

# TECHNICAL BULLETIN

## SELF-ADHERED FLINTLASTIC® SA CAP SHEET COMPETITIVE AUDIT

The objective of an audit is to monitor the products of CertainTeed as well as those of our competitors to determine how well they meet standards of performance set by independent standard-setting authorities such as ASTM (American Society for Testing and Materials). CertainTeed also uses additional tests such as weight, product composition and other comparisons.

In this audit we included CertainTeed's Flintlastic SA Cap, an SBS-modified, polyester reinforced, self-adhered cap sheet and like-products produced by other leading manufacturers. All tests were performed by CertainTeed in a laboratory setting using standard scientific protocol.

Results in the table on right demonstrate:

- Only CertainTeed and one other listed manufacturer are below the ASTM maximum for granule loss.
- Only CertainTeed and one other listed manufacturer are above the ASTM minimum for tensile strength.
- CertainTeed's Flintlastic SA Cap is competitive with or surpasses all other tested products based on the combination of Adhesion, Reinforcement and Backcoating.

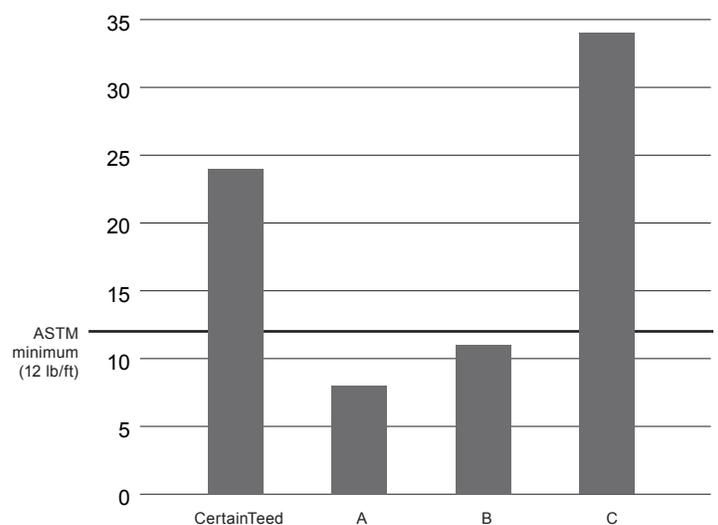
### Competitive Audit Summary

	CertainTeed	A	B	C
Roll Weight (lb/sq)	87	91	81	70
Reinforcement	Polyester with fiber-glass scrim	Polyester with fiber-glass strands	Polyester with fiber-glass strands	Fiberglass
Backcoating Asphalt Content (lb/sq)	18	13	15	14
Filler Content in Backcoating (%)	20	24	15	0
Adhesion to Plywood (lb/ft)	24	8	11	34
Adhesion to Base Sheet (lb/ft)	55	42	45	14
Granule Loss (grams)	1.4	3.4	4.9	0.7
Tensile Strength, MD/CD (lb/in)	78/55	49/44	61/40	67/53
Compound Stability (°F)	215	215	215	215

**Adhesive strength** is the most critical performance criterion for self-adhering membranes. Greater adhesion values are critical to a leak-free roof system. Self-adhering membranes must rely on the aggressiveness of the self-adhering layer to form strong bonds, unlike hot mop and torch-down applications, which utilize molten asphalt to bond layers. The standard industry test for adhesion is called "Adhesion to Plywood," found in ASTM D1970- Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection. D1970 specifies that the minimum adhesion allowable for self-adhering underlayments is 12 lb/ft at room temperature. [See Adhesion to Plywood]

It is important to note that 12 lb/ft is the **minimum** for an **underlayment**. Products like self-adhering cap sheets need to be held to a higher standard since they are not protected by additional materials such as shingles. A performance criterion has not yet been added to D6162, D6163 and D6164 (low slope, SBS modified standard specifications), but an ASTM committee is addressing the issue.

### Adhesion to Plywood (lb/ft)



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Only CertainTeed and one competitor are currently able to meet the criteria for underlayments. (NOTE: Adhesion criteria for cap will likely be even more stringent.)

Until a standard test and specifications are created, CertainTeed will continue testing adhesion of self-adhering cap sheets to the appropriate base sheet substrate. [See Adhesion to Base Sheet]

**Backcoating thickness** is usually associated with adhesive strength and helps provide a water-tight seal. A product may *feel* like it has a very aggressive tack, but if the amount of asphalt compound is too low the membrane will have a difficult time forming a strong bond with its substrate. A good "cushiony" layer of self-adhering compound helps to grab and hold onto uneven surfaces and surface imperfections. [See Backcoating Asphalt Content]

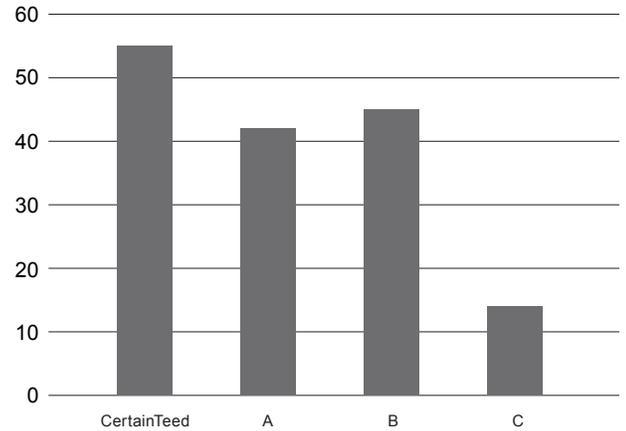
**Filler content** is inversely related to adhesive strength. A membrane may appear to have a thick application of self-adhering compound, but if there is too much filler added to the formulation then adhesion is lost.

Of the four products tested, three use polyester mat reinforced with fiberglass scrim or fiberglass strands while two use only fiberglass mat as a **reinforcement**. Polyester reinforced membranes are tough, puncture resistant, flexible and allow for deck movement, which is extremely important for large low-sloped roofs. Fiberglass scrim is used to add dimensional stability and strength. CertainTeed Flintlastic SA uses a polyester mat reinforced with fiberglass scrim.

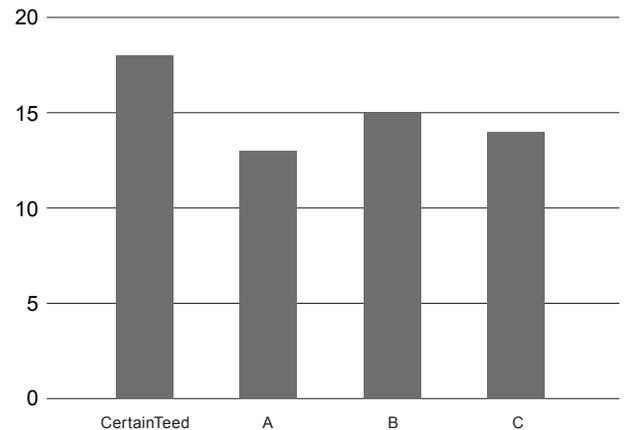
The industry standard maximum **granule loss** for polymer-modified membranes is 2.0 grams. The test method can be found in ASTM D4977 - Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion. Granule loss below 2.0 grams is difficult to achieve on self-adhering cap sheets. The soft compound that makes the product self-adhering will also cause the product to become soft at high temperatures. This can increase granule loss and surface scuffing. CertainTeed avoids this problem by utilizing dual compound technology, with a more temperature-resistant compound under the granule surface while still maintaining an aggressive self-adhering bottom layer.

[See Granule Loss]

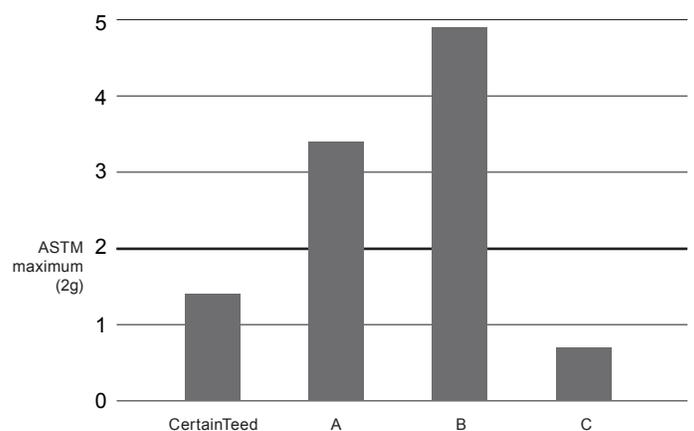
### Adhesion to Base Sheet (lb/ft)



### Backcoating Asphalt Content (lb/sq)



### Granule Loss (grams)

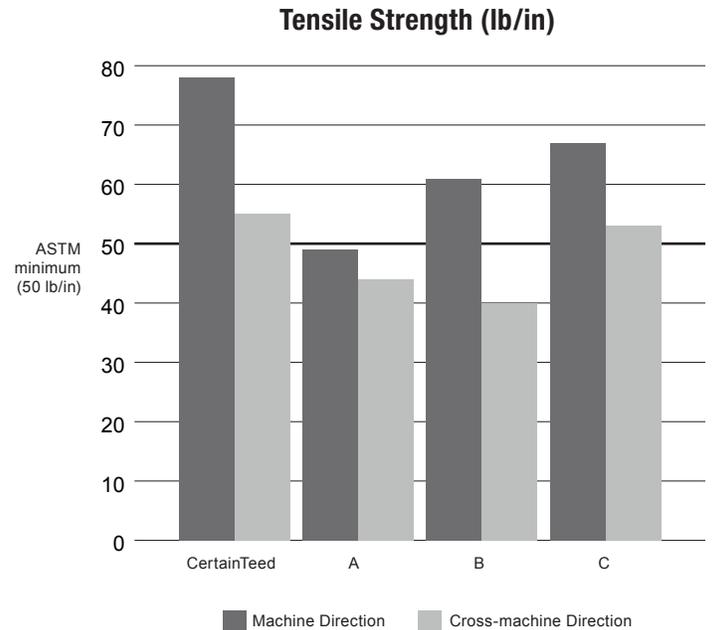


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**Tensile strength** is an important measurement for any polymer modified bituminous sheet. It measures the ability of the membrane to resist breaking under tension and is measured in force per unit area. This test method can be found in ASTM D5147 - Standard Test Method for Sampling and Testing Modified Bituminous Sheet Material. [See Tensile Strength]

**Compound stability** is a high temperature flow test in which sections of membrane are hung vertically in a forced air oven at high temperatures. This test method can be found in ASTM D5147 - Standard Test Method for Sampling and Testing Modified Bituminous Sheet Material. Although ASTM minimum values are yet to be determined for self-adhering products, it is important to note that CertainTeed's self-adhering product line resists flow at temperatures exceeding 215°F (the passing temperature of an SBS modified product). This means that our products are well suited for both cooler temperatures (aggressive tack at room temperature) and high temperatures (compound will not flow or lose granules).



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