

Firestone UltraWhite™ Reflective Cap Sheet

A DURABLE WEATHER RESISTANT SOLUTION



Firestone
BUILDING PRODUCTS
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THE RESULTS ARE IN: FIRESTONE'S ULTRAWHITE™ CAP SHEET OUTPERFORMS THE COMPETITION.

Recent Firestone and third-party testing evaluated the performance of **UltraWhite** vs. four competitive reflective cap sheets using alternate technologies:

- Factory-applied acrylic coatings,
- Synthetic chips,
- Tri-laminated coated film
- Laminated painted foil.

Seven key aspects were tested. The details of which are illustrated below and on the following pages.

ACCELERATED WEATHERING

(Due to heat and ultraviolet exposure)

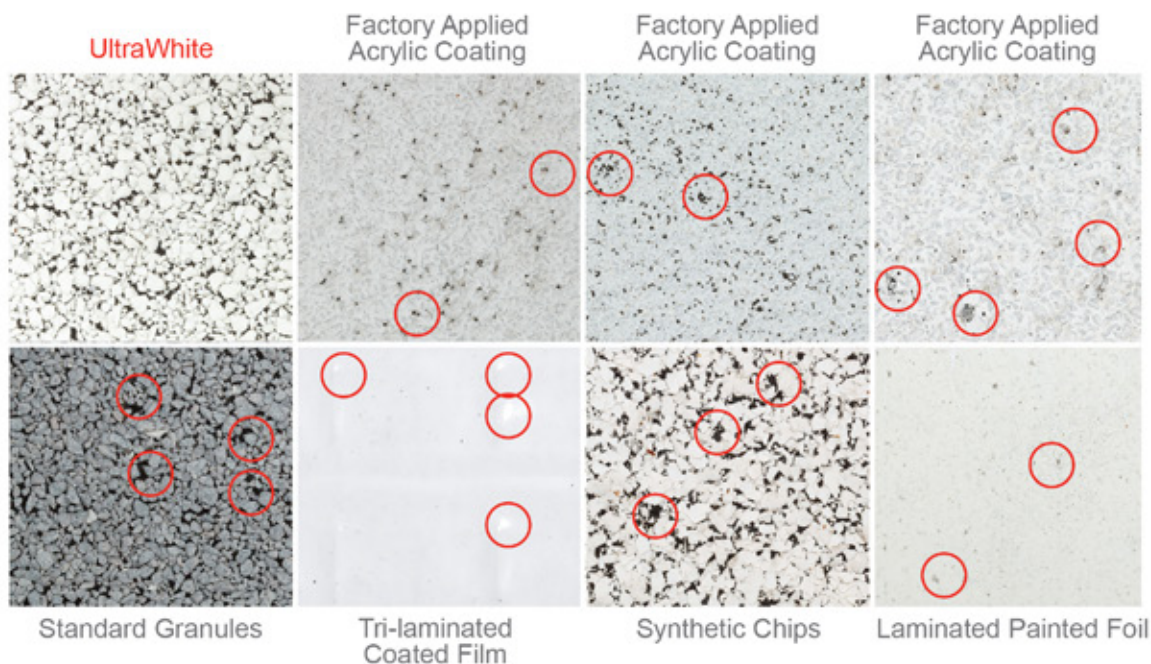
All roofing systems are exposed to damaging weather, especially heat and UV radiation. After accelerated weathering testing, UltraWhite and other chip-based cap sheets showed no damage, while acrylic-coated cap sheets showed pitting and/or cracking.



Note: most products exhibited yellowing or darkening.
Results from QUV (Q-panel Laboratory UltraViolet Testing).

□ OUTDOOR WEATHERING

Exposed to actual weathering conditions over 14 months, the majority of tested roofing systems showed pitting and cracking. UltraWhite™ cap sheet was among the few that showed no visible damage to the membrane.



Results from 14 months of weathering as of 11/22/2010 on roofs in Central Indiana and visual inspections by Firestone.

□ GRANULE LOSS

Loss of granules can reduce reflectivity, lessen durability and ultimately lead to roofing system failure. Among granular surface roofing membranes, UltraWhite cap sheet demonstrated superior granular retention.

Granule Adhesion (QUV Exposure)		
Sample (6" x 10" Panels)	Membrane Unexposed	Membrane Week 31
UltraWhite	0.14	0.30
SBS-FR Standard White	0.47	0.68
Acrylic Coating	0.00	0.00
Painted Foil	0.01	0.02
Acrylic Coating	0.01	0.00
Tri-laminated Film	0.00	0.00
Synthetic Chips	2.31	0.97
Acrylic Coating	0.03	0.04

ASTM maximum value is 2.0g loss

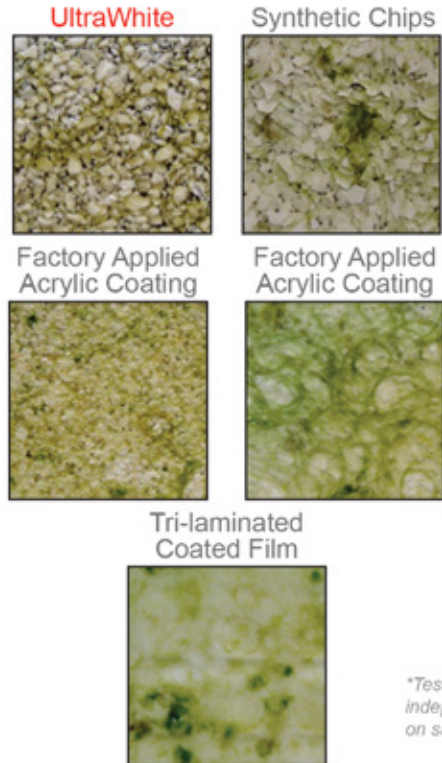
Brand	Acrylic Coating	Painted Foil	Tri-laminated Film	Synthetic Chips	Acrylic Coating	Acrylic Coating	Ultra-White
Loss on fresh (g)	0	0.4	0	3.5	0.1	0	0.3
Loss (specimens conditioned in 50°C water for one week)	0	0	0	1.3	0	0.1	0.2

Conducted in the Firestone Research and Development Labs in Carmel and Beech Grove, Indiana, in accordance with ASTM standards.

□ ALGAE & FUNGUS RESISTANCE

Algae and fungus growth on a roof cause discoloration, lessen reflective capabilities, and can result in granule loss and shortening of the service life of the roofing system. UltraWhite™ cap sheet has shown a strong resistance to algae and fungus growth.*

ALGAE



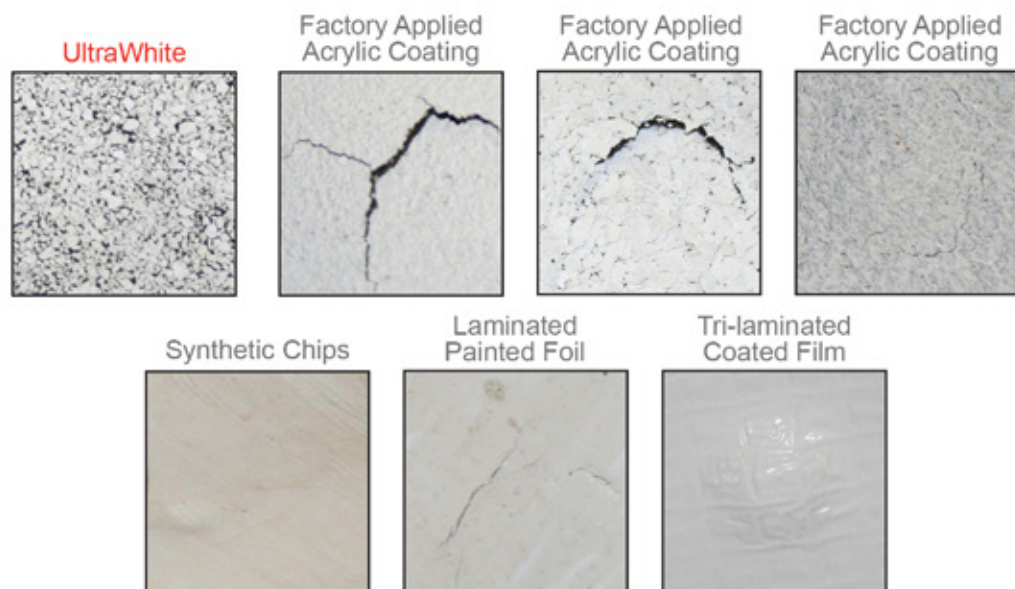
**Test was performed by an independent third-party laboratory on samples submitted anonymously.*

FUNGUS



□ HAIL RESISTANCE

The effects of hail can be devastating to a roofing system. Even small cracks can lead to a failure of the material. UltraWhite cap sheet was one of only two materials to resist cracking due to simulated hail strikes.*



❑ RESISTANCE TO FOOT TRAFFIC

Roof traffic can damage any roofing system. UltraWhite™ cap sheet demonstrated outstanding resistance to wear.

Brand	UltraWhite	Synthetic Chips	Acrylic Coating	Painted Foil	Acrylic Coating	Acrylic Coating	Tri-laminated Film
Weight loss (g)	0.35	8.44	0.63	-0	0.46	0.46	0

Testing conducted with a rolling load emulator (RLE) on 3.5" x 24" specimens of 1" ISO with 1,200 passes.

❑ DURABILITY DURING HANDLING

Cracking in the surface of roofing material during handling and installation can lead to premature failure of the roofing membrane. UltraWhite cap sheet was among the products that showed little to no damage due to handling, bending during conditioning or temperature variation.

Based on Firestone technicians' observations when handling products as they were being prepared for testing.



❑ COMPETITIVE TESTING SUMMARY

ULTRAWHITE REFLECTIVE CAP SHEET AT A GLANCE

Compared to other reflective cap sheets, **UltraWhite**:

- showed no visible membrane damage over a 14-month period of outdoor weathering.
- successfully resisted cracking during simulated hail strikes.
- showed no damage in accelerated weathering tests, while acrylic-coated cap sheets suffered from pitting and/or cracking.
- showed strong resistance to algae and fungus growth.
- demonstrated superior granular retention through QUV exposure & resistance to cracking in freeze-thaw testing.
- demonstrated outstanding resistance to foot-traffic wear.
- showed little to no damage due to handling and bending during conditioning or temperature variation.

UltraWhite Reflective Cap Sheet is the most durable reflective cap sheet on the market. Because it's not a film, not a foil, not a coating, there's really not another cap sheet like it.



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