



EUCLID CHEMICAL

# DURAL 50 LM

ULTRA-LOW VISCOSITY, LOW MODULUS, ACRYLATED EPOXY  
CRACK HEALER-SEALER

## DESCRIPTION

**DURAL 50 LM** is a two-component, low modulus, 100% solids, acrylated epoxy resin formulation designed to penetrate concrete and seal it from the ingress of chlorides and water. DURAL 50 LM heals and seals hairline cracks through its penetration.

## PRIMARY APPLICATIONS

- Bridge decks
- Parking decks
- Consolidation of porous and dusting surfaces
- Reduces water absorption
- Reduces chloride penetration
- Pressure injection
- Gravity feed hairline cracks
- Re-bonding of delaminated concrete toppings

## FEATURES/BENEFITS

- Low modulus
- Penetrates cracks by gravity
- Heals and seals concrete
- Increases wear resistance
- Significantly reduces chloride intrusion
- Easy mixing
- Alternative to methyl methacrylates
- Non-flammable
- Moisture tolerant

## TECHNICAL INFORMATION

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

<b>Mixing Ratio</b> (A:B) by volume.....	2:1
<b>Mixed Viscosity</b> , cps.....	120
<b>Gel Time</b> (200 gms), mins.....	90
<b>Tack Free</b> , hours.....	3 to 5
<b>Tensile Strength</b> , ASTM D638, psi (MPa).....	880 (6.1)
<b>Tensile Elongation</b> , .....	50%
<b>Bond Strength</b> , ASTM C882, 14 days, psi (MPa).....	> 1,500 (10.3)
<b>Reduction in Chloride Ion Penetration</b> , AASHTO T 260, 90 days	
@ ½" depth, % improvement as compared to control.....	90%
@ 1" depth, % improvement as compared to control.....	92%
<b>Water Absorption</b> , ASTM C413, 24 hours, % improvement.....	
% absorption.....	85.4%
% absorption.....	0.70%
<b>Abrasion Resistance</b> , ASTM C779, 7 days	
Abrasion Depth @ 30 minutes, % improvement.....	91.3%
Abrasion Depth @ 45 minutes, % improvement.....	94.7%
Abrasion Depth @ 60 minutes, % improvement.....	96.2%

## PACKAGING

DURAL 50 LM is packaged in 3 gal (11.3 L), 15 gal (56.8 L) and 150 gal (568 L) units.

## SHELF LIFE

2 years in original, unopened containers

## COVERAGE

**Slab Sealing:** 100 to 200 ft<sup>2</sup>/gal (2.5 to 4.9 m<sup>2</sup>/L) for the first coat (typical concrete surface). 150 to 300 ft<sup>2</sup>/gal (3.7 to 7.4 m<sup>2</sup>/L) for a second coat in cases of extensive cracking or high porosity. **Crack Grouting:** Coverage will be determined by depth and length of cracks.

**Note:** Coverage rates are approximate. Actual coverage depends on temperature, texture, and substrate porosity.

## DIRECTIONS FOR USE

**Surface Preparation:** The surface must be structurally sound, clean and free of grease, oil, curing compounds, soil, dust and other contaminants. New concrete and masonry must be at least 28 days old. Surface laitance must be removed. Concrete surfaces must be roughened and made absorptive, preferably by mechanical means, and then thoroughly cleaned of all dust and debris. If the surface was prepared by chemical means (acid etching), a water/baking soda or water/ammonia mixture, followed by a clean water rinse, must be used for cleaning, in order to neutralize the substrate. The Concrete Surface Profile (CSP) should be equal to CSP 2-5 in accordance with Guideline 310.2R-2013, published by the International Concrete Repair Institute (ICRI).

Blow debris and residue out of cracks and from the surface with a moisture-free and oil-free air jet. Mask expansion joint sealants to prevent adhesion of DURAL 50 LM to the joint surface. Surfaces and cracks must be completely dry before DURAL 50 LM application to obtain full penetration.

Following surface preparation, the strength of the surface can be tested if quantitative results are required by project specifications. An elcometer or similar tensile pull tester may be used in accordance with ASTM C1583, and the tensile pull-off strength should be at least 250 psi (1.7 MPa).

After surface preparation, a test section application of the coating system is recommended to confirm good adhesion and compatibility of the coating with the surface, and also to confirm appearance and aesthetics.

**Mixing:** Mix DURAL 50 LM using a low-speed drill and a mixing paddle. Pre-mix Part A and Part B separately for approximately 1 minute each. Combine Part A and Part B in a 2 to 1 ratio by volume, then mix thoroughly for 3 to 5 minutes. Scrape the bottom and sides of the containers at least once during mixing. Do not scrape bottom or sides of the container once mixing operations have ceased; doing so may result in unmixed resin or hardener being applied to the substrate. Unmixed resin or hardener will not cure properly. Do not aerate the material during mixing. To keep aeration to a minimum, the recommended mixing paddles are #P1 or #P2 as found in ICRI Guideline 320.5R-2014.

**Application: Slab Sealing:** Pour or pump properly mixed DURAL 50 LM onto the properly prepared surface in a wave form, and spread uniformly with a squeegee or a short nap roller to fill voids, cracks, and porous areas. Allow epoxy to penetrate into the surface, re-applying to cracks and porous areas if necessary. Before the epoxy becomes tacky, use a squeegee (on a smooth surface) or a broom (on a textured or tined surface) to remove any excess epoxy that has not penetrated the surface. Broadcast clean, oven-dried silica sand into the wet epoxy to provide a skid-resistant surface, or where subsequent toppings or coatings will be applied. Broadcast the silica sand at an approximate rate of 0.2 to 0.8 lbs/ft<sup>2</sup> (0.98 to 3.9 kg/m<sup>2</sup>) and/or until there are no wet spots. Wait until at least 20 minutes have elapsed since DURAL 50 LM application before broadcasting aggregate, but broadcasting must be completed before DURAL 50 LM has become tack free. Ensure that subsequent coatings or toppings are applied no earlier than 3 to 5 hours (at 75°F (24°C)) after DURAL 50 LM application, but no later than 24 hours after application. Before opening to traffic, remove any loose aggregate and verify that the skid-resistant properties are adequate for the intended purpose of the substrate.

**Crack Grouting (Gravity Feed):** Pour properly mixed DURAL 50 LM into "V"-notched cracks until completely filled. **Crack Grouting (Pressure Injection):** Set appropriate injection ports, depending on the system used. Seal the face of the crack and around ports using DURAL 452 GEL or DURAL FAST SET GEL. Inject properly mixed DURAL 50 LM using automated or manual injection equipment. Maintain slow, steady pressure until the crack is filled with the epoxy. After the DURAL 50 LM cures, remove the ports from the crack, and remove the epoxy on the face of the crack, if required.

## CLEAN-UP

Clean tools and application equipment immediately with acetone, xylene, or MEK. Clean spills or drips with the same solvents while still wet. Hardened DURAL 50 LM will require mechanical abrasion for removal.

## PRECAUTIONS/LIMITATIONS

- Store DURAL 50 LM indoors, protected from moisture, at temperatures between 50°F and 90°F (10°C and 32°C)
- Surface and ambient temperature during coating applications should be between 50°F and 90°F (10°C and 32°C)
- Material temperatures should be at least 50°F (10°C) and rising
- Do not apply DURAL 50 LM if surface temperature is within 5°F (3°C) of the dew point in the work area
- Working time and cure time will decrease as the temperature increases, and will increase as the temperature decreases
- Do not thin DURAL 50 LM
- Do not apply DURAL 50 LM if the substrate or cracks are subject to hydrostatic pressure
- Application of a test area is recommended to confirm final appearance and texture of the system with the end user
- Do not mix or apply DURAL 50 LM when rain is expected within 12 hours after application
- Multiple applications of DURAL 50 LM must be done within 24 hours of the preceding application
- DURAL 50 LM will darken substrate upon application
- Excess DURAL 50 LM left on the surface will reduce skid resistance
- In all cases, consult the product Safety Data Sheet before use

Rev. 01.19

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