



EUCLID CHEMICAL

DURAL HFS

HIGH FRICTION SURFACE TREATMENT FOR ASPHALT AND CONCRETE PAVEMENTS

PACKAGING

500 gal (1892.5 L) unit (MTO)

Code: TD4331500NC

100 gal (378.5 L) unit (MTO)

Code: TD4331110NC

10 gal (38 L) unit (MTO)

Code: TD433110NC

4 gal (15 L) unit (MTO)

Code: TD433104NC

CLEAN UP

Clean tools and application equipment immediately after use with methyl ethyl ketone or acetone. Clean spills or drips while still wet with same solvent. Dried Dural HFS will require mechanical abrasion for removal.

SHELF LIFE

2 years in original, properly stored, unopened package

SPECIFICATIONS/COMPLIANCES

- ASTM C881, Type III, Grade 1 Classes B and C
- AASHTO M 235, Type III, Grade 1

DESCRIPTION

DURAL HFS is a two-component, 100% solids, low modulus, moisture insensitive epoxy binder used to bond a surface applied aggregate to an asphalt or concrete pavement, increasing the skid resistance of the surface. Dural HFS is formulated for low temperature applications, or where rapid cure is required.

PRODUCT CHARACTERISTICS

FEATURES/BENEFITS

- Rapid cure, minimizes down-time
- Can be used as a mortar or broadcast system
- Easy to use

PRIMARY APPLICATIONS

- Intersections
- Bridges
- Horizontal curves
- Steep grades
- Loading docks
- Exit/Entrance ramps

APPEARANCE

Dural HFS is available in clear. Custom colors are available, but are subject to minimum order quantities.

COVERAGE

Standard Broadcast Method	Coverage
Dural HFS ft ² /gal (m ² /L)	25 to 32 (.61 to .79)
Aggregate lbs/ft ² (kg/m ²)	1.3 to 1.7 (6.35 to 8.30)

Open-Graded Surface	1 st Coat	2 nd Coat
Dural HFS ft ² /gal (m ² /L)	25 to 32 (0.61 to 0.79)	22 to 25 (0.54 to 0.61)
Aggregate lbs/ft ² (kg/m ²)	1.3 to 1.7 (6.35 to 8.30)	1.5 to 2.0 (7.32 to 9.76)

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

TECHNICAL INFORMATION

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

Test Method	Test Property	Values
ASTM C1583	Adhesive strength	>250 psi (1.7 MPa)
ASTM C882	Bond Strength	2 Days. 2,100 psi (14.5 MPa) 7 Days. 2,400 psi (16.5 MPa)
ASTM C1202 AASHTO T77	Chloride Permeability	<10 coulombs
ASTM C109	Compressive Modulus	120,000 psi (827 MPa)
ASTM D579	Compressive Strength (2.75 parts sand) mortar	3 Hours > 2,000 psi (13.8 MPa) 7 Days > 7,000 psi (48.3 MPa)
ASTM D695	Compressive Strength, Final	> 5,000 psi (34.5 MPa)
ASTM D1640	Cure Rate	< 3 hours
ASTM D790	Flexural Strength, Final	> 4,800 psi (33.3 MPa)
N/A	Gel Time, 60 grams	23 minutes
ASTM D2240	Hardness Shore D	60
ASTM C882	Mix Ratio By Volume (part A : B)	1:1
ASTM D638	Tensile Elongation	30 to 60%
ASTM D638	Tensile Strength, Final	> 2,500 psi (17.2 MPa)
N/A	Viscosity (mixed) Brookfield Viscometer, Model RVT	1,800 cps
ASTM D570	Water Absorption, 24 hour	< 0.5%

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DIRECTIONS FOR USE

Surface Preparation: All utilities, drainage structures, curbs and any other structure with or adjacent to treatment location shall be protected from surface preparation and installation of the DURAL HFS. Asphalt pavements that are contaminated with oils, grease, or other deleterious materials shall be washed with a mild detergent solution, rinsed with clean potable water and allowed to dry. Clean asphalt pavement surfaces using mechanical sweepers and high pressure air wash with sufficient oil traps. For best results asphalt surfaces should be lightly mechanically abraded prior to the application of the treatment. New asphalt pavements must cure for at least 30 days before surface preparation and application of the treatment. Concrete must be structurally sound, free of standing water, grease, oils, coatings, dust, curing compounds and other contaminants. Remove oil, grease smear and asphalt residue with trisodium phosphate or a strong detergent. For heavy oil contamination use steam cleaning in conjunction with a strong emulsifying detergent. Surface laitance must be removed. The preferred method of surface preparation is mechanical abrading. Mechanically abrade the surface to achieve a surface profile of at least CSP 4-6 in accordance with ICRI Guideline 310.2. Properly clean the profiled area.

New Concrete: Allow to cure for a minimum of 28 days. Prepare surface as recommended above.

Old Concrete: For a rapid cure repair, use a mortar of Dural HFS and clean aggregate. If portland cement repair materials are used, allow the repair to cure per the manufacturer's recommendations prior to coating. After repairing, a light brush blast is recommended prior to coating. **Hand Mixing:** Using a low speed drill motor and a "Jiffy" type mixer, mix the part A & B components separately for approximately 1 minute. **Binder:** Combine one part by volume of "A" with one part by volume of "B" and mix thoroughly for 3 minutes. Scrape the bottom and sides of mixing container, at least once. Mix just enough material that can be used within the working life. Do not aerate the mix.

Mechanical Application: Euclid Chemical shall approve the use of the automated continuous application equipment. At a minimum the equipment shall mechanically mix, volumetrically meter, monitor and apply the DURAL HFS system according to specifications.

Application: Apply mixed Dural HFS binder to the prepared surface using roller, notched squeegee or mechanical equipment. Eliminate any puddles with a quick light roller pass. Immediately broadcast clean, dry aggregate to full saturation until no wet spots appear. After the binder has cured, broom or vacuum excess aggregate. Repeat the procedure to build coating thickness as required per specifications. **Aggregate for High Friction Skid Resistant Treatment:** The preferred aggregate for the High Friction Surface Treatment is a Calcined Bauxite material that is clean, dry and free from foreign matter as per the specifications of the project. Other aggregates may be allowed based on project requirements.

PRECAUTIONS/LIMITATIONS

- Store at temperatures between 40 °F to 90 °F (4 °C to 32 °C). Protect from moisture and freezing.
- Do not aerate Dural HFS during mixing.
- If Dural HFS is to be exposed to chemicals contact EUCLID Technical Service for a suitable top coat.
- In cold weather applications, it is recommended that all materials used in the treatment be conditioned to at least 75°F (24 °C) for at least 24 hours prior to use. Heating of the resins and aggregate will enhance cure times and improve material handling characteristics.
- In all cases, consult the Safety Data Sheet before use.

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