

Chem**LINE**[®]

Surface Preparation Guide for Concrete Substrates, Floors and Secondary Containment prior to the installation of ChemLine Coatings



“Performance without Compromise”

1.0 Scope

- 1.1 This document is a surface preparation guide for concrete surfaces, floors and secondary containment prior to the application of ChemLine coatings systems. The purpose of this document is to outline the steps for preparing concrete surfaces and repair associated defects before the final coating systems is applied.
- 1.2 The application procedures described herein provide the best available information regarding the application of Advanced Polymer Coatings products for the purpose of ensuring the best possible results when using the products.

2.0 General Notes

- 2.1 Apply only to clean, dry and sound concrete substrates that are free of all coatings, sealers, curing compounds, oils, greases or any other contaminants.
- 2.2 New concrete should be cured a minimum of 28 days per ASTM C309
- 2.3 Concrete that has been contaminated with chemicals or other foreign matter must be neutralized or removed
- 2.4 Remove any laitance or weak surface layers.
- 2.5 Concrete should have minimum surface tensile strength of at least 300 PSI per ASTM D 4541
- 2.6 Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60 grit sandpaper.
- 2.7 Prepare surface by mechanical means to achieve this desired profile.
- 2.8 Moisture vapor transmission should be 3 pounds or less per 1,000 square feet over 24 hour time period, as confirmed through a calcium chloride test, as per ASTM E-1907. Quantitative relative humidity (RH) testing, ASTM F-2170, should confirm that concrete RH results <75%
- 2.9 All surface irregularities, cracks, expansion joints and control joints should be properly addressed prior to application of ChemLine.
- 2.10 Concrete or similar surfaces (e.g., overlays, bricks, masonry blocks) to be coated must be sound and possess adequate surface strength in order to survive surface preparation and to maintain adhesion between the coating and the substrate when subjected to stresses from the curing process, thermal movement and physical use.
- 2.11 Areas to be coated shall be adequately illuminated. When working in an enclosed area, use safety/explosion proof lighting.
- 2.12 For enclosed areas, install adequate ventilation system in order to maintain an optimum air flow level to draw off the solvents in order to properly cure the ChemLine materials.
- 2.13 Deteriorated joints must be reformed using appropriate concrete repair materials. The type of product and method of repair is dependent on the extent of deterioration. Contact the Technical Services Department at Advanced Polymer Coatings for more information and approval of such products.
- 2.14 Care must be exercised when water jetting at high pressures so that the concrete surface is not damaged by excessive blasting.
- 2.15 Exercise caution when using a floor vacuum blasting device, e.g., Blastrac to prepare the concrete surface, remember that concrete damage results if the blasting machine remains in one spot too long or improper steel shot is used.
- 2.16 Hydrostatic pressure created by ground water or other sources will make it impossible for ChemLine materials to adhere to the concrete. Remedial repairs must be made by the OWNER to eliminate this problem.

- 2.17 ChemLine materials shall be stored in a “climate controlled” container, room or building that is weatherproof and maintained at temperatures between 70-80F for a minimum of 48 hours prior to use. ChemLine Primer and ChemLine finishes can be applied by brush, roller or spray.
- 2.18 Use a 3/8” nap, phenolic core solvent resistant roller or solvent resistant brush if applying ChemLINE coatings by roller or brush.
- 2.19 Patching materials may be applied by trowel / squeegee. Spraying products is preferred for the best results on concrete. Rolling and to a lesser extent brushing may not cover all pinholes because trapped air inside the pinholes may lead to “outgasing” which creates coating pinholes. Be sure to read all application instructions and safety data sheets prior to handling and applying any of the ChemLine materials. Follow all ChemLine product application instructions for each material.
- 2.20 **Prior to use, submit datasheets and MSDS sheets for any fluoroelastomer caulk and / or polymer based concrete repair materials to APC Technical Service department for review and approval for use for the project application.**

3.0 REFERENCE DOCUMENTS

- 3.1 **ASTM C811** Standard Practice for Surface Preparation of Concrete for Application of Chemical Resistant Mortars, Grouts and Monolithic Surfaces
- 3.2 **ASTM D4258** Standard Practice for Surface Cleaning Concrete for Coating
- 3.3 **ACI 302.1R** Guide to Concrete Slab and Floor Construction
- 3.4 **ACI 504R** Guide for Joint Sealants for Concrete Structures
- 3.5 **ASTM D512** Test Methods for Chloride Ions in Water
- 3.6 **ASTM C309** Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- 3.7 **ICRI** (International Concrete Repair Institute) standard guideline #03732 for coating concrete CSP3-CSP5

4.0 CONCRETE SURFACE PREPERATION – SURFACE CONDITIONS

- 4.1 **Description of Concrete Surfaces**
- 4.2 Concrete is clean, sound with no chemical attack or contamination. The surface profile is rough and similar to medium grit sandpaper. Method 1 is the recommended surface preparation procedure (see Section 5.2).
- 4.3 Concrete is clean, sound with no chemical attack or contamination with smooth steel troweled surface. Method 2 is the recommended surface preparation procedure (see Section 5.3).
- 4.4 Concrete surface is smooth or rough and contaminated with alkalis. Method 3 is the recommended surface preparation procedure (see Section 5.4).
- 4.5 Concrete surface is smooth or rough and contaminated with acids. Method 4 is the recommended surface preparation procedure (see Section 5.5).
- 4.6 Concrete surface is smooth or rough and contaminated with oils, greases, fats or concrete sealants. Method 5 is the recommended surface preparation procedure (see Section 5.6).
- 4.7 Concrete is severely worn, exposing aggregate over large areas. Resurfacing is limited to layers of less than one inch, which is needed to restore grade or to improve drainage. Method 6 is the recommended surface preparation procedure (see Section 5.7).
- 4.8 Concrete is severely worn, exposing aggregate in localized areas. Restoration requires various thicknesses of patching material. Method 7 is the recommended surface preparation procedure (see Section 5.8)

- 4.9 Concrete surface contains bug holes, minor cracks, damage, ruts and/or interfaces that are confined to localized areas. Method 8 is the recommended surface preparation procedure (see Section 5.9).
- 4.10 Concrete surface (i.e., floor) contains large cracks and/or expansion joints. Method 9 is the recommended surface preparation procedure (see Section 5.10).

5.0 CONCRETE SURFACE PREPERATION – REPAIR METHODS

5.1 Repair Methods

5.2 METHOD 1

- 5.2 **Description:** New concrete surface was finished with hand float or float blades on finishing machine. Concrete has been floated so the surface is rough. The surface shall be free of chemical contamination or attack, but the surface is rough and sound. Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60 grit sandpaper.

Procedure:

- (1) Remove protrusions or lumps with a chisel or similar tool;
- (2) Vacuum floor to remove loose dirt and debris;
- (3) Depending on the age of the concrete and the environmental conditions, laitance and carbonation products may be present; these layers must be removed before coating, which may require water jetting with high pressure water (12,000-20,000 psi) or a sweep blast with silica sand or similar abrasive; otherwise in the absence of these layers, a pressure wash of 2,000-3,000 psi shall be used to clean the surface. When pressure washing, it is recommended that warm distilled or demineralized water be used
- (4) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 as outlined in the appropriate Application Procedures.

5.3 METHOD 2

Description:

New concrete surface has a smooth, steel troweled finish or old concrete that is free of chemical contamination and has a smooth surface. Slight attack of the concrete is tolerable, i.e., a surface that does not exhibit large amounts of exposed aggregate, does not contain large holes or ruts, or is excessively porous. In addition, the concrete is otherwise clean and sound.

Procedure:

- (1) Prepare the surface by mechanical means to roughen the surface and remove carbonation layer, laitance and other contaminants. Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60 grit sandpaper.
- (2) Vacuum surface to remove dust, abrasive and other debris;
- (3) Pressure wash (2,000-3,000 psi) with clean, warm water as needed to further clean the surface. It is recommended that distilled or demineralized water be used for pressure washing
- (4) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 as outlined in the appropriate Application Procedures.

5.4 METHOD 3

Description:

Concrete is old and contaminated with alkalis. The surface may be smooth or rough.

Procedure:

- (1) Remove alkalis by steam cleaning or flushing surface with clean, warm high pressure water (2,000-3,000 psi). It is recommended that distilled or demineralized water be used for pressure washing
- (2) Scrub surface with a sodium bisulfate solution. Use power-scrubber with rotary wire brush or use steel-bristle brush for scrubbing by hand. Remove all loose concrete, including loose aggregate (**NOTE:** Muriatic acid can be used to lower pH; however, complete removal by flushing of the acid is imperative.);
- (3) Flush with clean high-pressure (2,000-3,000 psi) water. Check pH of the surface. The pH should be between 6.5-8.5;
- (4) Repeat steps 2 and 3 if pH remains above 8.5;
- (5) Dry thoroughly before coating;
- (6) If the surface is smooth, roughen surface as outlined in Method 2; and
- (7) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 as outlined in the appropriate Application Procedures.

5.5 METHOD 4

Description:

Concrete is contaminated with acids. The surface may be smooth or rough.

Procedure:

- (1) Flush concrete surface with clean, warm high pressure water (2,000-3,000 psi). It is recommended that distilled or demineralized water be used for pressure washing;
- (2) Broadcast powdered soda ash or trisodium phosphate on the concrete surface and wet it down with warm water;
- (3) Scrub surface vigorously with a steel-bristle brush to clean and neutralize the surface, and to remove all loose concrete and aggregate;
- (4) Allow neutralizing solution to stand for 10-15 minutes or longer as needed;
- (5) Rinse surface with liberal amounts of clean, warm water;
- (6) Check the pH, it should be between 6.5 and 8.5. If the pH is below 6.5, repeat procedure until the desired pH is reached;
- (7) If the surface is smooth, roughen surface as outlined in Method 2;
- (8) Make appropriate repairs to deteriorated concrete; and
- (9) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 as outlined in the appropriate Application Procedures.

5.6 METHOD 5

Description:

Concrete surface is smooth or rough and contaminated with oils, greases, fats or concrete sealants.

Procedures:

- (1) Pressure wash (2,000-3,000 psi) with clean, warm detergent/degreasing solution. It is recommended that distilled or demineralized water be used for pressure washing. Steam cleaning or solvent scrubbing are also possible methods of removing oils and greases;
- (2) Prepare the surface by mechanical means to roughen the surface and remove carbonation layer, laitance and other contaminants. Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60 grit sandpaper.
- (3) Vacuum surface to remove dust, abrasive and other debris;

- (4) Pressure wash as needed and dry surface before overcoating with ChemLine Primer and ChemLine 784/32
- (5) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 as outlined in the appropriate Application Procedures.

5.7 METHOD 6

Vertical and Overhead Repairs

Description:

Concrete is old and severely worn so that resurfacing is required. Resurfacing of vertical and overhead surfaces of 1/4 to 4" in thickness can be accomplished by using quick setting polymer concrete repair material designed for vertical and overhead areas.

Procedure:

- (1) Remove weak concrete, including loose aggregate;
- (2) Flush area to be repaired with clean, warm high pressure water (2,000-3,000 psi);
- (3) If old concrete is contaminated, use appropriate procedures as outlined in Methods 3 or 4 to clean and neutralize the area to be repaired;
- (4) Follow concrete repair material manufacturer's instructions.
- (5) Prepare surface of sound concrete, contaminated or otherwise, as outlined in Methods 1-4
- (6) Ensure that the repaired surface is clean and dry before applying the ChemLine Primer and ChemLine 784/32 coating system
- (7) Once the surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 coating system as outlined in the appropriate application procedures.

Horizontal Repairs

Description:

Concrete is old and severely worn so that resurfacing is required over a large area. Resurfacing can be accomplished by using a quick setting polymer concrete repair material.

Procedure:

- (1) Remove weak concrete, including loose aggregate;
- (2) Flush area to be repaired with clean, warm high pressure water (2,000-3,000 psi)
- (3) Repair localized areas with quick setting polymer based concrete repair material according to manufacturer's instructions.
- (4) Prepare surface of sound concrete, contaminated or otherwise, as outlined in Methods 1-4;
- (5) Thoroughly dry repair area
- (6) Ensure that repaired surface is clean and dry before applying ChemLine Primer and ChemLine 784/32 coating system.
- (7) Once the surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 coating system as outlined in the appropriate application procedures.

5.8 METHOD 7

Description:

Concrete is severely worn and requires resurfacing and repair in localized areas. Deterioration requires a thickness of patching material from ¼" to 1" thickness.

Procedure:

Resurfacing of thickness up to 1" can be accomplished by using ChemLine Caulk.

- (1) Remove weak concrete, including loose aggregate;
- (2) Flush area to be repaired with clean, warm high pressure water (2,000-3,000 psi)
- (3) If old concrete is contaminated, use appropriate procedures as outlined in Methods 3 or 4 to clean and neutralize the area to be repaired (also areas to be coated or lined);
- (4) Thoroughly dry repair area;
- (5) Repair localized areas with ChemLine Caulk according to ChemLine Caulk instructions.
- (6) Prepare the surface of the sound concrete, as outlined in Methods 1-4 above.
- (7) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 coatings as outlined in the appropriate Application Procedures.

5.9 METHOD 8

Description:

Concrete is old or new and contains bugholes, or for concrete that contains other small damaged areas.

Procedure:

Fill all small existing bugholes, ruts, small cracks, drilled holes and other small damaged areas using ChemLINE Putty.

- (1) Remove weak concrete, including loose aggregate from inside and around damaged areas;
- (2) Flush area to be repaired with clean, warm high pressure water (2,000-3,000 psi) water. It is recommended that distilled or demineralized water be used for pressure washing;
- (3) If old concrete is contaminated, use appropriate procedures as outlined in Methods 2-4 to clean and neutralize the damaged area and surrounding areas to be repaired;
- (4) Blow out holes/damaged areas with oil-free air in order to dry and remove loose debris;
- (5) Repair localized areas with ChemLINE Putty according to ChemLINE Putty instructions.
- (6) Once surface is properly prepared, apply ChemLine Primer and ChemLine 784/32 coatings as outlined in the appropriate Application Procedures

5.10 METHOD 9

Description:

Concrete surfaces that contain large cracks or control and isolation joints. Cracks should have widths that are greater than 1/8".

Procedure:

Remove weak concrete, including loose aggregate from inside and around cracks and joints

NOTE: Deteriorated joints must be reformed using appropriate concrete repair materials. The type of product and method of repair is dependent on the extent of deterioration. Contact the Technical Services Department at Advanced Polymer Sciences for more information.

- (1) Flush area to be repaired with clean, warm high pressure water (2,000-3,000 psi);

- (2) If old concrete is contaminated, use appropriate procedures as outlined in Methods 3 or 4 to clean and neutralize the damaged area and surrounding areas to be repaired;
- (3) Blow out cracks and joints with oil-free air in order to dry and remove loose debris;
- (4) Apply thin coat of GuardLine by brushing inside surfaces of the crack or joint, and at least 8" back from the crack or (control or isolation) joint
- (5) For deep cracks apply backing rod at base of joint leaving ½' depth minimum
- (6) Fill the crack with with ChemLine Putty material. ChemLine Putty can be applied at thicknesses to 40 mils. Additional lifts can be applied after the material has reached a "B" stage.

6.0 Control Joints, Isolation Joints, Expansion Joints

It is recommended that existing expansion joint material be removed in its entirety, and that the joint edges of the concrete surface be as clean as possible. This can be accomplished by using a concrete saw (wet/dry), or other mechanical means, and by cutting into the existing joint at a minimum depth of 1". It is recommended that the width of the saw cut be able to completely remove the existing joint material.

Some existing concrete surfaces may have fiberglass or other reinforced materials applied directly over the expansion joint. It is recommended that the applicator sawcut the joint only, and allow the existing reinforcement to remain within the coating system, provided the reinforcement is in good condition. In the event the materials are loose, wrinkled, lifting, etc., it is then recommended that these areas be removed and repaired according to the floor coating specification.

6.1 Expansion Joints and Control Joints – flat surfaces

- Prepare joint surfaces by water jetting or abrasive blasting to remove remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer, brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Flouroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Flouroelastomer caulk.
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 1

6.2 Expansion Joint and Control Joint – flat surfaces – countersunk

- Saw cut 1/8" groove 3" on either side of the joint
- Prepare joint surfaces by water jetting or abrasive blasting to remove concrete 3" concrete surface to saw cut, any remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer, brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Flouroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Flouroelastomer caulk.

- Apply a basecoat of ChemLiner784/32 to expansion joint and minimum 2" on adjacent vertical and horizontal surfaces at 4-5 wet mils. Allow to dry 4-6 hours at 77F
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Apply ChemLine Caulk to fill remaining counter sunk surface. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 2

6.3 Wall to Floor Expansion joint, perimeter expansion joint, tank/equipment foundation pads

- Prepare joint surfaces and adjacent horizontal and vertical surfaces by water jetting or abrasive blasting to remove remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer, brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Fluoroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Fluoroelastomer caulk within 1/4" of top of the joint.
- Apply a basecoat of ChemLiner784/32 to expansion joint and minimum 2" on adjacent vertical and horizontal surfaces at 4-5 wet mils. Allow to dry 4-6 hours at 77F
- Apply ChemLine Caulk to fill remaining expansion and create a minimum 2" radius fill on horizontal and vertical surfaces. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 3

6.4 Sealing Pipe stands and pedestals

- Abrasive blast clean steel surfaces to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4" vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 "B" stage curing recommendations for other times/temperatures)
- Fill vertical to horizontal areas using ChemLine Caulk creating a minimum 2" radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 4

6.5 Sealing Tank Ring Edges

- Abrasive blast clean steel surfaces to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4” vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 “B” stage curing recommendations for other times/temperatures)
- Fill all corners and flange areas using ChemLine Caulk creating a minimum 2” radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3”-4” wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 5

6.6 Pipe – Concrete Wall Procedures

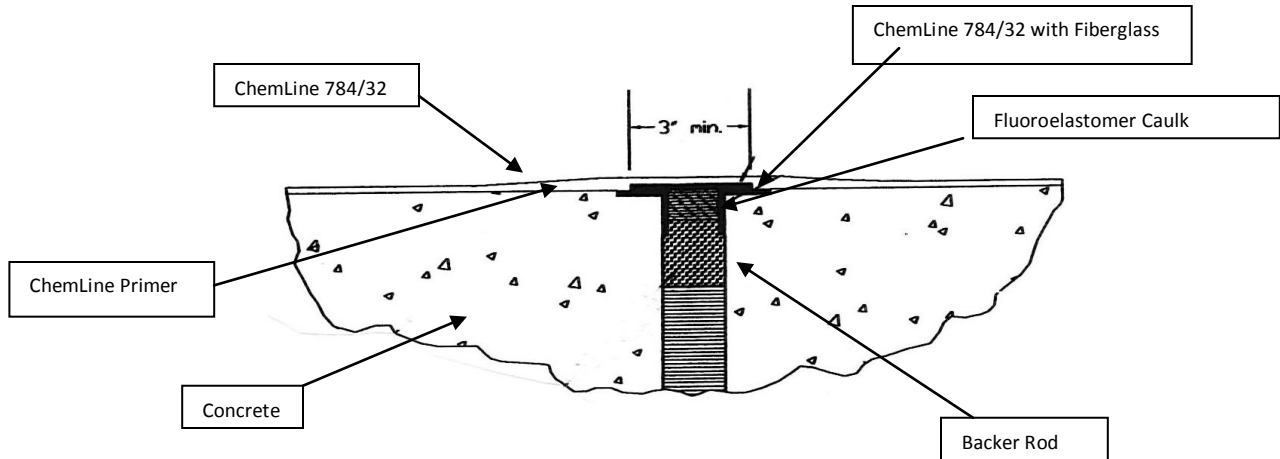
- Abrasive **Blast** clean pipe OD to remove all old coatings from the pipe within 6” of the concrete wall following SSPC – SP 5 white metal procedures
- Prepare adjacent concrete surfaces 12” minimum around the pipe by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4” vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 “B” stage curing recommendations for other times/temperatures)
- Apply ChemLine Caulk around the pipe creating a minimum 2” radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Using nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32, lay up wetted fiberglass along pipe and up wall. Cover all of the pipe and wall area adjacent to the pipe. Finally wrap wind fiberglass around the pipe. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 6

6.7 Sealing Grating Ledge

- Abrasive blast clean metal angles to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces 6” from angle metal by water jetting or abrasive blasting primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper
- Apply one-coat ChemLine 784/32 to metal and concrete extending 6” vertically and horizontally past steel angle plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 “B” stage curing recommendations for other times/temperatures)
- Using nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32, lay up wetted fiberglass along over the steel angle and on 6” of adjacent horizontal and vertical concrete surfaces. Allow to cure 4-6 hours

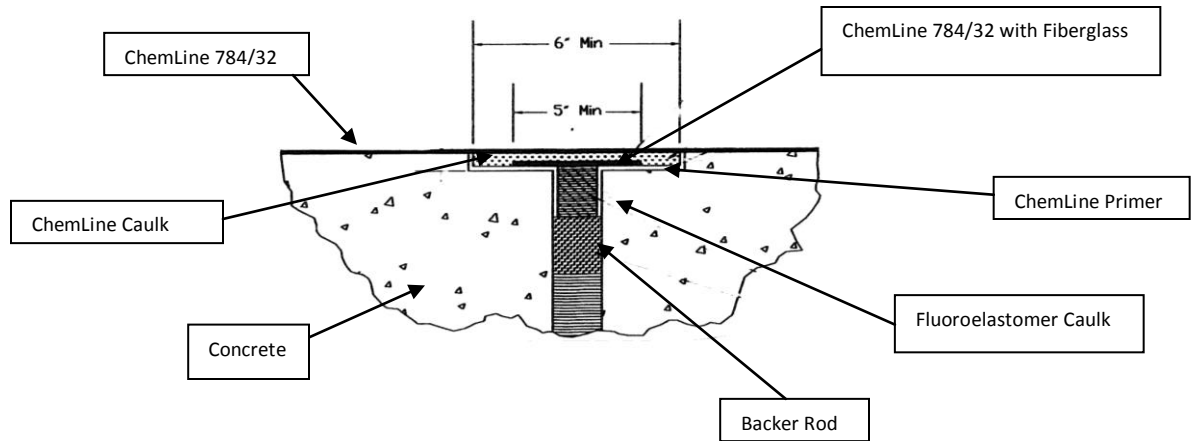
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.
- See Diagram 7

Diagram 1 – Expansion Joint



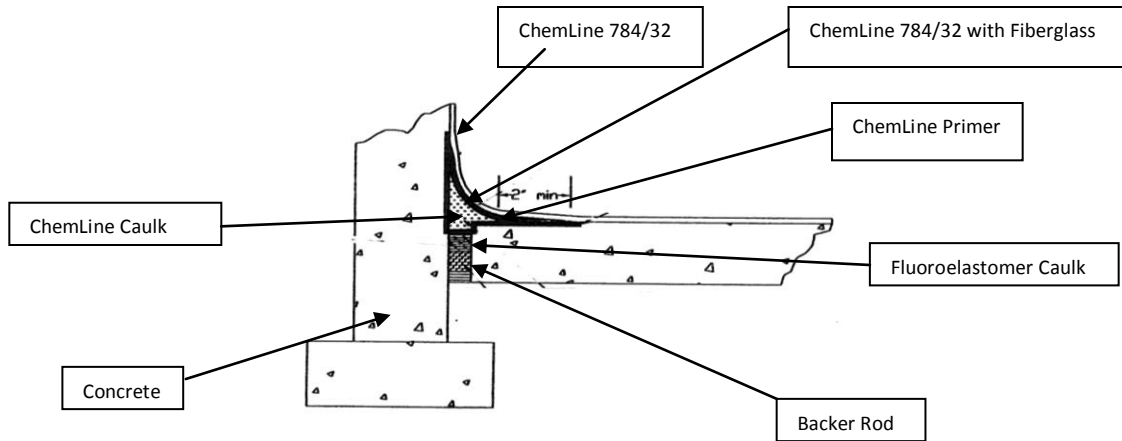
- Prepare joint surfaces by water jetting or abrasive blasting to remove remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer , brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Fluoroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Fluoroelastomer caulk.
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils

Diagram 2 – Expansion Joint / Counter Sunk



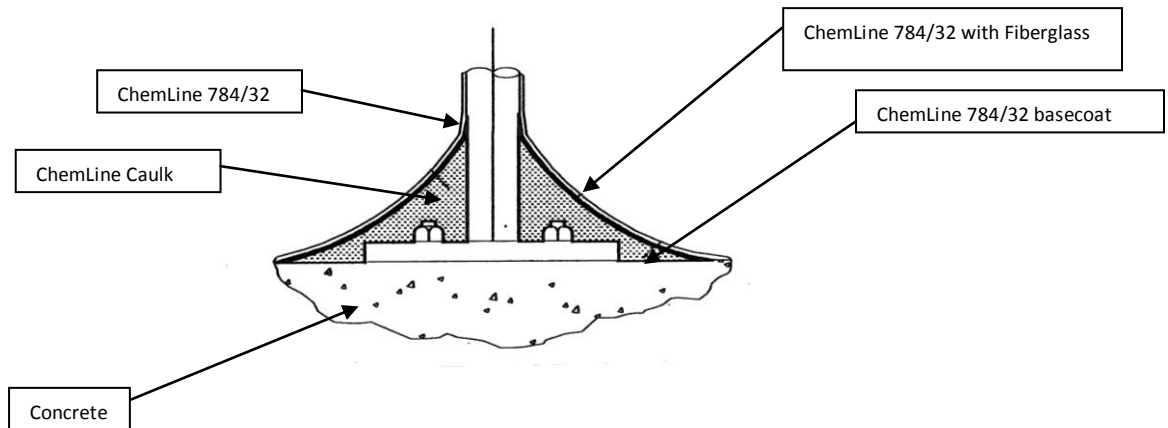
- Saw cut 1/8" groove 3" on either side of the joint
- Prepare joint surfaces by water jetting or abrasive blasting to remove concrete 3" concrete surface to saw cut, any remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer, brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Fluoroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Fluoroelastomer caulk.
- Apply a basecoat of ChemLine 784/32 to expansion joint and minimum 2" on adjacent vertical and horizontal surfaces at 4-5 wet mils. Allow to dry 4-6 hours at 77F
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Apply ChemLine Caulk to fill remaining counter sunk surface. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.

Diagram 3 – Wall / Floor Expansion Joint



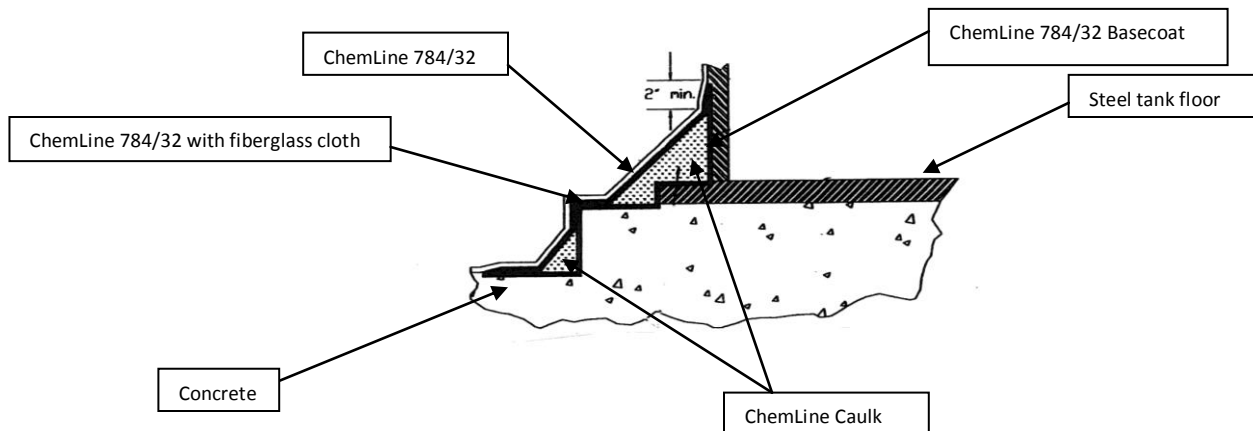
- Prepare joint surfaces and adjacent horizontal and vertical surfaces by water jetting or abrasive blasting to remove remaining old joint materials, primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Prime the expansion joint with one coat of ChemLine Primer , brushing inside surfaces of the joint and at least 8" back from joint.
- Apply backing rod at base of joint leaving 1/2" depth min for Fluoroelastomer caulk
- Using a grout back, putty knife or similar tool, fill the joint with Chemical Resistant Fluoroelastomer caulk within 1/4" of top of the joint.
- Apply a basecoat of ChemLine 784/32 to expansion joint and minimum 2" on adjacent vertical and horizontal surfaces at 4-5 wet mils. Allow to dry 4-6 hours at 77F
- Apply ChemLine Caulk to fill remaining expansion and create a minimum 2" radius fill on horizontal and vertical surfaces. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.

Diagram 4 – Pipe Stands and Pedestals



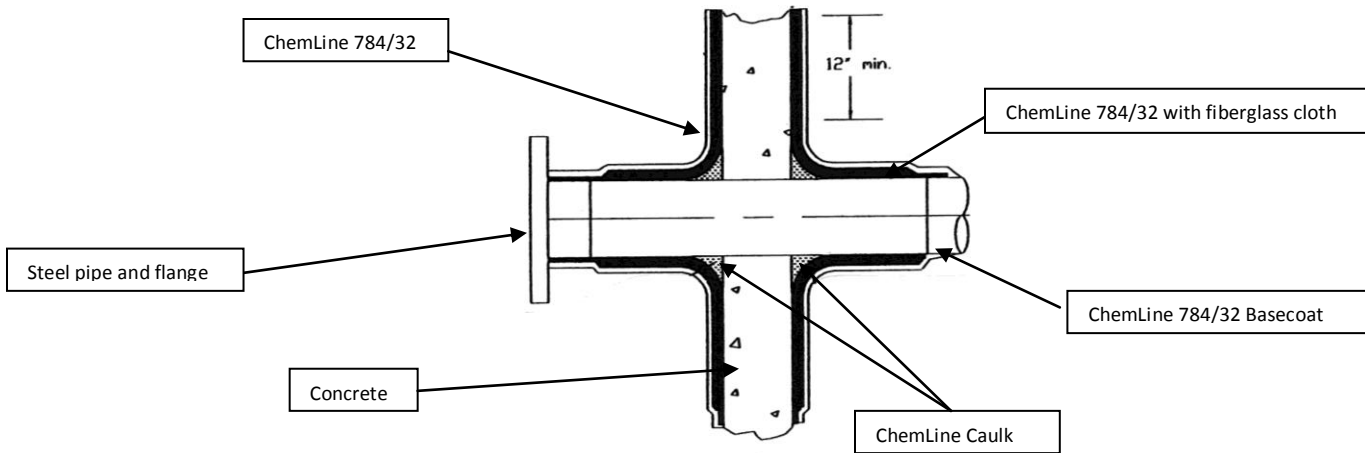
- Abrasive blast clean steel surfaces to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4" vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 "B" stage curing recommendations for other times/temperatures)
- Fill vertical to horizontal areas using ChemLine Caulk creating a minimum 2" radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.

Diagram 5 – Sealing Tank Ring Edges



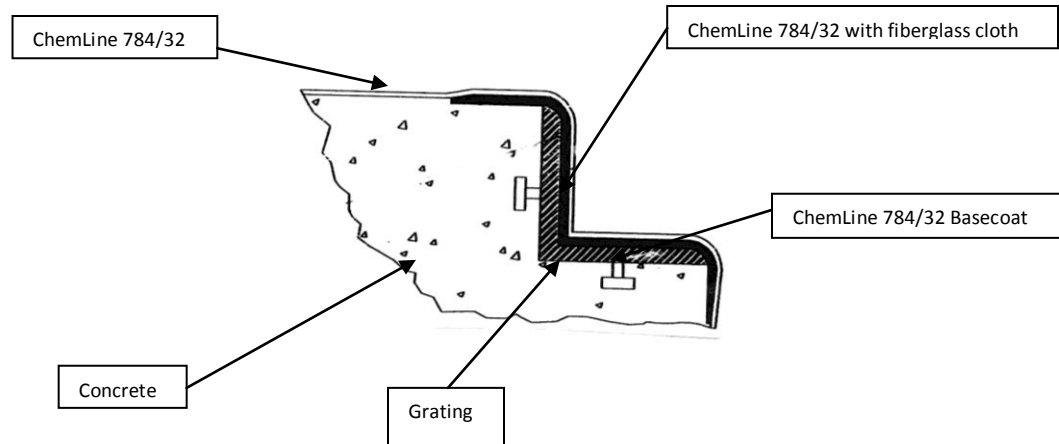
- Abrasive blast clean steel surfaces to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4" vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 "B" stage curing recommendations for other times/temperatures)
- Fill all corners and flange areas using ChemLine Caulk creating a minimum 2" radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Cover filled joint with minimum 3"-4" wide nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.

Diagram 6 – Pipe – Concrete Wall Procedure



- Abrasive Blast clean pipe OD to remove all old coatings from the pipe within 6" of the concrete wall following SSPC – SP 5 white metal procedures
- Prepare adjacent concrete surfaces 12" minimum around the pipe by water jetting or abrasive blasting to remove primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper.
- Apply one-coat ChemLine 784/32 to metal and concrete extending 4" vertically and horizontally past steel plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 "B" stage curing recommendations for other times/temperatures)
- Apply ChemLine Caulk. Caulk around the pipe creating a minimum 2" radius fill. Allow to cure 4-6 hours at 75F or until caulk has lost tackiness and cannot be easily indented with a finger nail
- Using nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32, lay up wetted fiberglass along pipe and up wall. Cover all of the pipe and wall area adjacent to the pipe. Finally wrap wind fiberglass around the pipe. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.

Diagram 7 – Seal Grating Edges



- Abrasive blast clean metal angles to white metal finish following SSPC – SP 5 Procedures
- Prepare adjacent concrete surfaces 6" from angle metal by water jetting or abrasive blasting primers, oil and grease and to abrade the surface achieving a surface profile equal to 60 grit sandpaper
- Apply one-coat ChemLine 784/32 to metal and concrete extending 6" vertically and horizontally past steel angle plate at 4-5 mils wet to all surfaces. Allow to cure 4-6 hours at 75F (Follow ChemLine 784/32 "B" stage curing recommendations for other times/temperatures)
- Using nonwoven 1.5oz fiberglass tape wetted with ChemLine 784/32, lay up wetted fiberglass along over the steel angle and on 6" of adjacent horizontal and vertical concrete surfaces. Allow to cure 4-6 hours
- Coat all surfaces with ChemLine 784/32 following ChemLine 784/32 Concrete Application procedures and curing times. Achieve a final DFT of 20-22 mils.