

NELSON

TESTING
LABORATORIES

EXPERIENCED | INNOVATIVE | AUTHENTIC

**Elastomeric Waterproofing Traffic-Bearing Membrane
ASTM C957 Evaluation**

for

Polycoat Products

**Poly-I-Gard 435
Traffic Deck System**

**Polycoat Products
14722 Spring Avenue
Santa Fe Springs, California 90670**

July 30, 2016

July 30, 2016

Polycoat Products
14722 Spring Avenue
Santa Fe Springs, California 90670

REPORT OF TESTS

SUBJECT: **Physical Analysis of Waterproofing Membrane**

PROJECT: **Poly-I-Gard 435 Traffic Deck System**

SPECIFICATION: ASTM C957-15, "Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Integral Wearing Surface"

TEST METHODS: ASTM C501, "Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser"

ASTM C794, "Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants"

ASTM C1305, "Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane"

ASTM D412, "Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension"

ASTM D471, "Standard Test Method for Rubber Property—Effect of Liquids"

ASTM D6511, "Standard Test Methods for Solvent Bearing Bituminous Compounds"

MATERIALS: Delivered to NTL in April 2016

NTL PROJECT #: 16-1088(B)

PAGE: 1 of 13

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 2 of 13

TEST DATA

System: **Poly-I-Gard 435 Traffic Deck System**

Components:

Primer:	Polyprimer EBF LV – 1 gallon / 300 sq. ft.
Base Coat:	PC 235SC – 1.5 gallons / 100 sq. ft.
Intermediate Coat:	Poly-I-Gard 246 SC – 1 gallon / 100 sq. ft. with sand broadcast @ 15 lbs / 100 sq.ft (backrolled)
Top Coat:	Polyglaze 100SC – 1 gallon / 100 sq. ft.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 3 of 13

TEST RESULTSA. ASTM D6511 – Weight Loss of Base Coat (modified per ASTM C957, section 5.11)

Test Date: May 2016
Material: Basecoat - PC 235SC
Duration: 72 hours

Results: **PASS**

	<u>PC 235SC</u>	<u>ASTM C957-15</u>
Weight Loss	13.2%	<i>40% max.</i>

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 4 of 13

TEST RESULTS

B. ASTM C1305 – Crack Bridging (modified per ASTM C957, section 5.5)

Cast Date:	May 2016
Specimens:	Five assemblies
Application:	Primer – Polyprime EBF LV Basecoat – PC 235SC Intermediate Coat – Poly-I-Gard 246 SC with sand backrolled Top Coat – Polyglaze 100SC
Test Conditions:	-15 deg. F.
Duration:	10 cycles

Results: **PASS**

Poly-I-Gard 435 System ASTM C957-15

Crack Bridging @
10 Cycles

Specimen 1	no cracking @ 10 cycles
Specimen 2	no cracking @ 10 cycles
Specimen 3	no cracking @ 10 cycles
Specimen 4	no cracking @ 10 cycles
Specimen 5	no cracking @ 10 cycles

AVERAGE **no cracking @ 10 cycles** *no cracking*

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 5 of 13

TEST RESULTS (continued)

C. ASTM C794 – Adhesion in Peel (modified per ASTM C957, section 5.6)

Cast Date: May 2016
Specimens: Four specimens per test applied over mortar and plywood
Application: Primer – Polyprime EBF LV
Basecoat – PC 235SC
Curing: 14 days at 73 deg F., then 7 days at 158 deg. F. before immersion
Immersion Duration: 7 days

Results: **PASS**

Polyprime EBF LV/PC 235SC ASTM C957-15

Adhesion – Cement Mortar

Specimen 1	23.2 lbf.	
Specimen 2	14.7 lbf.	
Specimen 3	12.6 lbf.	
Specimen 4	16.3 lbf.	
AVERAGE	16.7 lbf	<i>5.0 lbf. min.</i>

Adhesion – Plywood

Specimen 1	20.2 lbf.	
Specimen 2	12.1 lbf.	
Specimen 3	13.8 lbf.	
Specimen 4	14.2 lbf.	
AVERAGE	15.1 lbf	<i>3.0 lbf. min.</i>

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 6 of 13

TEST RESULTS (continued)

D. ASTM D471 – Chemical Resistance (modified per ASTM C957, section 5.7)

Cast Date: May 2016
Specimens: Five dumbbells per test (Die C)
Application: PC 235SC
Curing: 21 days at 73 deg F. before chemical immersion
Immersion Duration: 336 hours

Results: **PASS**

	<u>PC 235SC</u>	<u>ASTM C957-15</u>
Tensile Retention (Water Immersion)		
Specimen 1	132%	
Specimen 2	83%	
Specimen 3	107%	
Specimen 4	83%	
Specimen 5	112%	
AVERAGE	103%	70%, min.
Tensile Retention (Ethylene Glycol)		
Specimen 1	79%	
Specimen 2	95%	
Specimen 3	66%	
Specimen 4	107%	
Specimen 5	99%	
AVERAGE	89%	70%, min.
Tensile Retention (Mineral Spirits)		
Specimen 1	68%	
Specimen 2	83%	
Specimen 3	140%	
Specimen 4	64%	
Specimen 5	101%	
AVERAGE	91%	45%, min.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 7 of 13

TEST RESULTS (continued)

D. ASTM D471 – Chemical Resistance (modified per ASTM C957, section 5.7) - continued

Cast Date: May 2016
Specimens: Five dumbbells per test (Die C)
Application: Poly-I-Gard 246 SC
Curing: 21 days at 73 deg F. before chemical immersion
Immersion Duration: 336 hours

Results: **PASS**

Poly-I-Gard 246 SC ASTM C957-15

Tensile Retention (Water Immersion)

Specimen 1	81%	
Specimen 2	85%	
Specimen 3	47%	
Specimen 4	182%	
Specimen 5	106%	
AVERAGE	100%	70%, min.

Tensile Retention (Ethylene Glycol)

Specimen 1	93%	
Specimen 2	110%	
Specimen 3	93%	
Specimen 4	233%	
Specimen 5	102%	
AVERAGE	126%	70%, min.

Tensile Retention (Mineral Spirits)

Specimen 1	178%	
Specimen 2	186%	
Specimen 3	212%	
Specimen 4	182%	
Specimen 5	275%	
AVERAGE	207%	45%, min.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 8 of 13

TEST RESULTS (continued)

D. ASTM D471 – Chemical Resistance (modified per ASTM C957, section 5.7) - continued

Cast Date: May 2016
Specimens: Five dumbbells per test (Die C)
Application: Polyglaze 100SC
Curing: 21 days at 73 deg F. before chemical immersion
Immersion Duration: 336 hours

Results: **PASS**

	<u>Polyglaze 100SC</u>	<u>ASTM C957-15</u>
Tensile Retention (Water Immersion)		
Specimen 1	87%	
Specimen 2	69%	
Specimen 3	98%	
Specimen 4	91%	
Specimen 5	105%	
AVERAGE	90%	70%, min.
Tensile Retention (Ethylene Glycol)		
Specimen 1	71%	
Specimen 2	70%	
Specimen 3	81%	
Specimen 4	80%	
Specimen 5	69%	
AVERAGE	74%	70%, min.
Tensile Retention (Mineral Spirits)		
Specimen 1	24%	
Specimen 2	138%	
Specimen 3	59%	
Specimen 4	68%	
Specimen 5	93%	
AVERAGE	76%	45%, min.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 9 of 13

TEST RESULTS (continued)

E. ASTM C957 – Weathering Resistance and Recovery from Elongation

Cast Date: May 2016
Specimens: Twenty dumbbell specimens per test (Die C)
Application: Primer – Polyprime EBF LV
Basecoat – PC 235SC
Intermediate Coat – Poly-I-Gard 246 SC*
Top Coat – Polyglaze 100SC
*(*no aggregate included per ASTM C957)*
Curing: 21 days at 73 deg F., then 7 days at 158 deg. F. before cutting
Weathering: 500 hours - fluorescent UV

Results: **PASS**

Poly-I-Gard 435 System ASTM C957-15

Recovery from Elongation, Initial

Specimen 1	100%	
Specimen 2	100%	
Specimen 3	100%	
Specimen 4	100%	
Specimen 5	100%	
Specimen 6	100%	
Specimen 7	100%	
Specimen 8	100%	
Specimen 9	100%	
Specimen 10	100%	
AVERAGE	100%	<i>90%, min.</i>

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 10 of 13

TEST RESULTS (continued)

E. ASTM C957 – Weathering Resistance and Recovery from Elongation (continued)

Cast Date: May 2016
Specimens: Twenty dumbbell specimens per test (Die C)
Application: Primer – Polyprime EBF LV
Basecoat – PC 235SC
Intermediate Coat – Poly-I-Gard 246 SC*
Top Coat – Polyglaze 100SC
*(*no aggregate included per ASTM C957)*
Curing: 21 days at 73 deg F., then 7 days at 158 deg. F. before cutting
Weathering: 500 hours - fluorescent UV

Results: **PASS**

Poly-I-Gard 435 System ASTM C957-15

Tensile Retention

Specimen 1	119%	
Specimen 2	67%	
Specimen 3	150%	
Specimen 4	67%	
Specimen 5	51%	
Specimen 6	83%	
Specimen 7	127%	
Specimen 8	98%	
Specimen 9	87%	
Specimen 10	106%	
AVERAGE	96%	80%, min.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 11 of 13

TEST RESULTS (continued)

E. ASTM C957 – Weathering Resistance and Recovery from Elongation (continued)

Cast Date: May 2016
Specimens: Twenty dumbbell specimens per test (Die C)
Application: Primer – Polyprime EBF LV
Basecoat – PC 235SC
Intermediate Coat – Poly-I-Gard 246 SC*
Top Coat – Polyglaze 100SC
*(*no aggregate included per ASTM C957)*
Curing: 21 days at 73 deg F., then 7 days at 158 deg. F. before cutting
Weathering: 500 hours - fluorescent UV

Results: **PASS**

Poly-I-Gard 435 System ASTM C957-15

Elongation Retention

Specimen 1	125%	
Specimen 2	125%	
Specimen 3	208%	
Specimen 4	83%	
Specimen 5	83%	
Specimen 6	83%	
Specimen 7	125%	
Specimen 8	42%	
Specimen 9	83%	
Specimen 10	83%	
AVERAGE	104%	90%, min.

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 12 of 13

TEST RESULTS (continued)

F. ASTM C501 – Abrasion Resistance (modified per ASTM C 957, section 5.9)

Cast Date: May 2016
Specimens: Three 4 x 4-in specimens
Application: Primer – Polyprime EBF LV
Basecoat – PC 235SC
Intermediate Coat – Poly-I-Gard 246 SC*
Top Coat – Polyglaze 100SC
*(*no aggregate included per ASTM C957)*
Curing: 14 days at 73 deg F., then 7 days at 158 deg. F. before testing
Duration: 1,000 cycles with CS-17 abrasion wheel

Results: **PASS**

Poly-I-Gard 435 System ASTM C957-15

Mass Loss @ 1,000 cycles

Specimen 1	10 mg.	
Specimen 2	5 mg.	
Specimen 3	10 mg.	
AVERAGE	8 mg.	<i>50 mg. max.</i>

July 30, 2016
Polycoat – Poly-I-Gard 435 Traffic Deck System
NTL Project #16-1088(B)
Page 13 of 13

SUMMARY

The test results reported above from the Poly-I-Gard 435 Traffic Deck System met or surpassed the corresponding requirements as listed in ASTM C957-15, Table 1.

Respectfully submitted,

NELSON TESTING LABORATORIES



Mark R. Nelson
President