

CLIENT: Polycoat Products
14722 Spring Avenue
Santa Fe Springs, CA 90670

Report No: RJ7654P-1

Issue Date: May 12, 2021

SAMPLE ID: Poly-I-Gard 575FR

SAMPLING DETAIL: Witnessing of the preparation of test samples was conducted by a QAI representative at the client's manufacturing facility located at 14722 Spring Avenue, Santa Fe Springs, CA between July 8th and 10th, 2020. QAI documented the materials and manufacturing procedures in accordance with ICC-ES AC85, Section 3.1. The test samples were initialed and dated by the QAI inspector and forward to the QAI Rancho Lab for testing.

DATE OF RECEIPT: The test samples were received at QAI Laboratories on July 13, 2020.

TESTING PERIOD: July 17, 2020 thru April 22, 2021.

AUTHORIZATION: QAI Test Proposal 20MB05141R1 dated May 14, 2020 signed by Wayne Ellis of Polycoat Products on June 10, 2020.

TEST REQUESTED: Physical properties testing for compliance with Section 4.2 of ICC ES Acceptance Criteria for Walking Decks, AC39, Approved June 2017 for Elastomeric Coating Systems.

TEST RESULTS: Test results are provided on subsequent pages of this report.

STATEMENT OF CONFORMITY: The sampled Poly-I-Gard 575FR coating system demonstrated compliance with Section 4.2 of ICC ES Acceptance Criteria for Walking Decks, AC39, Approved June 2017 for Elastomeric Coating Systems.

Prepared By



Larry Burmer
Physical Lab Supervisor

**Signed for and on behalf of
QAI Laboratories Inc.**

Jason Friedrich, P.E.
Engineering Manager

1.0 TEST SAMPLES (GENERAL) PER SECTION 4.2.1 OF ICC ES AC 39

All test samples were representative of field installation.

2.0 WEATHEROMETER TEST PER SECTION 4.2.2 OF ICC ES AC39

2.1 Test Procedure

Testing was performed in accordance with ASTM G155, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*. Five 3-inch by 9-inch specimens were cut from the Poly-I-Gard 575FR “free film” sample and subjected to 2,000 hours of accelerated weathering using cycle 1 as specified in ASTM G155. After exposure, the specimens were examined under 5x magnification for signs of crazing, cracking, spalling, softening or other surface deteriorations. In addition, the weathered samples were subjected to tensile and elongation tests in accordance with Section 4.2.4 of AC39.

2.2 Test Requirements

The exposed specimens, when examined under 5x magnification, shall not show any crazing, cracking, spalling, softening or other surface deteriorations.

2.3 Test Results

After 2,000 hours of weathering, the test specimens, when examined under 5x magnification, did not show any crazing, cracking, spalling, softening or other surface deteriorations.

3.0 ACCELERATED AGING TEST PER SECTION 4.2.3 OF ICC ES AC39

3.1 Test Procedure

Five Poly-I-Gard 575FR “free film” specimens and five Poly-I-Gard 575FR specimens applied over concrete substrates were subjected to three cycles of both Procedures D and E of ASTM D756, *Standard Practice for Determination of Weight and Shape Changes of Plastics under Accelerated Service Conditions*. Upon completion of the test, the specimens were subjected to tensile and elongation tests in accordance with Section 4.2.4 and bond strength tests in accordance with Section 4.2.5 of ICC ES AC39.

4.0 TENSILE AND ELONGATION TEST PER SECTION 4.2.4 OF ICC ES AC39

4.1 Test Procedure

Five 1-inch wide by 6-inch long specimens were prepared from control, weathered and aged samples and tested in accordance with ASTM D751, *Standard Test Method for Coated Fabrics*. The specimens were individually placed in a United Tensile/Compression Machine and pulled in tension at a constant crosshead separation speed of 12 inches per minute until failure. Grip separation at the start of the test was 3 inches. Elongation of the 3-inch gauge length at failure was recorded. The specimens were conditioned at 73°F and 50% relative humidity for a minimum of 40 hours prior to testing.

4.2 Test Requirements

The loss in elongation of the weathered and aged specimens is limited to 55 percent. Minimum tensile strength after exposure is established on a case-by-case basis.

4.3 Test Results

Control Sample		
Specimen No.	Tensile Strength (lb/inch of width)	Elongation (%)
1	33.3	76
2	33.0	47
3	31.7	69
4	30.8	48
5	31.3	69
Average	32.0	62

Weathered Sample		
Specimen No.	Tensile Strength (lb/inch of width)	Elongation (%)
1	37.3	24
2	38.2	26
3	39.5	48
4	35.6	61
5	33.6	34
Average	36.9	39

THIS REPORT IS THE CONFIDENTIAL PROPERTY OF THE CLIENT ADDRESSED. THE REPORT MAY ONLY BE REPRODUCED IN FULL. PUBLICATION OF EXTRACTS FROM THIS REPORT IS NOT PERMITTED WITHOUT WRITTEN APPROVAL FROM QAI. ANY LIABILITY ATTACHED THERETO IS LIMITED TO THE FEE CHARGED FOR THE INDIVIDUAL PROJECT FILE REFERENCED. THE RESULTS OF THIS REPORT PERTAIN ONLY TO THE SPECIFIC SAMPLE(S) EVALUATED. UNLESS SPECIFICALLY STATED OR IDENTIFIED OTHERWISE, QAI HAS UTILIZED A SIMPLE ACCEPTANCE RULE TO MAKE CONFORMITY DECISIONS ON TESTING RESULTS CONTAINED IN THIS REPORT, AS APPLICABLE.

4.0 TENSILE AND ELONGATION TEST PER SECTION 4.2.4 OF ICC ES AC39 (CONT.)

4.3 Test Results (Cont.)

Aged Sample		
Specimen No.	Tensile Strength (lb/inch of width)	Elongation (%)
1	36.8	70
2	36.8	97
3	36.9	86
4	37.8	124
5	35.4	72
Average	36.8	90

Loss in elongation of weathered sample was 37%

Loss in elongation of aged sample was 0%

5.0 BOND STRENGTH TEST PER SECTION 4.2.5 OF ICC ES AC39

5.1 Test Procedure

Ten 6-inch square specimens, five controls and five aged were tested in accordance ASTM C297, *Standard Test Method for Flatwise Tensile Strength of Sandwich Construction*. For testing purposes, 3-inch square metal test fixtures were adhered to the coated face of each specimen. The specimens were then individually placed in a United Tension/Compression Machine and the metal test fixtures individually pulled away, perpendicular to the substrate, at a constant rate of 0.02 inch per minute until failure.

5.2 Test Requirements

The minimum bond strength shall be 10 psi (69 kPa).

5.0 BOND STRENGTH TEST PER SECTION 4.2.5 OF ICC ES AC39 (CONT)

5.3 Test Results

Control Specimens			
Specimen No.	Substrate	Bond Strength (psi)	Mode of Failure
1	Concrete	209	100% cohesive failure within the concrete
2	Concrete	225	100% cohesive failure within the concrete
3	Concrete	209	100% cohesive failure within the concrete
4	Concrete	204	100% cohesive failure within the coating
5	Concrete	264	100% cohesive failure within the coating
Average		222	

Aged Specimens			
Specimen No.	Substrate	Bond Strength (psi)	Mode of Failure
1	Concrete	180	100% cohesive failure within the coating
2	Concrete	232	100% cohesive failure within the coating
3	Concrete	212	100% cohesive failure within the coating
4	Concrete	177	100% cohesive failure within the coating
5	Concrete	265	100% cohesive failure within the coating
Average		213	

6.0 ABRASION TEST PER SECTION 4.2.6 OF ICC ES AC39

6.1 Test Procedure

Testing was conducted in accordance with Section 4.2.6 of ICC ES AC39, modified using a Taber Abraser Machine as specified in ASTM D4060, *Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser*. Three 4" x 4" specimens were cut from the prepared Poly-I-Gard 575FR coating applied over 1/4" thick fiber cement board without granules. For testing purposes, a 1/4" diameter hole was drilled in the center of each specimen. The specimens were then conditioned for a minimum of 24 hours at 23°C and 50% relative humidity. After conditioning the specimens coating thickness was measured to the nearest 0.001-inch. The specimens were then individually placed on a Taber Abraser Machine and abraded for 1,000 cycles with 80 grit abrasive sandpaper strips applied to each wheel and a 1,000 gram weight was applied to each wheel. After 1,000 abrasion cycles, the specimen was removed from the abrasion machine and the coating thickness re-measured to the nearest 0.001-inch.

6.0 ABRASION TEST PER SECTION 4.2.6 OF ICC ES AC39 (CONT.)

6.2 Test Requirements

The maximum loss in thickness shall not exceed 20 mils (0.51 mm).

6.3 Test Results

Specimen No.	Initial Coating Thickness (mils)	Final Coating Thickness (mils)	Loss in Thickness (mils)	Loss in Thickness (%)
1	80	66	14	17.5
2	80	64	16	20.0
3	80	66	14	17.5
Average	* * *	* * *	15	18.3

7.0 PERCOLATION TEST PER SECTION 4.2.7 OF ICC ES AC39

7.1 Test Procedure

Testing was conducted on three 3" x 3" Poly-I-Gard 575FR "free film" specimens. One end of a 1-inch diameter tube was sealed to the surface of the specimen. The tube was then filled with distilled water to a height of 48 inches (1219 mm). The water column was maintained at 73°F and 50% relative humidity for a period of 48 hours. The drop in water level was recorded to the nearest 0.01 inch. Any accumulation of moisture on the underside of the specimen was noted.

Note: The top sealer coat was removed by abrasion prior to testing.

7.2 Test Requirements

Maximum water percolation (drop in water column) shall not be greater than 0.5-inch (12.7 mm).

7.3 Test Results

Specimen No.	Specimen Thickness (mils)	Water Percolation (Drop in Water Column) (in)
1	100	0.02
2	100	0.02
3	100	0.03
Average	* * *	0.02

8.0 WATER-ABSORPTION TEST PER SECTION 4.2.8 OF ICC ES AC39**8.1 Test Procedure**

Testing was performed in accordance with ASTM D 570, *Standard Test Method for Water Absorption of Plastics*. Five 1-inch by 3-inch Poly-I-Gard 575FR “free film” specimens were prepared for the test. The specimens were placed in an oven, maintained at 50°C (122°F), for 24 hours, cooled in a desiccator and weighed. The specimens were then placed on edge in distilled water for a period of 24 hours. The specimens were then individually removed from the water and reweighed. The percentage of water absorbed for the 24 hour period was then calculated in accordance with ASTM D570.

8.2 Test Requirements

The average water absorption shall not exceed 5 percent.

8.3 Test Results

Specimen No.	Water Absorption (%)
1	1.39
2	1.28
3	1.39
4	1.33
5	1.37
Average	1.35

9.0 CHEMICAL-RESISTANCE TEST PER SECTION 4.2.9 OF ICC ES AC39

9.1 Test Procedure

Testing was performed in accordance with ASTM D2299, *Standard Recommended Practice for Determining Relative Stain Resistance of Plastics (discontinued in 1992)*. One 4-inch by 12-inch Poly-I-Gard 575FR "free film" specimen was prepared for the test. A 1-inch square area on the surface of the specimen was exposed to the following reagents for a period of 24 hours:

Industrial Detergent Solution (20% by volume)
Ammonia Solution (5% by volume)
Salt Solution (20% by volume)
Ethylene Glycol (anti-freeze)
Kerosene
Turpentine
Paint Thinner

At the end of the exposure period, the exposed surfaces were examined to determine the extent of surface change.

9.1 Test Requirements

Results are evaluated on a case-by-case basis.

9.2 Test Results

No change to the surface of specimens exposed to the seven different types of reagents was observed at the conclusion of the test.

10.0 LOW TEMPERATURE FLEXIBILITY TEST PER SECTION 4.2.10 OF ICC ES AC**10.1 Test Procedure**

Five, 1-inch wide by 6-inch long Poly-I-Gard 575FR “free film” specimens were placed in a cold chamber maintained at 5°F for two hours. The specimens were then individually removed from the chamber and immediately positioned with their exterior side face up over a 1-inch diameter mandrel. The specimens were bent within 3 seconds over the mandrel through an arc of 180 degrees.

10.2 Test Requirements

None of the specimens shall show crazing or cracking upon visual examination under 5X magnification in the bent condition.

10.3 Test Results

None of the specimens showed any crazing or cracking upon visual examination under 5X magnification in the bent condition.

11.0 CONCENTRATED LOAD TEST PER SECTION 4.2.11 OF ICC ES AC39**11.1 Test Procedure**

Five specimens consisting of the Poly-I-Gard 575FR coating applied over concrete substrates were prepared for the test. A 300-pound (1.34 kN) load was applied to the surface of the specimen through a 1-inch (25.4 mm) diameter steel plate with a 0.015-inch (0.38 mm) radius rounded edge and the surface penetration measured to the nearest 0.01-inch. After the application of the initial load, the load was removed and the load reapplied four additional times. Penetration and residual readings were recorded each time without removing the plate. The condition of the surface was also noted after the test. The loads were applied using a United Tension/Compression Machine.

11.2 Test Requirements

The specimens shall be inspected after testing and the condition of the surface noted.

11.0 CONCENTRATED LOAD TEST PER SECTION 4.2.11 OF ICC ES AC39 (CONT.)

11.3 Test Results

Specimen No.	Maximum Penetration Under Load (in)	Permanent Deformation (in)	Observations
1	0.04	0.02	No damage to the surface of the material occurred
2	0.04	0.01	No damage to the surface of the material occurred
3	0.04	0.01	No damage to the surface of the material occurred
4	0.05	0.01	No damage to the surface of the material occurred
5	0.05	0.02	No damage to the surface of the material occurred

12.0 WIND-UPLIFT TEST PER SECTION 4.2.12 OF ICC ES AC39

As a result of the coating system meeting the minimum 10 psi (69 kPa) bond strength requirements set forth in Section 4.2.5 of AC39 for Elastomeric Coating Systems, Wind-uplift tests were not required.

13.0 IMPACT RESISTANCE PER SECTION 4.2.13 OF ICC ES AC39

13.1 Test Procedure

Testing was conducted in accordance with ASTM D3746, *Standard Test Method for Impact Resistance of Bituminous Roofing Systems*. One 12" x 12" Poly-I-Gard 575FR "free-film" specimen was cut from the prepared sample and divided into four 6" x 6" quadrants. The specimen was placed on a level concrete floor and a "test missile" consisting of a steel cylinder 50 mm (2 in.) in diameter by 150 mm (6 in.) long, with a case-hardened hemispherical head weighing 2.27 kg (5.0 lb) dropped through a guide tube from a height of 53 inches onto the surface of the specimen at the center of each of the four quadrants. Following the impacts, the specimen was given a rating based on the amount of damage sustained by the impact. The ratings were as follows:

- 0 = no damage;
- 2 = dents, indentations only;
- 4 = any cracks or splits

13.2 Test Requirements

Report findings.

13.0 IMPACT RESISTANCE PER SECTION 4.2.13 OF ICC ES AC39 (CONT)

13.3 Test Results

Quadrant No.	Impact Rating	Observations
1	2	A small dent or indentation was observed at the point of impact. No cracks or splits on the surface of the coating were observed.
2	2	A small dent or indentation was observed at the point of impact. No cracks or splits on the surface of the coating were observed
3	2	A small dent or indentation was observed at the point of impact. No cracks or splits on the surface of the coating were observed
4	2	A small dent or indentation was observed at the point of impact. No cracks or splits on the surface of the coating were observed
Average	2	

14.0 FIRE-CLASSIFIED ROOF-COVERING TEST PER SECTION 4.2.14 OF ICC ES AC39

14.1 Test Procedure

Testing was conducted in accordance with ASTM E108, *Standard Test Methods for Fire Tests of Roof Coverings*.

14.2 Test Requirements

A minimum Class C classification is required.

14.3 Test Results

The coating system demonstrated a Class A classification. Detailed test results are provided under QAI test report number RJ7654F-1.

****<<<<End of Report>>>>****