



LIFELAST[®]
Innovation Through Formulation

DURASHIELD[™] **110**

DURASHIELD[™] **110-61**



TECHNICAL DATA SHEET

EFFECTIVE: 6/24/2019

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.

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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 ft²/gallon @ 20 mils
- Typical Spray Application: ≈ 70-75 ft²/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 (-15°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 (-15°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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