

Section 1080

1 (B) Elastomer Properties

2 The elastomer for all bearings shall be classified as Grade 3.

3 The shear modulus of the elastomer for laminated (reinforced) bearings shall be 160 psi,
4 unless otherwise noted in the plans.

5 Provide Grade 50 or Grade 60 durometer hardness elastomer in all (unreinforced)
6 bearings, unless otherwise noted in the plans.

7 (C) Testing

8 The optional test procedures of AASHTO M 251 are not required, except as specified
9 herein.

10 Determine the shear modulus of the elastomer for laminated (reinforced) bearings in
11 accordance with ASTM D4014.

12 At the Manufacturer's option, plain (unreinforced) bearings may be tested using the
13 methods of Appendices X1 and X2 of AASHTO M 251.

14 Test at least 2 bearings per lot or as directed by the Engineer. Define a "lot" as a group
15 of 100 or less bearings with or without holes or slots, which are:

16 (1) Manufactured in a reasonably continuous manner from the same batch of elastomer
17 and cured under the same conditions, and

18 (2) Of the same type (plain or laminated) and of similar size (no dimensions shall vary
19 by more than 40%).

20 A lot may include bearings from multiple projects and purchasers.

21 (D) Working Drawings

22 Submit 6 sets of detailed fabrication drawings of laminated (reinforced) bearings to the
23 Engineer for review, comments and acceptance. Show complete details and all material
24 specifications. Clearly identify any proposed deviations from details shown in the plans
25 or requirements of the Standard Specifications. Obtain drawing approval before
26 manufacturing of the bearings.

SECTION 1080

PAINT AND PAINT MATERIALS

27

28 1080-1 GENERAL

29 Deliver all paints except 2 component products to the project completely mixed and ready for
30 use without additional oil or thinner. Mix 2 component paints in accordance with the
31 manufacturer's printed instructions and shall not need additional oil or thinner upon mixing,
32 except where necessitated by weather conditions. Mixed paints or paint components that
33 harden or curdle in the container and will not break up with a paddle to form a smooth,
34 uniform consistency will be rejected. Any thinning necessitated by weather conditions shall
35 be approved in writing and use only those thinners approved by the manufacturer. Store all
36 paint materials in a moisture free environment between 40°F and 110°F or at such
37 temperatures within this range recommended by the manufacturer.

38 1080-2 PAINT VEHICLES, THINNERS AND DRIERS

39 Paint vehicles, thinners and dryers shall meet the requirements for these ingredients that are
40 included in the *Standard Specifications* for the paint being used. Only ingredients
41 recommended by the manufacturer which have a history of compatibility with each other may
42 be used.

1 1080-3 PACKING AND MARKING

2 Ship paint and paint materials in strong, substantial containers that are properly labeled and
3 plainly marked with the weight, color and volume in gallons of the paint content; a true
4 statement of the percentage composition of the pigment; the proportions of pigment to
5 vehicle; and the name and address of the manufacturer. Any package or container not so
6 marked as described above or exceeding 5 gallons total volume will not be accepted for use.

7 1080-4 INSPECTION AND SAMPLING

8 All paint will be sampled, either at the point of manufacture or at the point of destination.
9 Inspection and sampling will be performed at the point of manufacture wherever possible.
10 The Contractor shall not begin painting until the analysis of the paint has been performed, and
11 the paint has been accepted by the Engineer.

12 Use only pre-qualified inorganic zinc paint manufactured in accordance with the requirements
13 shown below.

14 Ensure the paint manufacturer submit the following at the same time to the State Materials
15 Engineer:

16 **(A)** A minimum one quart sample of each component of paint including the manufacturer's
17 name, location, product name, mixing instructions, batch number and MSDS.

18 **(B)** At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300.

19 **(C)** A certified test report from an approved independent testing laboratory as specified in
20 5.5.8 and 5.5.9 of AASHTO M 300.

21 **(D)** A certified report from an approved independent testing laboratory that the product has
22 been tested for slip coefficient and meets AASHTO M 253, Class B.

23 Use the same batch of paint for all samples and panels. The independent testing laboratory
24 Report may be for a typical batch of the same product. Submit samples and reports for
25 qualification at least 30 days in advance of anticipated need. Once qualified, a product will be
26 placed on North Carolina's approved list for 5 years unless the formulation of the product or
27 manufacturing process is changed, in which case the product shall be requalified before use.

28 The Materials and Tests Unit will conduct all tests of paints in accordance with the latest
29 ASTMs, Federal Test Method Standard No. 141 and various other methods in use.

30 1080-5 RED PRIMER PAINT**31 (A) Scope**

32 This Specification covers a long oil-alkyd primer paint for use on steel surfaces blast-
33 cleaned to a SSPC-SP 6 finish. The paint may be applied by brushing or spraying to
34 a wet film thickness of approximately 3 wet mils per coat.

35 (B) Materials

36 Materials shall be as specified herein. Materials not specified shall be selected by the
37 supplier and will be subject to all of the requirements of this Specification. Use paint
38 made of materials that are not toxic to personnel under normal conditions of use.

Section 1080

**TABLE 1080-1
PROPERTIES OF FOR RED PRIMER PAINT**

Property	Minimum	Maximum
Pigment % by Weight	53%	55%
Vehicle % by Weight	-	47%
Weight per Gallon	12.9 lb	-
Solids % by Volume	67.0%	-
Fineness of Grind Hegman Units	4.5	-
Moisture Content % by Weight	-	0.5
Skinning hrs (3/4 vol. in Closed Container)	48	-
Viscosity	85 KU	95 KU
Drying Time, Set to Touch	-	6 hrs
Drying Time, Dry Through	-	18 hrs
Adhesion ^A at 14 days (ASTM D3359)	3B	-
Volatile Organic Compounds per Gallon	-	2.8 lb

- 1 A. Prepare the specimen for the adhesion test by applying 2 dry mils of the coating
2 to a standard Q panel.

**TABLE 1080-2
COMPOSITION OF PIGMENTS FOR RED PRIMER PAINT, % BY WEIGHT**

Pigment	Minimum	Maximum
Zinc Hydroxy Phosphite	73%	-
Red Iron Oxide (86% Fe ₂ O ₃)	24%	-
Organo Montmorillonite	-	1%

**TABLE 1080-3
COMPOSITION OF VEHICLES FOR RED PRIMER PAINT, % BY WEIGHT**

Vehicle	Minimum	Maximum
Non-Volatile	62%	-
Alkyd Resin Solids Fed. Spec TT-4-266, Type 1, Class A	40%	-
Linseed Oil (ASTM D234)	20%	-
Linseed Oil to Alkyd Ratio	1.2%	-
Thinner and Dryer Thinner: Fed. Spec. TT-T291, Type 2 Gr. A Dryer: Fed. Spec. TT-D-643B	38%	-

1080-6 ALKYD FINISH PAINT

(A) Scope

This article covers a gray, long oil-alkyd primer paint for use over surfaces coated with Red Alkyd Primer Paint. The paint may be applied by brushing or spraying to a wet film thickness of approximately 3 wet mils per coat.

(B) Materials

Materials shall be as specified herein. Materials not specified will be selected by the supplier and be subject to all of the requirements of this Specification. Use paint made of materials which are not toxic to personnel under normal conditions of use.

**TABLE 1080-4
PROPERTIES OF ALKYD FINISH PAINT**

Property	Minimum	Maximum
Pigment % by Weight	47%	-
Vehicle % by Weight	-	54%
Weight per Gallon	11.0 lb	-
Solids % by Volume	54.0%	-
Fineness of Grind Hegman units	6.0	-
Moisture Content % by Weight	-	0.5
Skinning hrs (3/4 vol. in Closed Container)	48	-
Viscosity	90 KU	100 KU
Drying Time, Set to Touch	-	6 hrs
Drying Time, Dry Through	-	18 hrs
Adhesion ^A at 14 days (ASTM D3359)	3B	-
Volatile Organic Compounds per Gallon	-	3.5 lb
Lead Content % by Weight Dry Film	-	0.05%
Color (Federal Color Standard 595)	26622 (Gray)	-

1
2

- A.** Prepare the specimen for the adhesion test by applying 2 dry mils of the coating to a standard Q panel.

**TABLE 1080-5
COMPOSITION OF PIGMENTS FOR ALKYD FINISH PAINT,
% BY WEIGHT**

Pigment	Minimum	Maximum
Zinc Hydroxy Phosphite ASTM D4462	20%	-
Titanium Dioxide ASTM D476 TY-II	50%	-
Magnesium Silicate	15%	-
Tinting and Inert Pigments	-	12%

**TABLE 1080-6
COMPOSITION OF VEHICLES FOR ALKYD FINISH PAINT,
% BY WEIGHT**

Vehicle	Minimum
Non-Volatile	62%
Alkyd resin solids	40%
Fed. Spec TT-4-266, Type 1, Class A	
Linseed oil (ASTM D234)	20%
Linseed oil to Alkyd ratio	1.2%
Thinner and Dryer	38%
Thinner: Fed. Spec. TT-T291, Type 2 Gr. A	
Dryer: Fed. Spec. TT-D-643B	

3 **1080-7 SELF-CURING INORGANIC ZINC PAINT**

4 Use a self curing inorganic zinc paint meeting the Type I Inorganic Zinc Primer paint
5 specified in AASHTO M 300 and the following:

6 **(A)** Use mixed paint with zinc content of not less than 72% by mass of the total solids.

7 **(B)** The slip coefficient meets AASHTO M 253, Class B.

8 **(C)** The adhesion shall be no less than 400 psi in accordance with ASTM D4541.

9 **(D)** Cure the paint to meet the solvent rub requirements in ASTM D4752.

10 **(E)** Formulate the paint to produce a distinct contrast in color with the blast cleaned metal
11 surfaces and with the finish paint.

Section 1080

1 **1080-8 COAL TAR EPOXY PAINT**

2 Use coal tar epoxy paint meeting SSPC-Paint 16.

3 **1080-9 ORGANIC-ZINC REPAIR PAINT**

4 Use organic-zinc repair paint meeting SSPC-Paint 20 Type II or Federal
5 Specification TT-P-641. Organic-zinc repair paint is not tinted and is applied 3 to 4 wet mils
6 of paint per coat. Do not use zinc paint in aerosol spray cans.

7 **1080-10 WASH PRIMER PAINT**

8 Use wash primer paint meeting SSPC-Paint 27.

9 **1080-11 WATERBORNE PAINTS**

10 **(A) Paints**

11 (1) Waterborne Primer Paints

12 The chemical requirements of the brown and white primer paints are specified in
13 Tables 1080-7 through 1080-10. Use primer paints on roughened steel surfaces
14 cleaned to an SSPC-SP 6 finish. Two coats of paint are required to form an effective
15 primer coat. The first coat is brown and the second is white. Each coat is applied at
16 a wet film thickness of approximately 6 mils.

17 (2) Waterborne Finish Paints

18 The chemical requirements of the gray and green finish paints are specified in
19 Tables 1080-11 through 1080-14. Apply finish paints over compatible primer paints.
20 Apply either one or 2 coats at a wet film thickness of approximately 6 mils each to
21 produce an effective finish coat.

22 **(B) Description**

23 The acrylic paints furnished in accordance with this Specification are one component
24 products made from acrylic resins with sufficient additives, coalescing agents, solvents
25 and pigmentation to produce a durable paint.

26 These products are intended for brush, roller or spray application applied in accordance
27 with SSPC-PA 1.

28 **(C) Composition**

29 Use ingredients and proportions as specified in Tables 1080-7 through 1080-14. Do not
30 use Chrome Green.

31 Provide raw materials based on the specified ingredients that are uniform, stable in
32 storage, and free from grit and coarse particles. Do not use rosin or rosin derivatives.
33 Beneficial additives such as anti-skinning agents, suspending agents or wetting aids are
34 allowed.

35 **(D) Properties**

36 (1) General

37 Use both Type I and II paints that meet Tables 1080-7 through 1080-14.

38 (2) Odor

39 Normal for the materials permitted in accordance with ASTM D1296.

- 1 (3) Color
- 2 (a) Waterborne Primer Paint
- 3 The color before and after weathering when compared with Federal Test Method
4 Standard No. 595B is Brown #30045 for Type I. There are no color
5 requirements for the white primer.
- 6 (b) Waterborne Finish Paint
- 7 The colors before and after weathering when compared with Federal Test
8 Method Standard No. 595B are Green #24108 for Type I and Gray #26622 for
9 Type II.
- 10 (4) Working Properties
- 11 Use a paint that is easily applied by brush, roller or spray when tested in accordance
12 with Federal Test Method Standard No. 141, Methods 4321, 4331 and 4541. Ensure
13 that the paint shows no streaking, running or sagging during application or while
14 drying.
- 15 (5) Condition In Container
- 16 Ensure that the paint shows no thickening, curdling, gelling or hard caking when
17 tested as specified in Federal Test Method Standard No. 141, Method 3011, after
18 storage for 6 months from the date of delivery, in a full, tightly covered container, at
19 a temperature of 50°F to 110°F.
- 20 (6) Skinning
- 21 No skinning is allowed in a 3-quarters filled closed container after 48 hours when
22 tested in the standard manner specified in Federal Test Method Standard No. 141,
23 Method 3021.
- 24 (7) Salt Contamination
- 25 Minimize the content of salt contamination by the incorporation of only high purity
26 materials. Ensure that the specific resistance of the aqueous leachate of the
27 composite of the pigments in required proportions is at least 5,000 ohm-cm when
28 tested in accordance with ASTM D2448.
- 29 (8) Early Rust Resistance
- 30 Provide each type of paint that meets the early rust requirements specified in
31 Materials and Tests Standards CLS-P-1.0.
- 32 (9) Directions For Use
- 33 Supply the following directions for use with each container of paint:
- 34 Waterborne primer paint is intended for use as a primer over rough, bare structural
35 steel. It is not intended for use over other paint systems. Waterborne finish paint is
36 intended for use as a topcoat over a compatible primer in atmospheric exposure. Mix
37 the paint thoroughly before use. For roller, brush or airless spray application, no
38 thinning should be necessary. A minimum amount of thinning may be necessary for
39 conventional air spray. Apply by brush or spray to the specified film thickness, or if
40 none is specified, to at least 2 mils dry or approximately 6 mils wet. Dry the surface
41 to be painted and ensure that the surface temperature is at least 5°F above the dew
42 point, the humidity is less than 85%, and the temperature of the air is over 50°F. Do
43 not paint outdoors in rainy weather or if freezing temperatures are expected before
44 the paint dries. Allow the paint at least 24 hours drying time before recoating.

Section 1080

1 (E) Inspection

2 All materials supplied under this Specification are subject to random inspection by the
3 Department.

4 Supply samples of any or all ingredients used in the manufacture of this paint, along with
5 the supplier's name and identification for the material when requested.

6 (F) Volatile Organic Compound (VOC) Content

7 Ensure that the VOC content after formulation, but before thinning, complies with the
8 VOC limit for the applicable coatings category per Federal regulations. Notify the
9 coating specifier if State or local regulations reduce the maximum VOC content
10 permitted for coatings applied in a specific locality.

11 (G) Color Variation

12 A color variation of 5 Δe units from the specified color will be acceptable. After
13 3 months weathering, the color shall not vary more than 5 Δe units from the original color
14 value.

**TABLE 1080-7
COMPOSITION OF PIGMENTS FOR WATERBORNE PRIMER PAINTS,
% BY WEIGHT**

Characteristics	Minimum	Maximum	Test Method
<u>PIGMENT CONTENT:</u>			
Type I (Brown)	20%	25%	ASTM D3723
Type II (White)	35%	40%	ASTM D3723
<u>VOLATILES:</u>			
Type I (Brown)	-	2.0 lb/gal	ASTM D2369
Type II (White)	-	2.0 lb/gal	ASTM D2369
Coarse Particles and Skins, as Retained on Std. 325 Mesh Screen	-	0.5%	ASTM D185
Rosin or Rosin Derivatives	-	0	ASTM D1542

**TABLE 1080-8
COMPOSITION OF PIGMENTS FOR WATERBORNE PRIMER PAINTS,
% BY WEIGHT**

Pigments	Type I (Brown)		Type II (White)		Test Method
	Minimum	Maximum	Minimum	Maximum	
<u>MAJOR PIGMENTS:</u>					
Pigments	20%	25%	35%	40%	ASTM D3723
Calcium Carbonate	-	-	30%	-	ASTM D1159
Magnesium Silicate	-	-	-	12%	ASTM D605
Titanium Dioxide	-	-	45%	-	ASTM D476, Type II
Zinc Phosphate	10%	-	10%	-	NCDOT M&T P-10
Iron Oxide	45%	-	-	-	ASTM D3721
<u>TINTING PIGMENTS:</u>					
Lamp Black	-	-	2%	-	ASTM D209
Phthalocyanine Pigments	-	-	-	2%	ASTM D1135 and D3256
Acid Soluble Pigments ^A	-	-	-	0	-
Lead	-	0.005%	-	0.005%	-

1 A. Use a 5% acetic acid solution with a pH 4 + 2 to determine solubility.

**TABLE 1080-9
COMPOSITION OF VEHICLES FOR WATERBORNE PRIMER PAINTS,
% BY WEIGHT**

Vehicle	Type I (Brown)		Type II (White)		Test Methods
	Minimum	Maximum	Minimum	Maximum	
Total Vehicle	73%	80%	60%	65%	NCDOT M&T P-10
HG-56 ^A Solids	30%	-	30%	-	-
Water	-	55%	-	55%	-
Methyl Carbitol	5%	-	5%	-	-
Texanol	2%	-	2%	-	-

2 A. Or approved equivalent.

Section 1080

TABLE 1080-10 PROPERTIES OF WATERBORNE PRIMER PAINTS			
Property	Minimum	Maximum	Test Method
Consistency ^A Shear Rate 200 rpm, Ounces	255	350	ASTM D562
Consistency ^A Shear Rate 200 rpm, Krebs units	3.2	3.5	ASTM D562
Density, lb/US gal, Type I (Brown)	9.7	-	ASTM D1475
Density, lb/US gal., Type II (White)	11.0	-	ASTM D1475
Fineness of Grind, Hegman Units	5.0	-	ASTM D1210
Drying Time, Hours, Tack Free	-	3	ASTM D1640
Drying Time, Hours, Dry Hard	-	24	ASTM D1640
Flash Point, °F	Report Value	Report Value	ASTM D3278
Early Rust	9	-	NCDOT M&T CLS-P-1.0
Leneta Sag Test	10+	-	-
Gloss, Specular @ 60°	Report Value	Report Value	-
pH	8.0	8.5	-
Adhesion ^B	4B	-	ASTM D3359
Color, Fed. Std. 595B, Type I (Brown)	30045	-	ASTM D2244
Color, Fed. Std. 595B, Type II (White)	NA	-	ASTM D2244

- 1 **A.** Consistency 48 hours or more after manufacture.
- 2 **B.** Prepare the specimen for adhesion by applying 2 dry mils of coating to
- 3 a 3" x 5" x 0.25" steel panel cleaned to a minimum SSPC-SP 6 finish with
- 4 a 1.7 + 0.5 mil profile.

Characteristics	Minimum	Maximum	Test Method
<u>PIGMENT CONTENT:</u>			
Type I (Green)	13%	17%	ASTM D3723
Type II (Gray)	13%	17%	ASTM D3723
<u>VOLATILE:</u>			
Type I (Green)	-	2.0 lb/gal	ASTM D2369
Type II (Gray)	-	2.0 lb/gal	ASTM D2369
Coarse Particles and Skins, as Retained on Std. 325 Mesh Screen	-	0.5%	ASTM D185
Rosin or Rosin Derivatives	-	0%	ASTM D1542-93

Pigment	Type I(Green)		Type II (Gray)		Test Method
	Minimum	Maximum	Minimum	Maximum	
<u>MAJOR PIGMENTS:</u>					
Pigments	13%	17%	13%	17%	ASTM D3723
Calcium Carbonate	-	-	-	-	ASTM D1159
Magnesium Silicate	-	-	-	-	ASTM D605
Titanium Dioxide	5%	-	70%	-	ASTM D476, Type II
Zinc Phosphate	10%	-	10%	-	NCDOT M&T P-10
<u>TINTING PIGMENTS:</u>					
Lamp Black	-	-	-	-	ASTM D209
Phthalocyanine Green	0%	-	0%	-	ASTM D3021
Red Iron Oxide	-	-	-	-	ASTM D3721
Yellow Iron Oxide	-	-	-	-	ASTM D768
Acid Soluble Pigments ^A	-	-	-	0%	-
Lead	-	0.005%	-	0.005%	-

1

A. Use a 5% acetic acid solution with a pH 4 + 2 to determine solubility.

Section 1080

TABLE 1080-13 COMPOSITION OF VEHICLES FOR WATERBORNE FINISH PAINTS, % BY WEIGHT					
Vehicle	Type I	Green	Type II	Gray	Test Method
	Minimum	Maximum	Minimum	Maximum	
Total Vehicle	83%	87%	83%	87%	NCDOT M&T P-10
HG-56 ^A Solids	30%	-	30%	-	-
Water	-	58%	-	58%	-
Methyl Carbitol	5%	-	5%	-	-
Texanol	4%	-	4%	-	-

1 A. Or approved equivalent.

TABLE 1080-14 PROPERTIES OF WATERBORNE FINISH PAINTS			
Property	Minimum	Maximum	Test Methods
Consistency ^A Sheer Rate 200 rpm, Ounces	255	350	ASTM D562
Consistency ^A Sheer Rate 200 rpm, Krebs Units	90	100	ASTM D562
Density, lb/US gal, Type I (Brown)	9.35	-	ASTM D1475
Density, lb/US gal, Type II (White)	9.35	-	ASTM D1475
Fineness of Grind, Hegman Units	5.0	-	ASTM D1210
Drying Time, Hours, Tack Free	-	3	ASTM D1640
Drying Time, Hours, Dry Hard	-	24	ASTM D1640
Flash Point, °F	Report Value	Report Value	ASTM D3278
Early Rust	9	-	NCDOT M&T CLS-P-1.0
Leneta Sag Test	10+	-	-
Gloss, Specular @ 60°	40	-	-
pH	8.0	8.5	-
Adhesion ^B	4B	-	ASTM D3359
Color, Fed. Std. 595B, Type I (Green)	24108	-	ASTM D2244
Color, Fed. Std. 595B, Type IB (NC Green)	24272	-	ASTM D2244
Color, Fed. Std. 595B, Type II (Gray)	26622	-	ASTM D2244

2 A. Consistency 48 hours or more after manufacture.

3 B. Prepare the specimen for adhesion by applying 2 dry mils of coating to
4 a 3" x 5" x 0.25" steel panel cleaned to at least a SSPC-SP 6 finish with
5 a 1.7 + 0.5 mil profile.

1 **1080-12 PAINT FOR VERTICAL MARKERS**

2 For vertical markers, use a waterborne acrylic or alkyd type material meeting Table 1080-15.
 3 Apply sufficient paint to completely cover the color of the underlying substrate along with
 4 any surface imperfections.

TABLE 1080-15		
PROPERTIES OF PAINT FOR VERTICAL MARKERS		
Property	Requirement	Test Method
Color	# 27040 Black or # 13538	Federal Color Std. 595
Adhesion to Substrate	3A Min.	ASTM D3359

5 **1080-13 ABRASIVE MATERIALS FOR BLAST CLEANING STEEL**

6 Select the gradation of the abrasive to impart the anchor profile specified.

7 **(A) Expendable Abrasive**

8 Use blasting abrasives with a suitable steel or mineral abrasive containing no more than
 9 100 ppm of any corrosive compound such as sulfate or chloride or 100 ppm of any
 10 EPA characteristic waste compound such as lead, chromium or arsenic.

11 **(B) Recyclable Steel Grit**

12 Use abrasives that when sampled at any time during the blasting process, contain no more
 13 than 100 ppm of any corrosive compound such as sulfate or chloride or 1,000 ppm of any
 14 EPA characteristic waste compound such as lead, chromium or arsenic. Maintain the size
 15 and shape of the abrasive to impart the specified profile.

16 **1080-14 FIELD PERFORMANCE AND SERVICE**

17 Do not use paint products inspected by the Engineer and found to exhibit poor performance in
 18 similar North Carolina environments. Poor performance is defined as any coating failing to
 19 meet ASTM D610, Grade 5, or having greater than 3% rusting or disbonding before attaining
 20 5 years of service.

21 **SECTION 1081**
 22 **EPOXY AND ADHESIVES**

23 **1081-1 EPOXY RESIN SYSTEMS**

24 **(A) Classification**

25 The types of epoxies and their uses are as shown below:

26 **Type 1** - A low-modulus, non-sag gel adhesive used to bond or repair damp, vertical or
 27 overhead surfaces. Typical applications include walls, concrete foundations, concrete
 28 pipe, conduit and ceilings.

29 **Type 2** - A low-modulus, general-purpose adhesive used in epoxy mortar repairs and
 30 broadcast sand sealing operations. Bridge Maintenance uses it as both a primer coat and
 31 thickness-building second coat in 2-stage sand broadcast operations to seal and skid-
 32 proof bridge decks. As a repair material, it may be used to patch spalled, cracked or
 33 broken concrete where vibration, shock or expansion and contraction is expected.
 34 Feather-edged patching is not recommended with this material; instead, the adjacent
 35 concrete perimeter should be sawed at least 1/4" to 1/2" deep and any remaining concrete
 36 chipped away to provide a vertical interface between the epoxy mortar and concrete.

37 **Type 3** - A high-modulus general-purpose adhesive used to bond plastic concrete or
 38 hardened concrete to hardened concrete or other structural materials. It may be used to
 39 produce a high-strength epoxy mortar grout bed for equipment or to patch interior spalls,
 40 cracks or broken concrete. It is not recommended for exterior patching because its rate of