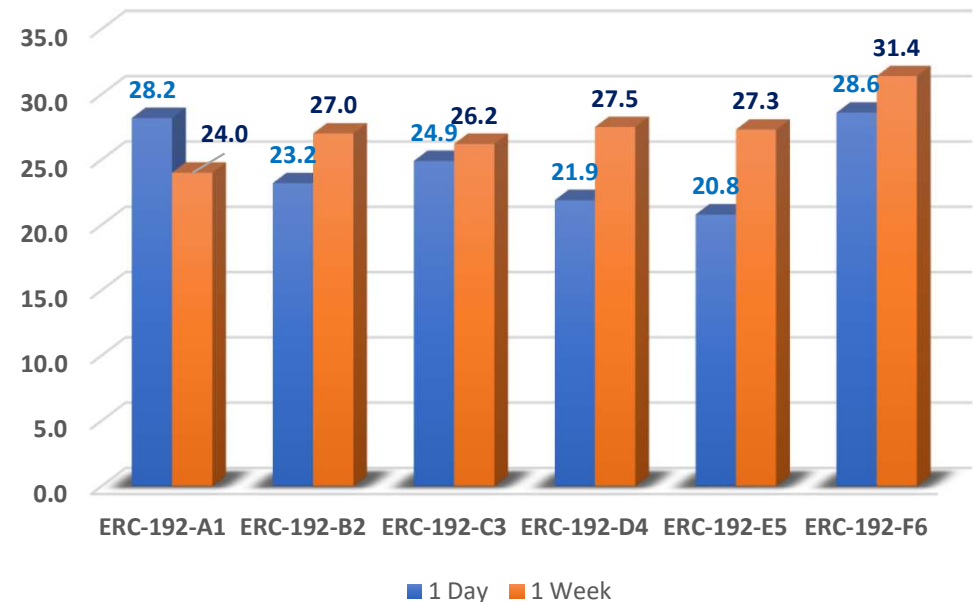
ERC Formula Physical Properties

Styrene Acrylic w/ Short Stuff® (0.5% HDPE)



All tensile and water absorption properties are within the requirements of ASTM D6083

Percent Water Absorption - Acrylics



ERC Formula Physical Properties

ERC w/ Styrene Acrylic: Resistance to Ponded Water			
	Control	0.5% ESS5F	0.5% E780F
1 day	Pass	Pass	Pass
3 days	Pass	Pass	Pass
1 week	Pass	Pass	Pass
2 weeks	Pass	Pass	Pass
6 weeks	Pass	Pass	Pass
ERC w/ Styrene Acrylic: Adhesion over concrete			
1 Day Dry	100%	100%	100%
1 Day under water (wet)	95%	97%	99%
1 Week under water (wet)	87%	85%	97%

All Ponding Water Resistance and Adhesion to Concrete properties are within the requirements of ASTM D6083

ERC Formula w/ Polyurethane

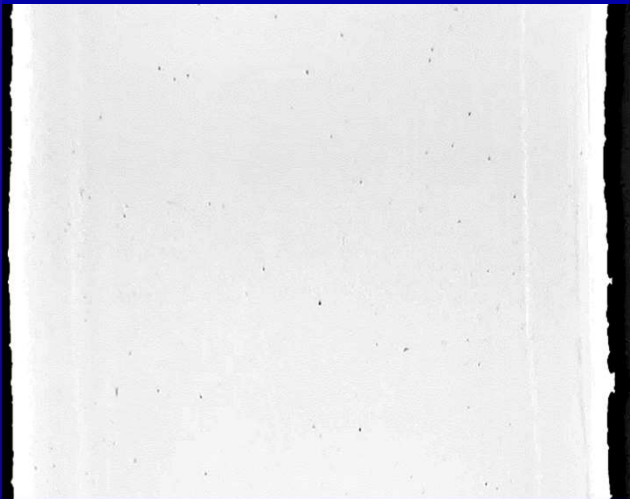
Elastomeric Roof Coating w/ Polyurethane Premium ERC w/ SHORT STUFF®		
Function	Weight (Lbs)	Volume (US Gallons)
Grind		
Water	141.9	17.00
In-can biocide	2.0	0.22
Defoamer	3.0	0.41
Celulosic thickener	1.0	0.09
Dispersant	14.0	1.55
TiO2	75.0	2.25
Carbonate	386.0	17.13
	622.9	38.65
Grind for 15 mins, add SHORT STUFF slowly grind 5 more mins.		
SHORT STUFF®	5.0	0.62
Grind for 20 minutes, then add biocide slowly with good agitation:		
Film mildewcide	6.0	0.66
Letdown		
Polyurethane Dispersion	517.6	56.38
Defoamer	2.0	0.27
Coalescent	6.0	0.76
Add next two items slowly with good agitation:		
Water	19.3	2.31
HEUR KU Builder	3.0	0.35
Mix at medium speed for 15 minutes		
Totals	1181.8	100.00

Formula Properties	
PVC%	39.2%
Volume Solids%	50.97%
Weight Solids%	64.8%

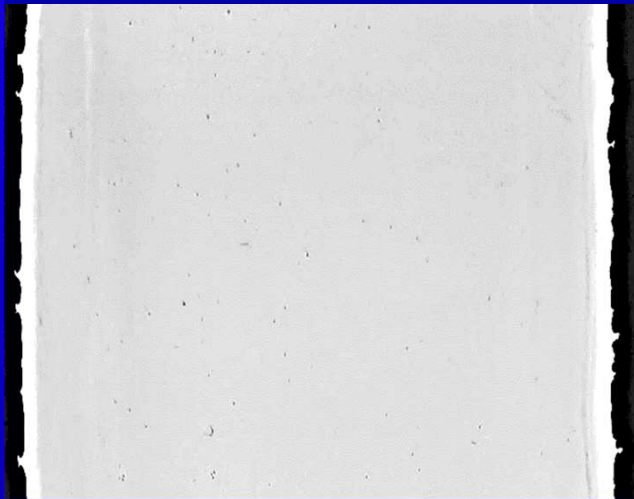
ERC Formula w/ Polyurethane

Film Appearance with SHORT STUFF vs The Control

Control w/ No
HDPE



Control w/ 0.5%
ESS5F



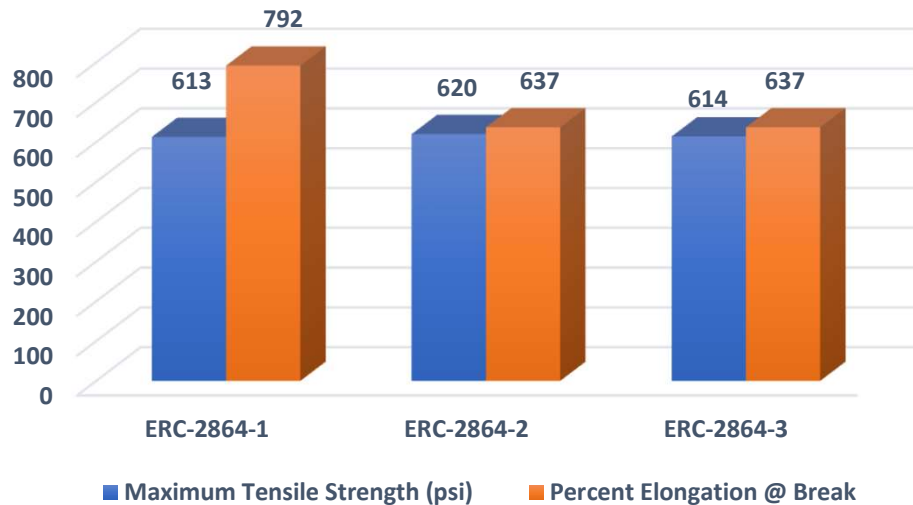
Control w/ 0.5%
E780F



MINIFIBERS, INC.

ERC Formula Physical Properties

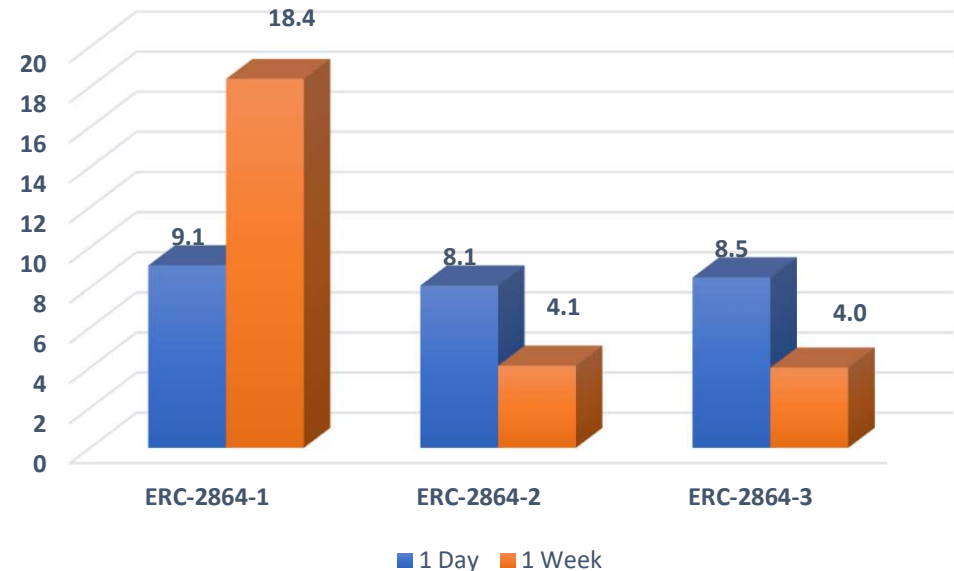
Mechanical Properties with Short Stuff® Polyurethane ERC (0.5% HDPE)



All tensile properties are within the requirements of ASTM D6083.

The 1 week water absorption properties were improved by 75% vs the Control.

Percent Water Absorption - Urethanes



ERC Formula Physical Properties

ERC w/ Polyurethane: Resistance to Ponded Water			
	Control	0.5% ESS5F	0.5% E780F
1 day	Pass	Pass	Pass
3 days	Pass	Pass	Pass
1 week	Pass	Pass	Pass
2 weeks	Pass	Pass	Pass
6 weeks	Pass	Pass	Pass
ERC w/ Polyurethane: Adhesion over concrete			
1 Day Dry	100%	100%	100%
1 Day under water (wet)	100%	100%	100%
1 Week under water (wet)	100%	97%	100%

All Ponding Water Resistance and Adhesion to Concrete properties are within the requirements of ASTM D6083

MF

MINIFIBERS.COM