



**LIFELAST**<sup>®</sup>  
*Innovation Through Formulation*

**DURASHIELD**<sup>™</sup> **110**

**DURASHIELD**<sup>™</sup> **110-61**



## TECHNICAL DATA SHEET

EFFECTIVE: 8/22/2019

### PRODUCT DESCRIPTION

#### CHEMICAL DESCRIPTION

Solventless Aromatic Polyurethane, Chemical Cure, ASTM D16 Type V

#### USAGE

DuraShield 110/110-61 (DS110/110-61) is a 100% solids, two-component polyurethane that contains no volatile organic compounds (VOC), solvents or extending fillers. DS110/110-61 is a 1:1 by volume mix-ratio polyurethane based on the chemistry of LifeLast's very successful DuraShield 210 system. Offering similar physical and chemical properties as the DS210 – hard, durable, chemical resistant film that also provides great flexibility and impact resistance – the DS110/110-61, however, utilizes a balanced 1:1 mixing ratio. By employing hydrophobic polyurethane resins, DS110/110-61 has a very low water absorption rate – lower even than most epoxies – and excellent cathodic disbondment resistance. The hydrophobic properties of DS110/110-61 also impart improved tolerance to moisture in the container, during application and in service. This allows DS110/110-61 to cure to a hard, flexible, durable film with a glossy, well-adhered, moisture and chemical resistant finish. DS110/110-61 is designed specifically to provide very fast cure times, while at the same time demonstrating excellent adhesion. DS110/110-61 is applied by an approved LifeLast spray system.

#### COLORS

Standard color is almond. Call regarding other colors.

#### CURE SPEED

DuraShield 110/110-61 is available in a variety of cure speeds ranging from 0 to 10 (with 0 being the slowest). Please contact a LifeLast technical representative for information on which cure speed is best suited for your application parameters.

#### QUALIFICATIONS

- ◆ Meets AWWA C222
- ◆ Certified to NSF/ANSI Standard 61 by the NSF for lining potable water tanks, pipes, valves, and fittings.
  - ◇ Pipe ≥ 1", Valves and Fittings ≥ 1", Tanks ≥ 50 gals; thicknesses of 20-250 mils
  - ◇ Tanks ≥ 50 gallons; thicknesses of 20-250 mils
- ◆ FDA approved for dry bulk applications
- ◆ Meets USDA requirement for incidental contact

### TYPICAL APPLICATIONS

- ◆ **Water Transmission and Storage**
- ◆ **Wastewater Treatment:** municipal & industrial
- ◆ **Pipes:** interior linings & exterior coatings
- ◆ **Tanks:** interior linings & exterior corrosion protection
- ◆ **Penstocks:** interior linings & exterior coatings

### PRODUCT ADVANTAGES

#### HIGHLY IMPERMEABLE

Provides excellent corrosion protection; highly resistant to cathodic disbondment

#### EXCELLENT ADHESION

#### ABRASION & IMPACT RESISTANT

Mitigates damage during handling and installation

#### GOOD FLEXIBILITY

Expands and contracts with substrate; highly impact resistant

#### HIGH BUILD CHARACTERISTICS

Application thicknesses from 20 mils to 250 mils in one application; encapsulates welds, rivets and edges

#### LOW COEFFICIENT OF FRICTION

Supports the development of additional velocity in penstocks

#### NO LIQUID EXTENDING FILLERS

Solid film provides optimal properties – excellent long-term adhesion

### COATING SYSTEMS

#### PRIMERS (PRIMERS ARE NOT NSF CERTIFIED)

- **Steel:** Self-priming
- **Non-Ferrous Metals & Galvanized Steel:** Self-priming, Primall-125 or Primall-160
- **Concrete & Wood:** Self-priming, Primall-125 or Primall-160

#### TOPCOATS

- Approved aliphatic urethanes. Consult a LifeLast representative.

# DURASHIELD 110/110-61

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### TECHNICAL DATA

#### SOLIDS

100% by volume

#### MIX RATIO BY VOLUME

1 : 1 [Activator 9711 (ISO): DS110 (Polyol)]

#### RECOMMENDED DRY FILM THICKNESS

20 mils to 500+ mils (no max for general applications; 250 mil max per NSF certification); thickness varies with application. Consult a LifeLast technical representative for information.

#### COVERAGE

- Theoretical: 80.2 ft<sup>2</sup>/gallon @ 20 mils
- Typical Spray Application: ≈ 70-75 ft<sup>2</sup>/gallon @ 20 mils

#### NET WEIGHT PER GALLON (ALMOND)

Polyol: 9.0 ± 0.2 lbs/gallon

ISO: 9.7 ± 0.2 lbs/gallon

Mixed: 9.4 ± 0.2 lbs/gallon

#### SHIPPING INSTRUCTIONS

Protect ISO from freezing. Keep dry.

### PHYSICAL PROPERTIES

Test	Standard	Result
Adhesion to Steel	ASTM D4541; A.4	> 1500 psi
Tensile Strength	ASTM D412	4410 psi
Elongation	ASTM D412	8%
Flexibility	ASTM D522	No cracking or delamination – 2" Mandrel
Cathodic Disbondment	ASTM G95, Method A	<12 mm
Water Absorption	ASTM D570, Long Term	1.15%
Impact Resistance	ASTM G14	120.5 in-lbs
Hardness, Shore D	ASTM D2240	77±3
Abrasion Resistance	ASTM D4060, CS17	67.4 mg
Dielectric Strength	ASTM D149	862 V/mil
Chemical Resistance	ASTM D543 Per C222	Pass

#### CURE TIME @ 70°F (21°C) - 75°F (24°C)\*

Designation Speed	8	3	1
Tack Free	2-3 min.	8-15 min.	30-45 min.
Recoat Time	< 1 hour	< 2 hours	<4 hours
To Immersion: non-NSF	4 hours	6 hours	12 hours
To Immersion: per NSF	24 hours	24 hours	24 hours
To Handling/Traffic	5-10 min.	20-30 min	1.5-2 hours

\* Varies by application technique, thickness & temperature

#### TIME TO HOLIDAY TEST

Coating must be cured to handle before holiday testing.

#### SHELF LIFE

12 months at recommended storage temperatures in sealed, unopened containers.

#### STORAGE

- Temperature
  - ◇ Polyol: Min 40°F (4°C), Max 120°F (49°C)
  - ◇ ISO: Min 40°F (4°C), Max 120°F (49°C)
- Containers must be kept sealed in a dry environment.
- Contact LifeLast for continuous storage above 90°F (32°C)

### APPLICATION

#### SURFACE PREPARATION

Preparation requirements vary with application. Refer to the *DuraShield 110/110-61 Application Specification Sheet – Steel Pipe* or contact a LifeLast technical rep for assistance.

#### MIXING

Power mix contents of polyol containers, making sure to remove all pigment and settlement from the bottom of the container. Mixing of ISO is not required.

#### GEL TIME

Cure Speed 8: ≈ 15 seconds; Cure Speed 3: ≈ 50 seconds; Cure Speed 1: ≈ 120 seconds @ 70°F (21°C) material temperature

#### SPRAY TEMPERATURE\*

Polyol: 110°F (43°C) - 150°F (66°C); ISO: 80°F (27°C) - 150°F (66°C)

\*Exact temperatures depend on spray equipment setup

#### SURFACE TEMPERATURE

Min. 40°F (4°C), Max 140°F (60°C); surface should be clean, dry and more than 5°F (3°C) above dew point.

#### AMBIENT CONDITIONS

- Min. 0°F (-18°C), Max 120°F (49°C)
- Relative humidity should be less than 85%. Ambient air temperature must be no less than 5°F (3°C) above the dew point.

#### SPRAY EQUIPMENT

Refer to *DuraShield 110/110-61 Application Specification Sheet – Steel Pipe* for recommended spray equipment and setup. **Spray applicators and equipment must be certified by LifeLast.**

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