



Hanita Coatings

Comparative Testing of Silver 20 Exterior Films

Introduction

To confirm our position as market leader in the field of Exterior films, Hanita has been running an on-going series of comparative tests between Hanita's second generation Silver 20 Xtra, and three well-known competitors' extended-wear Silver 20 Exterior films, launched in 2008.

The analysis covered the following criteria:

- General structure of the products (construction, raw materials)
- Mechanical performance (Taber abrasion of SR coatings by 100, 300, 500 cycles)
- Resistance to accelerated weathering
 - QUV testing – UV radiation+ temperature + condensation
 - Xenon Weatherometer chamber – UV radiation + temperature + rain
 - Proprietary - extreme UV radiation + temperature

Evaluation of the samples during accelerated weathering testing was done by optical performance measurements and visible observation of appearance.

The photographs illustrate typical defects and failures, as recorded during the testing process to complement the verbal description.

Testing Results

1. General Analysis

Product	Construction	Warranty (as publically available)
Hanita Silver 20 Xtra	2 mil, 3 ply, metallized PET, UV stable film, SR	5 year vertical, 3.5 years horizontal/slope
Competitor 1 new extended product	3 mil, 2 ply	5 year vertical, 2 years horizontal/slope
Competitor 2 new extended product	2 mil, 2 ply	5 year vertical, 3 years horizontal/slope
Competitor 3 new extended product	3 mil, 2 ply	5 year vertical, 2 years horizontal/slope





Hanita Coatings

2. Mechanical Performance

Taber Abrasion Resistance (ASTM D1044/D1004)

Product	Cycles		
	100	300	500
	% Delta Haze		
Hanita Silver 20 Xtra	1.8	2.4	3.9
Competitor 1 new extended product	3.0	4.1	5.8
Competitor 2 new extended product	3.7	5.5	9.2
Competitor 3 new extended product	2.6	3.5	6.1

Delta Haze = difference between haze after and before abrasion.

The lower the delta haze, the better the resistance to surface scratching. These results indicate XtraZone Silver 20 will withstand 3 to 5 times as much abrasion as the tested competitive films.

3. Weathering Performance

1.



Hanita film after 950 hours accelerated weathering. No change

Competitor 1 film after 700 hours accelerated weathering – film failure with cracking, flakes and cloudiness. First cracks appeared after 240 hours

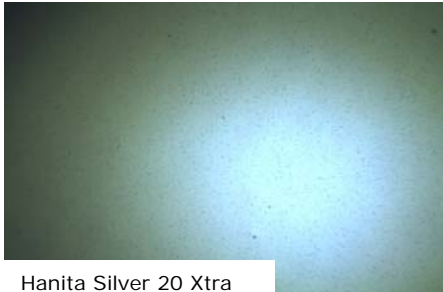




Hanita Coatings

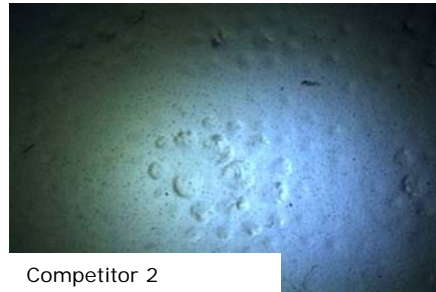
3. Weathering performance (continued)

2.



Hanita Silver 20 Xtra

Hanita film after 930 hours of accelerated weathering. No visible change under magnification.



Competitor 2

Competitor 2 film after 930 hours of accelerated weathering. Magnification shows bubbles, craters, adhesion loss.

3.



Hanita Silver 20 Xtra

Hanita film after 930 hours of accelerated weathering. No visible change under magnification.



Competitor 3

Competitor 3 film after 757 hours of accelerated weathering. Cracks, flakes, cloudiness and haze under magnification.

These results indicate that, regardless of warranties offered, Hanita's XtraZone Silver 20 withstands longer duration of accelerated weathering exposure than the competitors' films tested. This means a customer should expect Hanita's XtraZone to hold up longer in service than the other films tested.