LAVA-LINER

ULTRA-FLEX 6800
UV RESISTANT
CHEMICAL RESISTANT
ALIPHATIC POLYURETHANE

TECHNICAL DATA SHEET AND APPLICATION PROCEDURES

ULTRA-FLEX 6800 is a high gloss, heat and chemical resistant two-component polyurethane. ULTRA-FLEX 6800 is UV stable and will not dull or discolor in direct sun light. Highly abrasion resistant, ULTRA-FLEX 6800 adheres to wood, masonry, concrete and metal and synthetic substrates. It is flexible and will bond directly to a base membrane of ULTRA-FLEX ECO-5000 or ULTRA-FLEX 5000 FRA, even after a period exceeding 4 hours.

ULTRA-FLEX 6800 comes in three basic colors, tan, gray and off-white. Custom colors are available upon request and can be matched to more than 400 colors.

Ultra-flex 6800 meets most VOC requirements at less than 340 g/l when both components are mixed together.

An excellent Non-skid surface can be obtained using ULTRA-FLEX 6800 by imbedding an abrasive aggregate (i.e. aluminum oxide or sand) into a 7-10 mil base coat, sanding to refusal and then over coating with another 7-10 mil coat of Ultra-Flex 6800.

Typical applications include:

1. Traffic Decks – pedestrian and vehicular
2. Pipe Coating
3. Concrete flooring
4. Color Top-Coat over prior urethane coatings

ULTRA-FLEX 6800 is a two-component high gloss aliphatic polyurethane coating. Kits are pre-proportioned and come in two configurations:

- Four gallons, or
- Twenty gallons

Each kit contains two parts:

- Part A which is a prepolymer, and
- Part B the activator.

The mix ratio is 3:1 with three parts A to one part B. Drum quantities can be ordered by special request.

The following physical properties are indicative of the outstanding performance that is obtained from the application of this protective coating.

PHYSICAL PROPERTIES	
Viscosity—Brookfield	< 2500 cps
Tensile	>5700 psi
Shore D hardness	85
Elongation	42%
Appearance / Color	Gloss finish
Conditions to Avoid	Keep Away from Flame
Percent Solids	64%
Colors	Off-White/Tan/Gray
VOC Content	<340 g/l

GENERAL APPLICATION SPECIFICATIONS

Description

1. ULTRA-FLEX 6800 can be applied as a waterproofing, vapor barrier, chemical resistant topcoat, or traffic deck membrane over new or existing, flat concrete surfaces, concrete block construction, metal decking or pipe and most clean construction surfaces.
2. ULTRA-FLEX 6800 is a cold applied, two component, liquid urethane. It cures to form a tough, durable, seamless, water impermeable barrier. ULTRA-FLEX 6800 may be applied by spray, squeegee roller or brush and retains its flexibility in hot or cold environments. (135°F to -20°F)
3. ULTRA-FLEX 6800 adheres to most clean construction materials. It is important to remove any previous scale, rust or spalling concrete that is loose, grease and oil, previous coatings and other material that might lead to bond failure.

4. ULTRA-FLEX 6800 may be used to bridge hairline cracks (up to 1/16" or 1.5mm) in the substrate without compromising the integrity of the membrane when fully cured.

SAFETY

1. Read the SDS sheet and label requirements prior to using any of this product. Observe and implement all safety precautions listed in the Safety Data Sheets.
2. Application should be done with equipment and procedures designed to minimize danger to personnel and materials.
3. Protective equipment including safety glasses and nitrile gloves should be worn when applying liquid products to prevent accidental splash or spray into the eyes.

SURFACE PREPARATION

SPECIAL SURFACES

All surfaces are different and require specific attention to details that are not covered in a general application instruction. Please read the applicable sections following this section directed to the type of substrate you intend coating.

1. Coating Concrete Substrates
2. Coating Synthetic Substrates
3. Coating Metal Substrates

General

1. ULTRA-FLEX 6800 must be applied on a clean, dry, and structurally sound substrate. Any oil and/or grease spots must be thoroughly cleaned. If paint or a previous coating has been applied, the substrate should be lightly abraded. All release agents, previous paint or coatings that are loose or flaking must be removed.

2. Normal Practices Used in Substrate Preparation:

    2.1. Inspect and clean the substrate thoroughly.

    2.2. Correct water drainage as necessary.

    2.3. Repair structural defects.

    2.4. Repair or replace vents, drains, protrusions, loose nuts, bolts, eyes, supports, etc.

    2.5. Mask and protect surrounding structures which are not to be covered with ULTRA-FLEX 6800.

3. Surface Pretreatments

Individual surfaces have performance characteristics that may require a specific pretreatment. For individual substrate solutions, please refer to the section on the specific type of substrate described later or in the Lava-Liner Industrial Repair Manual accessible on the Lava-Liner website at www.lava-liner.com.

4. Vertical or Sloping Surfaces

Vertical or sloping surfaces should be coated in two applications. Each application will be approximately 7-10 mils thick to prevent running and an uneven substrate coating. A second coat can be applied after 4 hours and within 12 hours.

Horizontal Surfaces

ULTRA-FLEX 6800 is self-leveling and therefore horizontal surfaces can be rolled, squeegeed, brushed or sprayed. Single coat applications at thicknesses greater than 7-10 mils are not recommended due to the extended cure time that thicker applications incur.

Surface Pretreatment as set forth in the sections specific substrates below.

MANUAL APPLICATION AND MIXING

Materials

1. Ultra-Flex 6800 Part A (Prepolymer in three one gallon cans or three 5-gallon metal buckets.)
2. Ultra-Flex 6800 Part B (clear to light yellow in a one gallon can or a 5 gallon metal pail.

Equipment

1. ½ inch Drill (Milwaukee ½" D Handle Drill 500 RPM's or equivalent.)

2. Authorized Mixers – Drill Bit Capable (Consult Lava-Liner for recommended mixer.)

Miscellaneous Materials

1. Disposable Short-Nap Rollers (nap of ¼" or less) and/or paint brushes
2. Clean Up and Masking Materials
3. Mineral Spirits, xylene or other solvent
4. Rags
5. 2-3 empty ea. - 5 gallon HDPE or metal buckets
6. Wall Clock or watch
7. Cleaning / Solvent brushes
8. Inexpensive Poly/plastic sheeting
9. Masking tape - 2 inch or wider
10. Vacuum or air nozzle
11. Absorbent paper towels, shop rags or clean cloth rags

MANUAL & HOT POT MIXING

ULTRA-FLEX 6800 IS MIXED IN THE FOLLOWING MANNER:

1. Open the Prepolymer Part A cans. Pour the cans into one five gallon pail or a larger container that will hold 20 gallons for five gallon configurations.
2. Pour the one gallon can or five gallon pail of Part B activator into the container containing the three cans of Part A and begin to mix immediately with the paddle mixer for a minimum of 5 minutes to insure a homogenous mix.
3. Prevent air bubbles from forming by mixing at approximately 500 rpm and do not fold or force the system to entrap air by causing a deep vortex in the can while mixing. Slowly move the mixer around the container insuring that all material from the bottom is mixed well.
4. Once the Part A and Part B are mixed, it has a pot life of approximately 45 to 60 minutes within which the application can take place without substantial hardening of the mixture making it hard to obtain an adequate coat to the substrate. The ambient temperature will make a difference in pot life duration and the hotter the material, the faster it will set up.
5. The premixed Ultra-Flex will begin to cure immediately. When spraying, keep a 5 gallon bucket of mineral spirits, xylene or other solvent on hand to purge the pump and spray lines at least every 60 minutes or when it becomes hard to obtain a good spray pattern.

Do not allow ULTRA-FLEX 6800 to remain in the lines or the pump for more than 20 minutes without continued spraying or flushing the lines with solvent.

BRUSH OR ROLLER APPLICATION

Due to the pot life of ULTRA-FLEX 6800 of only 45-60 minutes for workability, it is suggested that once a five gallon can is mixed, two or three persons should be used to apply the product

When rollers are used, they can be dipped directly into the can and applied. Pouring into separate trays for rolling will extend the pot life slightly. Avoid excessive back rolling of the material as it will tend to create bubbles and fisheyes that can remain in the CEASEFIRE surface and will undermine the impermeability of the membrane.

When brushes are used, it is preferable to pour the contents in the five-gallon bucket into smaller one-gallon containers. These are more easily handled by an applicator and can be less problematic for the application. Again, try not to back brush excessively as it will cause bubbles and fisheyes that will be hard to eliminate and can affect the impermeability of the membrane when cured.

When the brush or roller become thick, stiff and will not hold much material, discard the brush and begin with a new brush.

SPRAYING

HOT POT SPRAY APPLICATION:

Hot pot spraying is defined by the pre-mixing of the two components in the general manner prior

to application using air assisted spray equipment or airless spray equipment.

HOT POT SPRAYING

Follow all recommended procedures as are provided by the spray equipment manufacturer or representative. When using air assisted spray equipment make sure that the air assist dispersion line is the first line to have air pressure applied when preparing to start-up the equipment and the last one to be turned off at the shut-down of the equipment. This will avoid any back-up of mixed material into the air dispersion lines.

We recommend that you first spray coat the vertical surfaces first with a light (03-5 mils) coat of ULTRA-FLEX. Thicker coating in one pass will increase the possibility of runs in the material until the spray applicator gets a "feel" for the product. After completing the first passes on vertical surfaces, a second coat can then be applied to obtain the desired thickness. This coat should then be applied approximately 1 hour to 6 hours after the application of the prior coat. This will help to insure that inter-coat adhesion will be accomplished and that the finished coat is monolithic.

During the spraying of ULTRA-FLEX 6800, the material will begin to set up chemically. As you continue to apply the material, it will have a tendency to set up in the hoses and in the pump. It is suggested that you maintain a 5-gallon bucket near the pump that is about ½ full of mineral spirits or solvent and that the entire system be flushed after every 30 – 35 minutes or when the material begins to interfere with the spray pattern. When the temperature is 75^{o}F or above, the increased ambient temperature can cause ULTRA-FLEX to set up more rapidly and you may have to flush more often.

You can clean the lines by removing the pump from the mixed material and spray until there is no material remaining in the lines or gun. Then flush by placing the pump into solvent bucket and then circulate by spraying the nozzle directly back into the solvent bucket. When the lines are clear, remove the pump from the solvent bucket and then continue to spray into the bucket until no more flush solvent remains in the liners or gun. This will avoid waste and the waste material can be used several times for flushing before having to be discarded.

Once you have completed the spraying of each coat you should immediately follow the recommended procedures for cleaning the pump, hose and gun assemblies with mineral spirits, solvent or xylene.

Upon completion of the above procedure, you should proceed to the touch-up process of areas which have been incompletely or improperly covered during the initial spraying and to smooth any areas sagging due to excessive coverage on vertical surfaces.

PLURAL COMPONENT SPRAYING

Lava-Liner has worked with several manufacturers and has assisted in developing a proprietary portable plural component spray machine. Plural component equipment capable of spraying 3:1 can be used effectively to apply ULTRA-FLEX 6800. A Spray Grade that provides a thicker and faster setting material has been designed by Lava-Liner to meet the demanding needs of spraying their anticorrosion materials and waterproof membranes through plural component spray equipment. Consult Lava-Liner about acceptable equipment that can be used for this application.

PATCHING AND REPAIRING ULTRA-FLEX 6800

1. When it is necessary to repair or patch ULTRA-FLEX 6800 the procedure for substrate preparation should be followed as is set forth above. Additional steps should be taken before applying a new coat to the exposed surface to be repaired.
2. Clean the surface with mineral spirits or xylene or other solvent.

3. Rough up the ULTRA-FLEX 6800 surface surrounding the breach or area to be repaired by about 2 inches surrounding the area to be patched with 60-80 grit sand paper or a clean, oil free wire brush.
4. Wipe the roughened surface again with solvent to clean all of the debris that will form from sanding leaving the surface clean and dry.
5. Apply a freshly mixed coat of ULTRA-FLEX 6800 to the area around the roughened area surrounding the surface and the center of the area to be coated.

COATING CONCRETE SURFACES

Cured Surfaces:

A curing period is necessary for all concrete surfaces to be coated with ULTRA-FLEX 6800. Portland Cement Concrete shall be dry and cured at the time of application of ULTRA-FLEX 6800. This curing period is needed for the concrete to attain proper hardness and for evaporation of excess water to prevent blistering which could be caused by vapor pressure underneath the applied coating membrane. Recommended curing of concrete varies from 28 days to six months depending upon service conditions and coating used

Recommended procedure for new concrete is to moisture cure, using plastic film, wet burlap or water spray; prepare the surface with a float finish to Class "B" tolerances and then follow the application procedures for ULTRA-FLEX 6800.

All concrete surfaces should be primed with Ultra-Flex EP-990C (Concrete Penetrating Epoxy). Ultra-Flex EP-990C will penetrate concrete areas to form a water proof and hardened substrate to which ULTRA-FLEX 6800 can adhere and will penetrate the concrete surface sealing pores and locking out moisture that may be contained below the surface. Ultra-Flex EP-990C draws on the moisture and water in the atmosphere and concrete to hydrolyze certain molecules and bond with the cementitious materials. This will render a substrate that is hardened and dried providing superior adhesion and less likelihood of defects occurring in the top coating (see following section on Out-Gassing).

Clean and Dry

All concrete, whether new or old must be clean and dry, and free of loose powder, release agents, curing compounds, laitance or debris. Remove any existing cement effervescence or loose residue on the surface and expose the tops of the underlying aggregate prior to coating.

Surface Preparation

1. The substrate should be prepared to a CSP (Concrete Surface Profile) of 4 to 6 using the following methods:
1.1. Abrasive blasting (ASTM D 4259-88),
1.2. Water blasting (generally at 2500 psi minimum), allow concrete to dry (ASTM D 4259-88),
1.3. Shot blast (ASTM D 4259-88), horizontal surfaces.
1.4. Mechanical grinding.
2. Pretreated with Ultra-Flex EP-990C (Concrete Penetrating Epoxy)

Out-Gassing (Porous Concrete Surfaces)

1. If the concrete substrate is porous or wet, a surface curing agent or sealer is required to prevent out-gassing or the formation of bubbles as a result of entrapped air or moisture. See the use of Ultra-Flex EP-990C for moisture curing and sealing.
2. Out-gassing is generally the result of retained moisture or the result of expansion of entrapped air on the surface of porous concrete.
3. Out-gassing from moisture can be prevented by making sure that the substrate to be coated is dry and there is no moisture retained below the immediate surface that can react with the ULTRA-FLEX 6800 coating as it is applied.
4. Out-gassing from entrapped air or moisture can be prevented by coating the EP-990C primed substrate with ULTRA-FLEX 6800

when the temperature of the substrate to be coated is in a temperature declining mode. When the ambient temperature is in a rising condition and approaches 9O°F, air pockets can form under the membrane coating as it is applied to the surface. The high temperatures can cause the air trapped within the concrete's pores to heat and expand. The air expands and tries to push its way out of the concrete (out-gassing) thereby creating hundreds of bubbles in the surface of the ULTRA-FLEX 6800 as it cures. As a result, it is common that out-gassing will occur when concrete is coated in direct sun light. It is recommended that all concrete surfaces be pre- treated with Ultra-Flex EP-990C to prevent this problem.

Precautions

Application of ULTRA-FLEX 6800 over concrete surfaces should not take place if:

1. Material temperature is below 50°F at time of application.
2. Surface temperature is below 50°F.
3. Surface moisture is present or rain is imminent and will affect area to be coated.
4. Surface temperature drops below the dew point.
5. Concrete is curing or in a temperature rising mode.
6. Other conditions are obviously unsuitable.

COATING SYNTHETIC SURFACES

PREPARATION FOR ULTRA-FLEX™ CHEMICAL BONDING

Ultra-Flex AP/AP174

Over the years, Ultra-Flex urethanes have been used to coat many different surfaces. Although well known for its ability to physically bond to metal surfaces, concrete and wood, the use of Ultra-Flex AP (Adhesion Promoter) will provide a covalent (chemical) bond between ULTRA-FLEX 6800 and the substrate.

The following in addition to organic coatings, ULTRA-FLEX 6800, metal and concrete, the following surfaces are compatible with Ultra-Flex AP.

1. Fiberglass:
   - 1.1. Power wash and scrub thoroughly with a solution of TSP and water. Rinse thoroughly and let dry. This removes any form release residue or chemicals that were contained in the basin.
   - 1.2. Abrade surfaces with sandpaper or other abrasive medium to release glass fibers in the surface to form additional surface for adhesion.
   - 1.3. Remove dust with tack rag.
   - 1.4. Do not wipe with acetone. Spray a very light fog coat of Ultra-Flex AP at the rate of approximately 600 sq. ft. per gallon.

2. Glass, Ceramics
   - 2.1. Degrease with solvent-type degreaser or TSP
   - 2.2. If possible, frost with wet / dry sandpaper and water
   - 2.3. Rinse and allow to dry.
   - 2.4. Spray a fog coat of Ultra-Flex AP over the entire surface at the rate of approximately 600 sq. ft. per gallon.

COATING METAL SURFACES

When coating any metal surface it is important that an applicator take into consideration all of the following circumstances.

Surface Preparation

All surfaces must be clean and dry. All oil, paint, scale, oxidation (rust), dirt, and grease must be removed. Surfaces should be cleaned by sand blasting, pressure washing and the use of an industrial cleaner or acid etching agent and thoroughly rinsed, vacuumed, or thoroughly cleaned to remove any residual moisture or dust before application to the surface.

In order to achieve a covalent bond between the metal surface and Ultra-Flex 6800, the use of Lava-Liner's ULTRA-FLEX adhesion promoter is required for all surfaces unless prepared using the ULTRA-FLEX RCI-A primer on ferrous metal substrates.

On ferrous metals where oxidation (rust) cannot be fully blasted or removed, the surface adhesion can be improved through the use of ULTRA-FLEX RCI-A. RCI-A is a zinc based primer that provides an ablative base that will impede further oxidation and deliver superior adhesion.

Aluminum surfaces and anodized surfaces produce an oxide layer that should be removed prior to coating. Light abrasion and a solvent wipe down will remove this and improve adhesion.

Galvannealed metal generally has a light oil coating that must be removed. The use of acids or strong detergent cleaners will help remove this oil. **Caution:** The use of hydrochloric or muriatic acid is not recommended due the potential formation of hydrogen gas and potentially harmful fumes that may cause respiratory distress.

All metal surfaces should be cleaned and abraded to a minimum profile of SSPC-SSP-2 (level SSP-3 or above is preferable) followed by an SSPC-SSP-1 level preparation. If substantial oxidation is present or the surface is covered in white rust, a surface preparation to a White Metal Blast to an SSPC-SSP-5 is recommended.

ULTRA-FLEX 6800 can them be applied in one of the methods set forth above either manually or by spraying.