POLYCOAT PRODUCTS
A Division of American Polymers Corp.

APPROVALS AND TESTING

TEST DATA: Poly-I-Gard® 246 Vehicular Deck System

Summary of Test Report Conducted by Ramtech Laboratories on the Poly-I-Gard® 246 Decking System

1. Weathering Test: ASTM G-23, Atlas Twin Arc Weatherometer Type DH 2000 hours (equivalent to approx. 6 years of natural weathering).
Visual Examinations: No signs of chalking, crazing, cracking, blistering, delaminating, spalling, softening or any other deleterious effects.
ASTM-D 751, Five specimens weathered and five specimens aged per AC39 Sec. IV A & B. Stretch rate 12 ± 0.5 in./min.

With Aggregate	Tensile Strength (lb./in.)	Elongation (%)
Control	16	35
Weathered	18	25 %
Change Weathered	11.1	28.6
Aged	23	23
% Change Aged	30.4	34.3
Without Aggregate	**Tensile Strength (lb./in.)**	**Elongation (%)**
Control	50	129
Weathered	62	105
% Change Weathered	19.3	18.6
Aged	55	118
% Change Aged	9	8.5

2. Aging Test: ASTM D-412, Stretch rate 20 ± 0.5 in./min. Procedure D & E. Six cycles of each procedure. Material tested without aggregate
Visual Examination after Aging Test: No sign of chalking, crazing, cracking, blistering, delamination, or any other deleterious effects.

	Tensile Strength (psi) ASTM D-412	Elongation (%) ASTM D-412
Control	1175	282
Weathered	1057	186
% Change Weathered	10	-34
Aged	1000	270
% Change Aged	-14.9	-4.26

Bond Strength (psi), ASTM C-297:

Polyprime 21	Metal	Concrete
Control	326	330
Aged	384	429
% Change	+1.5	+2.3
Mode of Failure	Cohesive failure	Cohesive failure of concrete
Polyprime 2140	**Metal**	**Concrete**
Control	329	354
Aged	336	391
% Change	+1.9	+9.5
Mode of Failure	Cohesive failure	Cohesive failure of concrete

3. Percolation Test: ICC-ES Evaluation Svc., Inc. AC 39 Sect. IV-G. Loss due to Percolation after the 1000 cycles abrasion test. (% of original head, max. allowed 1%): 0%

4. Absorption Test: ASTM D 570, 24 hour immersion in distilled water: Weight % of water absorption (max. allowed 5%): 3.4%

5. Water Vapor Transmission (WVT) Test: ASTM E-96 Desiccant Method: WVT: 0.000000249 grams/Pa · sec · m²; WVT: 4.350 grains/ft² · hr · in. Hg

6. Abrasion Test: ASTM D-1242 Method A as modified by ICC-ES Evaluation Svc., Inc. AC 39 Sect. IV-F (1000 cycles, 1000 grams, No. 80 TP Aluminum Oxide Grit). Thickness lost (max. allowed 20 mils): 0.005 in.

7. Concentrated Load Test: AC 39, Sec. IV L. One inch diameter steel plate with rounded corners.

Load [lbs]	100	200	300
Deflection [inches]	0.019	0.030	0.038

8. Impact Resistance: A 2 lb. steel ball dropped 8 ft. to deck surface. Test performed three times with an average indentation of 0.029 in.

9. Crack Resistance (Crack Bridging): Top coat showed signs of cracking while bottom coat maintained its integrity.

10. Chemical Resistance Tests: ASTM D-2299 Determine Relative Stain Resistance of Plastics by immersing specimens in 18 reagents @ 122°F (50°C) for 16 hours.

Reagent	Non-Abraded	Abraded
Heavy duty detergent sol.	1	1
Muriatic acid - 10%	2	2
Ammonia solution - 5%	1	1
Anti-Freeze	1	1
Kerosene	1	1
Salt Solution - 10%	1	1
Paint thinner - 10%	1	1
Chlorine Solution - 10%	1	1
Turpentine - 10%	1	1
Sulfuric Acid - 3%	1	1
Transformer Oil	1	1
Sulfuric Acid - conc.	3	3
Diesel fuel	1	1
Hydraulic Fluids	1	1
Gasoline	1	1
Toluene	1	1
Lubricating oil	1	1
Soap Solution - 1%	1	1

Number Code: 1. Unaffected 2. Superficially Affected 3. Considerably Affected

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Note: a) Of the 18 reagents used in the chemical resistance test, only sulfuric acid concentrate caused a deterioration of the decking system.
b) Wearing surface revealed no cracking, crazing, delamination, or any other deleterious effects.
c) The test specimens which were coded "No. 3 - Considerably Affected" could not be restored to their original surface condition by normal cleaning methods.

11. Low Temperature Flexibility: AC 39 Sec. K. 5°F. No cracking or crazing upon visual examination under 5x magnification in the bent condition.

12. Fire Resistance Test Series Class "A": U.B.C. Standard 32-7, ASTM E-108, U.L.790, N.F.P.A. No. 256, Spread of Flame Test (2 decks) on concrete surfaces.

Spread of Flame Test (2 decks):	Base (in.)	Length (in.)
Deck 1	15	22
Deck 2	15	20
Max. Flame Spread Allowed	40	72

Poly-I-Gard® vehicular deck system will satisfactorily withstand the Flame Spread portion of the test for Class A Rating in UBC STD #32-7, ASTM E108, UL 790 and NFPA No. 256, when constructed, installed and tested as described herein.

13. One-Hour Fire-Resistive Construction: Based on the performance of the test assembly, Polydeck 400 Walking Deck System installed on ¾" thick C-D plywood as a substitute for the double wood floor described in Construction No. 13, Item 13-1.1, Table No. 7-C of the 1994 U.B.C. Standard No. 7-1. The assembly was tested with 2 x 10 floor joists spaced at 16 inches on center.
The average room temperature rise on the unexposed face was 260°F and the maximum single thermometer reading was 310°F after 65 minutes. The acceptance limit is 250°F average temperature rise with no single reading over 350°F above ambient after 60 minutes. The area under the test time v. temperature curve equals the standard time-temperature E-119 curve at 60.56 minutes.

ASTM C-957-93 (Ramtech Report #10988-97)
1. Dry Film Thickness: (3 coats): 39 ± 2 mils (0.099 ± 0.005 cm)

2. Weight Loss: ASTM 957-93, C-836 (max. allowed 40%): 15.3%

3. Low Temp. Flexibility and Crack Bridging: 10 cycles, 1/16" movement, @ -15°F: Passed

4. Adhesion in Peel: After water immersion (7 days, min. 5 lbs/in.), ASTM 957-93, C-794: 7.8 lbs/in

5. Chemical Resistance: ASTM C-957, D-471: Meets min. requirements

Minimum Requirements		Actual Tensile, psi	% of Control
Control	3619	100	--
Water	3526	97	70
Ethylene Glycol	3116	86	70
Mineral Spirits	3753	104	45

6. Weather Resistance and Recovery from Elongation: ASTM C-957-93, D-412: Meets minimum requirements.

	Elongation Recovery (%)	Tensile Strength (psi)	Elongation (%)
Control	92.5	3430	547
Weathered	92.0	3360	416
% of Control	99%	98%	94%

7. Abrasion Test: ASTM C-957-93, C-501, weight loss (Maximum allowed: 0.050 grams): 0.005 grams

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