

PERMASHIELD 200[®]

TECHNICAL BULLETIN



MADE IN U.S.A.

GREEN 2K Water Based Aliphatic Polyurethane

9

HIGH PERFORMANCE COATING 09960
PROTECTIVE COATINGS

MONOPOLE INC.
UPDATED JULY 2011

PRODUCT DESCRIPTION:

ITEM NO. 5350, 5355

PERMASHIELD 200 is the most advanced two-component water-based aliphatic polyurethane on the market. The unique high performance structure of PERMASHIELD 200 exhibits outstanding film hardness, excellent direct impact/reverse resistance, abrasion, chemical, and UV resistance.

ADVANTAGES:

- Zero VOC
- HAPS Free (Hazardous Air Pollutants)
- No Fumes
- Available in High Gloss or Matte Finish
- Top tier chemical and solvent resistance
- Outstanding hardness and abrasion resistance
- High Solids, Versatile General Maintenance Coating
- USDA Approved
- Resistant to Hot Tire Pick-Up

BASIC USES:

PERMASHIELD 200 can be applied to interior, exterior, vertical or horizontal, concrete, masonry, wood, vinyl-composite tile (VCT), and prepared metal. It can be used on various floor applications and as a maintenance coating for: commercial buildings, industrial or residential applications, manufacturing plants, hospitals, universities, hangars, chemical storage areas, transportation, and government facilities.

PERMASHIELD 200 is USDA-approved for use in food handling equipment and processing plants.

PERMASHIELD 200 is urine resistant for use in pet & dog kennels.

MIXING:

- Stir Part A to disperse product.
- Pour the entire contents of Part B into Part A.
- Mix for 3-5 minutes.
- No partial mixing. Do not add water to Part A or Part B.
- For spray applications, the viscosity may be reduced with water at a maximum of 8 ounces per gallon. Add slowly to the mixture while stirring.
- Do not use mixed product after 2 hours.

SURFACE PREPARATION:

Surfaces must be clean, dry and free of chalk, grease, oils, salts and contaminants that inhibit proper adhesion.

Concrete And Masonry: Must be cured at least 28 days. Level protrusions and repair cavities, voids and cracks that are larger than 1/16". Dense, non-porous concrete should be grinded, sandblasted, abrasive blasted (ASTM D4259), acid etched (ASTM D4260), or primed with MONOCHEM 21.

Galvanized, Aluminum, Stainless Steel: Remove all oils or films with a neutral detergent or emulsion cleaner. Blast lightly with fine abrasives or conduct a light etching. Then rinse using a Zinc treatment and coat within 3 hours to avoid oxidation.

Corrosive Metals: Remove all the loose rust, dirt, grease or other contaminants by one of the following depending on the degree of cleanliness required. Blast SSPC-SP3; SSPC-SP2; SSPC-SP6; SSPC-SP7. Blast lightly with fine abrasives or conduct a light etching. Then rinse using Zinc treatment and prime with a rust inhibitive primer.

Water Based Painted Surfaces: Lightly sand or abrade glossy surfaces to provide tooth. Conduct a test patch and adhesion test. Prime with MONOCHEM 21 to the sound surface if adhesion is an issue.

TECHNICAL DATA:

Composition	100% Aliphatic Polyurethane
Solids by Weight	54% ± 2
VOC level (ASTM D-2369-81)	Zero
Film appearance, Gloss, (ASTM D-523) 60°	>90
Matte (ASTM D-523) 60°	<6
Weight per gallon kit	8 Lbs
Mixed viscosity @75°F	80-85 KUs
Pot Life after both components are mixed	1-2 hours
Tensile strength (ASTM D-412)	5950 psi
Elongation (ASTM D-412)	150%
Modulus @100% elongation	4190 psi
Hardness, pencil 2 weeks (ASTM D-3363)	2H
Taber Abrasion Resistance (ASTM D-4060)	~45 mg loss/1000 cycles
Impact Resistance (ASTM D-2794) Reverse	160 In/Lbs
Outdoor Weathering (ASTM G155-05a)	8000 hours
Cyclic Weathering (AASHTO R-31)	No Blistering, Cracking, Checking, Softening or Delamination. Maximum Change of 10 Gloss Level.
Recoat Time	4-6 Hours
Dry Hard	48 Hours
Chemical Resistance (ASTM D1308)	See Table 1

Oil Based Painted Surfaces: Prime with MONOCHEM 21. Conduct a thorough test patch and adhesion test.

Caution: Horizontal surfaces coated with PERMASHIELD 200 can become slippery when exposed to moisture. Please consult the manufacturer for non-skid applications.

APPLICATION:

A continuous application will ensure a smooth and level coat that is free of lines and streaking. Applications should not be stopped part way across an area and completed later.

Two coats of PERMASHIELD 200 are required at a spread rate of 200-250 square feet per gallon, yielding ~3-4 dry mils per coat. Do not exceed 6 dry mils or micro bubbling will occur. To obtain proper adhesion between coats it is imperative that recoating be done within 4-6 hours (do not exceed 12 hours between coats or sanding may be required).

For best results use the best quality roller, brush, or airless sprayer. Extra care should be taken not to cause air bubbles. For larger jobs we recommend using a sprayer.

PERMASHIELD 200 can be applied directly to properly prepared surfaces like primed metal and previously painted water based acrylics, epoxies and urethanes. Abrade and clean the previous paint to provide tooth for the new coating. Always conduct a test patch to ensure proper adhesion. Prime with MONOCHEM 21 if there are adhesion issues with PERMASHIELD 200.

In all applications, we require doing a test section to ensure proper compatibility, adhesion and appearance. All surfaces must be tested before doing the entire project.



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PRECAUTIONS:

- Do not apply heavier than 5 wet mils per coat to avoid microblistering and an over applied milky appearance.
- Air and surface temperatures must be between 50°F -90°F during the application.
- Do not apply during windy conditions. Protect surrounding areas from overspray.
- Do not apply if rain is eminent within 48 hours after application.
- Do not dilute. Use as-is.
- Do not apply to surfaces containing < 15% moisture.
- Do not apply to surfaces displaying a pH over 8.
- Do not apply to surfaces that have hydrostatic pressure.

DRY TIME:

Light Foot Traffic: 24 Hours
 Full Foot Traffic: 48 Hours
 Heavy Objects: 5 Days
 Hot Tire Resistance: 5 Days
 Full Cure: 5 Days
 Full Chemical Resistance: 5 days

PACKAGING:

PERMASHIELD 200 is available in clear or colors, matte or gloss finishes. Clear kits are packaged in a one-gallon kit and a five-gallon kit. Color kits are only available in one-gallon kits.

MIXING RATIO- 1:2.5

One Gallon Kit: Part A: 80 OZ, Part B: 32 OZ
 One Gallon Kit totals 112 oz (not a full gallon)
 Approximate Coverage: 175 - 250 sq. ft. per kit (1 Coat)

Five Gallon Kit: Part A: 400 OZ, Part B: 160 OZ
 Five Gallon Kit totals 560 oz (totals 4.375 gallons)
 Approximate Coverage: 875 - 1,250 sq. ft. per kit (1 Coat)

ITEM NO. 5350-01: **PERMASHIELD 200 CLR BASE GLOSS (1G KIT)**
 ITEM NO. 5350-05: **PERMASHIELD 200 CLR BASE GLOSS (4.375g KIT)**

ITEM NO. 5355-01: **PERMASHIELD 200 CLR BASE MATTE (1G KIT)**
 ITEM NO. 5355-05: **PERMASHIELD 200 CLR BASE MATTE (4.375g KIT)**

ITEM NO. 5350-TINT-01 **PERMASHIELD 200 GLS TINT KIT (1G KIT)**
 ITEM NO. 5355-TINT-01 **PERMASHIELD 200 MATTE TINT KIT (1G KIT)**

EQUIPMENT CLEANUP:

Equipment should be cleaned with water or a mild detergent immediately after use. Clean all the equipment while material is fresh.

LEED CREDITS:

PERMASHIELD 200 qualifies for earning LEED® credits for Environmental Quality, EQ 4.2 Low-Emitting Materials, based on low contribution of VOC.

SAFETY INFORMATION:

Monopole Inc. recommends the use of aggregates, for skid resistance, in all of its floor coatings that may be exposed to wet, oily or greasy conditions. The type of activity on the floor surface may determine the degree of slip resistance required for a specific area. Monopole Inc. will not be responsible for injury caused in a slip or fall situation. It is the end users responsibility to determine the suitability and safety of our coatings for their particular use and application.

CHEMICAL RESISTANCE: (ASTM D1308)

Table 1

MEK double rubs	300+ cycles
Skydrol.....	No effect after 7 days
Brake Fluid	No effect after 7 days
Gasoline	No effect after 7 days
Motor Oil	No effect after 7 days
Betadine	No effect after 24 hours
50% NaOH	No effect after 24 hours
14% NH4OH	No effect after 24 hours
10% Acetic Acid.....	No effect after 24 hours
20% H2SO4	No effect after 24 hours
10% HCL.....	No effect after 24 hours
10% Bleach	No effect after 24 hours
DI Water	No effect after 24 hours
IPA.....	No effect after 4 hours
Toluene.....	No effect after 4 hours

WARRANTY INFORMATION: MONOPOLE believes that the information in this publication is an accurate description of the typical characteristics and/or uses of the product or products. But it is the end users responsibility to thoroughly test the product in the specific application to determine its performance efficacy and safety. Since use of this product is beyond our control, Monopole, Inc. cannot assume any risk or liability for results obtained when not used according to our specifications and directions. Unless MONOPOLE provides a specific written statement of fitness for a particular use, MONOPOLE'S sole warranty is that the product will meet its current sales specifications. MONOPOLE specifically disclaims any other expressed or implied warranty, including the warranty of merchantability and fitness for use. The exclusive remedy and MONOPOLE's sole liability for breach of warranty is limited to a refund of the purchase price or replacement of product proven to be defective. In no event shall the seller be liable for any loss of profits or other consequential damages. Under no circumstance will MONOPOLE pay labor charges.