SealMaster Asphalt Sealcoating November 2013

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Engineering Specification: SealMaster Polymer Modified MasterSeal (PMM)-Long Spec

**ASPHALT PAVEMENT SEALCOATING SPECIFICATION FOR PARKING LOTS**

Specifier’s Notes: This Asphalt Pavement Sealcoating Specification is furnished as a guide for specifying Asphalt Repair, Sealcoating and Striping of Asphalt Pavement Parking Lots. It is written in the CSI 3-Part Format and must be edited to suit the particular needs and budgetary requirements of a given project and its respective location.

If you need more specific information regarding a product visit [www.sealmaster.net](http://www.sealmaster.net) or contact your local SealMaster Representative at 1-800-395-7325. SealMaster Representatives are also available to answer any questions you may have regarding your specific project.

**PART 1 GENERAL**

* 1. **SECTION INCLUDES**

1. Asphalt Pavement Sealcoating

**1.2 REFERENCE STANDARDS**

1. American Society for Testing Materials (ASTM)
2. D 2939-03 Standard Test Methods for Emulsified Bitumens Used as Protective Coatings
3. The following ASTM test methods: D140, D466, D529, D244, C88, C131, C117, C127, C123, D1310, D2170, D95, D402, D2171, D5, D113, D2042, D711, D969, D1475, D3960, D2486, E70, D562, D3583, D3236, D5249, D6690, B117, D977
4. South Coast Air Quality Management District
5. SCAQMD Method 304 – Determination of Volatile Organic Compounds (VOC) In Various Materials.
6. Federal Specifications for Waterborne Traffic and Airfield Marking Paints
7. TT-P-1952E Types I, II, and III
8. TT-P-1952D
9. TT-P-1952B

**1.3 SUBMITTALS**

1. Product Data
2. Submit manufacturer’s Product Data Sheet.

**1.4 PROJECT/SITE CONDITIONS**

1. Ambient Conditions
2. Both surface and ambient temperature must be a minimum of 50°F and rising before applying cold applied crack fillers, oil spot primers, pavement sealers or traffic paints (materials). Ambient and surface temperature shall not drop below 50°F for a 24 hour period following application of materials.
3. Apply materials during dry conditions when rain is not imminent or forecast for at least 24 hours after application.
4. Pavement/Surface Conditions
5. Newly placed (paved) asphalt pavement surfaces should be allowed to cure a minimum of four (4) weeks under ideal weather conditions (70°F) before applying coatings.
6. New pavement surfaces shall be free of residual oils or chemicals associated with the placement of new asphalt pavement.
7. Aged pavement surfaces shall be cleaned and prepared as recommended in this specification under PART 3 Sections 3.1 thru 3.7 of this specification.

**PART 2 PRODUCTS**

**2.1 MANUFACTURER**

1. SealMaster Pavement Products and Equipment. SealMaster has a nationwide network of manufacturing and distribution facilities. Phone: 800-395-7325. Website: [www.sealmaster.net](http://www.sealmaster.net). E-mail: [info@sealmaster.net](mailto:info@sealmaster.net).

**2.2 MATERIALS**

1. SealMaster Petro Seal Oil Spot Primer (Concentrate).
2. Acrylic co-polymer latex emulsion
3. Seals oil spots prior sealcoating
4. Helps prevent oil spots from “bleeding through” freshly applied sealer
5. Mix on-site with water prior to application
6. Apply by brush or spray to properly cleaned oil spot
7. Non-volatiles (%): 27% Min.
8. Specific Gravity: 1.04
9. Color: Dries translucent to clear
10. SealMaster Prep Seal Oil Spot Primer (Ready-To-Use)
11. Acrylic Co-Polymer latex emulsion
12. Seals oil spots prior to sealcoating
13. Helps prevent oil spots from “bleeding through” freshly applied sealer
14. Ready-To-Use do not dilute
15. Apply by brush or spray to properly cleaned oil spot
16. Non-volatiles (%): 14% Min.
17. Specific Gravity: 1.04
18. Color: Dries translucent to clear
19. SealMaster FlexMaster Crack Sealant (Cold-applied pourable crack sealant)
20. Premium Polymer modified asphalt emulsion crack sealant
21. Designed to fill cracks up to 1/2” wide in asphalt pavement
22. Provides protective barrier against moisture intrusion into cracks
23. Ready-To-Use, simply stir and pour into properly cleaned crack
24. Penetration (150 gr/5 sec): 50-80
25. Resiliency: >50%
26. Flow at 140°F: <5 mm
27. Softening Point: >150°F
28. Ductility @77°F: >30 cm
29. Bond @ 20°F (1” Mandrel): PASSES
30. Specific Gravity: 1.10 Min
31. Non-volatiles by weight (%): 60% Min
32. Adhesion and resistance to water: No loss of adhesion
33. Flexibility: No cracking or flaking
34. SealMaster CrackMaster Parking Lot Grade (Hot Pour Rubberized Crack Sealant)
35. Premium Rubberized Asphalt hot pour crack sealant
36. Designed for filling and sealing cracks up to 1” wide in asphalt or concrete pavement
37. Provides a protective barrier against moisture intrusion into cracks
38. Designed to be melted in oil-jacketed kettles or direct-fire kettles with agitation
39. Recommended pour temperature: 370-390°F
40. Penetration (150 gr/5 sec.): 35 Max.
41. Resiliency: 60%
42. Flow at 140°F: 0 mm
43. Softening Point: 200°F Min
44. Viscosity @ 375°F: 25 ± 10 poise
45. Specific gravity: 1.15 Min.
46. SealMaster Trowel Grade Crack Filler
47. Polymer modified asphalt emulsion fortified with mineral filler and specifically graded aggregate.
48. Designed to fill cracks up to 1” wide in asphalt pavement
49. Repairs damaged asphalt and provides a protective barrier against moisture intrusion into cracks
50. Do not dilute. Apply by trowel, squeegee or straightedge
51. Non-volatiles by weight (%): 75%
52. Specific gravity: 1.25 min.
53. Adhesion and resistance to water: No penetration or loss of adhesion
54. Resistance to heat: No blistering or sagging
55. Flexibility: No cracking or flaking
56. Resistance to Impact: No chipping, flaking or cracking
57. SealMaster GatorPave Patching Material
58. Polymer modified mineral filled asphalt emulsion fortified with fibers, rubber particles and specifically graded aggregate
59. Designed to fill and repair “alligatored” and cracked areas in asphalt pavement
60. Designed to fill cracks up to 1”wide while providing a barrier against moisture intrusion into cracks
61. Do not dilute. Apply by trowel, squeegee or straightedge
62. Non-volatiles (%): 70% min.
63. Specific Gravity: 1.30 min
64. Adhesion & Resistance to Water: No penetration or loss of adhesion
65. Resistance to heat: No blistering or sagging
66. Flexibility: No cracking or flaking
67. Resistance to impact: No chipping, flaking or cracking
68. SealMaster Pothole Patch (Cold Patch)
69. Cold-applied all-weather pothole patch featuring a unique blend of asphaltic resins, oils, polymer and aggregate
70. A long lasting, economical approach to filling potholes in asphalt and concrete surfaces
71. PatchMaster is placed directly from bag or container into pothole and compacted
72. Gradation of PatchMaster Aggregate:
73. Sieve Size of aggregate: % Passing

* 3/8” ……………………………………. 100%
* 4 mesh screen………………………… 20-85%
* 8 mesh screen………………………… 2-40%
* 16 mesh screen………………………. 0-10%
* 50 mesh screen………………………. 0-6%

1. Characteristics of Aggregate:

* Soundness Loss……………………… 12 % Max
* Los Angeles Abrasion……………….. 40% Max
* #200 Sieve (by wash)………………... 2% Max
* Absorption……………………………... 1-2% Max
* Soft Aggregate………………………… 3% Max

1. Bituminous Material:
2. Flash Point…………………………………. 94°C (200°F)
3. Kinematic Viscosity @ 60°C (140°F)…… 300-400
4. Water……………………………………….. 0.2% Max
5. Distillate Tests:
6. To 225°C (437°F)……………………… 0
7. To 260°C (500°F)……………………… 0-5%
8. To 315°C (600°F)……………………… 0-25%
9. Residue @ 300°C (600°F)……………. 72-95%
10. Residue Tests:
11. Viscosity @ 60°C (140°F)…………….. 125-425 Poises
12. Penetration……………………………… 200 Min.
13. Ductility @ 4°C (39°) 1 cm/min. ……... 100 Min.
14. Solubility in Trichloroethylene………… 99%
15. SealMaster Asphalt Binder Plus
16. Polymer modified anionic asphalt emulsion
17. Designed for use as a recycling agent for infrared patch work, fog seal, rejuvenator, road crack sealant, and tack coat
18. Test On Emulsion:
19. Viscosity, Saybolt Furol at 77°F (25°C), s…………….. 30-40
20. Storage stability test, 24-h, %....................................... 1
21. Cement Mixing Test, %................................................. <2%
22. Sieve Test, %................................................................ .10 Max.
23. Residue by distillation, %.............................................. 57% Min.
24. Test On Residue:
25. Penetration, 77°F (25°C) 100g, 5 s…………………….. 40-90
26. Ductility, 77°F (25°C) 5 cm/min, cm……………………. >150
27. Softening Point, R&B, °F………………………………… >120
28. Toughness, inch-pounds………………………………… >80
29. Tenacity in trichloroethylene……………………………. >97
30. SealMaster Polymer Modified MasterSeal
31. Polymer modified, clay-stabilized, mineral filled asphalt emulsion sealcoat
32. Designed for protecting, renewing and beautifying asphalt pavement surfaces
33. Protects pavement against weather, UV rays, and environmental distress
34. Designed to mixed on-site with silica sand or other approved aggregate
35. Applied to properly cleaned asphalt surface by spray, brush or squeegee
36. Non-volatiles (%): 43% Min.
37. Ash content of non-volatiles (%): 42% Min.
38. Specific Gravity @ 25°F: 1.12 Min.
39. Drying Time: 8 hours Max.
40. Adhesion & resistance to water: No penetration or loss of adhesion
41. Resistance to heat: No blistering or sagging
42. Flexibility: No cracking or flaking
43. Resistance to impact: No chipping, Flaking or Cracking
44. SealMaster Liquid Thermoplastic Traffic Marking Paint (White and Yellow)
45. 100% Acrylic High performance Water-based traffic marking paint featuring unique crosslinking technology for highly durable traffic markings
46. Meets Federal Specification TT-P-1952E Type III requirements
47. Applied with standard cold-applied traffic marking spray equipment
48. Do not dilute.
49. Volatile Organic Content (VOC): <50g/l
50. Viscosity (KU): 70-110 KU
51. Solids by Weight (%): 76% Min.
52. Solids by Volume (%): 60% Min.
53. Pigment Volume Content (%): 60% Min.
54. Pigment Solids by Weight (%): 61% Min.
55. Scrub Resistance: 1,500 Cycles Min.
56. Dry Opacity: .965
57. Directional Reflectance (%): White 86%; Yellow 50%
58. Drying Time for no Pick-up, minutes: <6 minutes
59. SealMaster Fast-Dry Traffic Paint (White and Yellow)
60. 100% Acrylic Premium Fast-Dry Water-based traffic marking paint
61. Meets Federal Specification TT-P-1952D and E Type I and II requirements
62. Apply with standard cold-applied traffic marking spray equipment
63. Do not dilute.
64. Volatile Organic Content (VOC): <50g/l
65. Viscosity (KU): 70-110 KU
66. Solids by Weight (%): 76% Min.
67. Solids by Volume (%): 60% Min.
68. Pigment Volume Content (%): 60% Min.
69. Pigment Solids by Weight (%): 61% Min.
70. Scrub Resistance: 1,000 Cycles Min.
71. Dry Opacity: .965
72. Directional Reflectance (%): White 86%; Yellow 50%
73. Drying Time for no Pick-up, minutes: <6 minutes
74. SealMaster TTP-1952B Traffic Paint (White and Yellow)
75. 100 % Acrylic Water-based Traffic Paint
76. Meets Federal Specification TT-P- 1952B
77. Apply with standard cold-applied traffic marking spray equipment
78. Do not dilute.
79. Volatile Organic Content (VOC): <50g/l
80. Viscosity (KU): 70-110 KU
81. Solids by Weight (%): 60% Min.
82. Scrub Resistance: 1,000 cycles Min.
83. Dry Opacity: .965
84. Directional Reflectance (%): White 86%; Yellow 50%
85. Drying Time for no Pick-up, minutes: <30 minutes
86. SealMaster Handicap Blue Traffic Paint
87. 100 % Acrylic Water-based Traffic Paint for Handicap markings on pavement
88. Apply with standard cold-applied traffic marking spray equipment, brush or roller

3. Do not dilute

4. Volatile Organic Content (VOC): <50g/l

5. Viscosity (KU): 70-110 KU

6. Solids by Weight (%): 50% Min.

7. Scrub Resistance: 1,000 Cycles Min.

8. Drying Time for no Pick-up, minutes: <30 minutes

1. SealMaster Firelane Red Traffic Paint
2. 100% Acrylic Water-based Traffic Paint for delineating Fire Lanes and Zones in parking lot areas
3. Apply with standard cold-applied traffic marking spray equipment, brush or roller
4. Do not dilute
5. Volatile Organic Content (VOC): <50 g/l
6. Viscosity (KU): 70-110 KU
7. Solids by weight (%): 50% Min.
8. Scrub Resistance: 1,000 Cycles Min.
9. Drying Time for no Pick-up, minutes: <30 minutes
10. SealMaster Line Block-Out Paint (Black)
11. 100% Acrylic traffic marking paint designed to black-out unwanted traffic markings on pavement surfaces
12. Also recommended for application prior to sealcoating if existing traffic marking layout is going to change
13. Do not dilute
14. Volatile Organic Content (VOC): <50 g/l
15. Viscosity (KU): 70-110 KU
16. Solids by weight: 50% Min
17. Scrub Resistance: 1,000 cycles Min.
18. Drying Time for no Pick-Up: <30 minutes

**PART 3 EXECUTION**

**3.1 EXAMINATION**

1. Examine pavement surface prior to performing work
2. Notify architect or project engineer of any adverse or unacceptable conditions that would affect successful repair efforts or application of materials
3. Do not commence work until unacceptable conditions are corrected

**3.2 SURFACE PREPARATION**

1. Surface must be clean and free from all loose material and dirt. Remove grass along edge of pavement to find true edge of pavement. Power blowers, mechanical sweeping devices and push brooms are acceptable cleaning methods.

**3.3 CRACK REPAIR**

Specifier’s Notes: Specifier should select between Option A. (Fill Cracks with Cold-Applied Sealants and/or Crack Fillers) or, Option B. (Fill Cracks with Hot Applied Rubberized Asphalt Crack Sealant) listed below. Hot Applied Rubberized Crack Sealant provides a more durable solution for crack filling. However, Cold-Applied Materials offer an acceptable and more economical approach.

1. Cold Applied Crack Filling Materials and Methods
2. Clean cracks of all dirt, debris and vegetation prior applying crack filling.
3. For cracks up to ½” apply FlexMaster Crack Sealant. FlexMaster may be applied directly from container, pour pot, crack banding equipment or mechanized pumping equipment. Allow to dry before sealcoating.
4. For cracks larger than ½” wide and up to 1” wide apply SealMaster Trowel Grade Crack Filler of SealMaster GatorPave Patching material. Apply Trowel Grade or GatorPave with trowel, squeegee or straightedge. Allow to dry before sealcoating.
5. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for Flexmaster, Trowel Grade Crack Filler and GatorPave.
6. Hot Applied Crack Sealant/Filling Materials and Methods
7. Cracks must be free from dust, dirt, vegetation and moisture. Clean cracks with mechanical wire brush followed by a compressed air heat lance to remove loose debris and moisture.
8. For all cracks up to 1” wide apply either SealMaster CrackMaster Parking Lot Grade crack sealant or SealMaster Crackmaster Supreme crack sealant.
9. SealMaster CrackMaster Parking Lot Grade crack sealant shall be melted in a conventional oil-jacketed unit equipped with an agitator.
10. Apply heated CrackMaster Parking Lot Grade crack sealant using a pump and wand system, a crack banding unit or a pour pot.
11. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for CrackMaster Parking Lot Grade Crack Sealant.

**3.4 ALLIGATORED PAVEMENT REPAIR**

Specifier’s Notes: Alligator cracks are interconnected cracks forming a series of small blocks resembling an alligator’s skin or chicken wire. Specifier should select between Option A. (Apply SealMaster GatorPave), Option B. (Infrared Patch Repair Method) or Option C. (Removal of distressed pavement material and replacement with 4 inches of Hot Mix Asphalt). With regards to longevity of pavement repair, these options represent a good (A), better (B), best (C) approach.

1. Repair Alligator Cracks with SealMaster GatorPave
2. Remove all dirt, dust and vegetation on alligatored area.
3. Apply GatorPave with trowel, squeegee or straightedge.
4. Allow to dry before sealcoating.
5. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for GatorPave.
6. Repair Alligator Cracks with Infrared Heater Method
7. Remove all dirt, dust and vegetation on alligatored area.
8. Heat alligatored pavement area to a temperature between 290°F and 325°F to soften pavement. Scarify heated softened asphalt with an asphalt rake to a depth of 2-3 inches. Add SealMaster Asphalt Binder Plus at a rate of .20 gallon per square yard while pavement material is still soft and workable. Mix Asphalt Binder Plus into heated softened asphalt with the asphalt rake. Level smooth with rake and compact area with either a plate compactor or asphalt roller. Note- A small amount of fresh Hot Mix blacktop may be added to heated material if needed to assure a smooth, flush finish to adjoining pavement surface.
9. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for SealMaster Asphalt Binder Plus.
10. Repair Alligator Cracks with Full-Depth Hot Mix Asphalt
11. Saw cut and remove the alligatored pavement to the depth necessary to reach firm support (firm base materials).
12. Prime bottom of patch area and vertical sides of saw cut with SealMaster Asphalt Binder Plus.
13. Fill patch area with fresh hot mix asphalt.
14. Compact fresh hot mix with hand tamper, vibratory-plate compactor or asphalt roller. Finished patchwork shall be flush and level with adjoining pavement.
15. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for SealMaster Asphalt Binder Plus.

**3.5 POTHOLE REPAIR**

Specifier’s Notes: Specifier should select between Option A. (Fill Potholes with SealMaster Pothole Patch (Cold Patch)) or, Option B. (Fill Potholes with Hot Mix Asphalt). Hot Mix Asphalt provides a more durable solution for patching. However, SealMaster PatchMaster Pothole Patch offers an acceptable and more economical approach to filling potholes.

1. Fill Potholes with SealMaster PatchMaster Pothole Patch
2. Remove loose material, debris and standing water from pothole prior to application.
3. Apply PatchMaster directly from bag into pothole
4. Compact PatchMaster with a hand tamper, vibratory-plate compactor or asphalt roller. Finished patchwork shall be flush and level with adjoining pavement.
5. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for SealMaster PatchMaster Pothole Patch.

**3.6 OIL SPOT PRIMING**

1. Prime Oil Spots with SealMaster Prep Seal or SealMaster Petro Seal
2. Wipe or scrape excessive build-up of oil, grease, and gasoline spots. A torch may be used to burn away any residual.
3. Apply oil spot primer with brush, roller or sprayer.
4. Allow to dry before sealcoating.
5. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for SealMaster Prep Seal or SealMaster Petro Seal.

**3.7 LINE BLOCK-OUT PAINT**

Specifier’s Notes: SealMaster Line Block-Out Paint should only be used when specifier is changing the pattern or lay-out of existing traffic markings. If pattern and lay-out of existing traffic markings will remain the same after applying sealcoating materials, then Line Block-Out Paint is not necessary.

1. Applying SealMaster Line Block-Out Paint
2. Remove all loose material and dirt from existing traffic markings.
3. Apply SealMaster Line Block-out paint with pressurized spray equipment, brush or roller.
4. Allow to dry before sealcoating.
5. Contractor or other Entity Responsible for performing work shall refer to Manufacturer’s Product Data Sheet for more detailed application instructions for SealMaster Line Block-Out Paint.

**3.8 POLYMER-MODIFIED MASTERSEAL (PMM) APPLICATION**

Specifier’s Notes: A minimum of two coats of Polymer-Modified MasterSeal is recommended for the entire pavement surface to be sealcoated. A third coat is recommended for all pavement areas that are subjected to high traffic including parking area entrances, exits and drive lanes. Specifier, through the use of additional diagrams or drawings, may also designate high traffic areas to receive a third coat.

1. Applying SealMaster Polymer-Modified MasterSeal
2. Remove all loose material and dirt from pavement surface. Remove grass along edge of pavement to find true edge of pavement. Power blowers, mechanical sweeping devices and push brooms are acceptable cleaning methods.
3. Equipment used to apply Polymer-Modified MasterSeal shall have continuous agitation or mixing capabilities to maintain homogeneous consistency of pavement sealer mixture throughout the application process. Spray equipment shall be capable of mixing and spraying pavement sealer with sand added. Self-propelled squeegee equipment with mixing capability shall have at least 2 squeegee or brush devices (one behind the other) to assure adequate distribution and penetration of sealer into pavement surface. Hand squeegees and brushes shall be acceptable in areas where practicality prohibits the use of mechanized equipment.
4. Polymer-Modified MasterSeal (PMM) shall be mixed in accordance with the following mix design (based on 100 gallons of PMM for ease of calculation):

* Polymer-Modified MasterSeal (PMM)………………….100 gallons
* Sand (40 to 70 mesh AFS fineness gradation)……….200-400 lbs.

Note: If required, a small amount of water may be added to facilitate application of mixed material.

1. Apply two coats of mixed PMM and Sand at a rate of .11 to .13 gallon per square yard per coat to entire pavement area. Allow first coat to dry thoroughly before applying second coat.
2. Apply a third coat of mixed PMM and Sand at a rate of .11 to .13 gallon per square yard to high traffic areas including parking area entrances, exits and drive lanes (or as specified in additional diagrams or drawings). Allow second coat to dry thoroughly before applying a third coat to these areas.
3. Allow final coat of pavement sealer to dry 24 hours prior to applying SealMaster 100 % Acrylic Water based Traffic Paint.

**3.9 TRAFFIC MARKINGS/LINE STRIPING**

Specifier’s Notes: Specifier should select between Option A. (SealMaster TT-P-1952B Traffic Paint-White or Yellow), Option B. (SealMaster Fast Dry Traffic Paint- White or Yellow), or Option C. (SealMaster Liquid Thermoplastic Traffic Paint- White or Yellow). These options represent a good (A), better (B), or best (C) approach to material selection. All materials are 100% Acrylic water-base.

With regards to Handicap parking stalls; a square section of handicap blue is applied and allowed to dry, followed by a white handicap symbol painted in the center of the blue area. Firelane Red Traffic Paint is designed to paint curbing designated as a fire zone (specifier should designate such areas).

1. Applying SealMaster Traffic Paint
2. Remove all loose material and dirt from existing pavement. Freshly applied pavement sealer shall be allowed to cure for a minimum of 24 hours prior to applying Traffic paint.
3. Apply SealMaster Traffic Paint with pressurized line striping spray equipment at wet thickness of 15 to 20 mils.
4. Apply SealMaster Handicap Blue to all handicap parking spots.
5. Apply SealMaster Firelane Red Traffic Paint to areas designated as Fire Zones (by specifier).
6. Allow paint to dry thoroughly prior to opening to traffic.

**END OF SECTION**