

XL-FLAKECOAT D-100

100% REACTIVE VINYLESTER COATING/LINING SYSTEM

XL-Flakecoat D-100 is vinyl ester resin based, glassflake-filled, peroxide cured polymer system. It is designed for use as a tank lining, exterior coating or chemical containment membrane on metal or concrete.

XL-Flakecoat D-100 exhibits excellent resistance to acid and alkaline environments as well as most organic solvents. In immersion service **XL-Flakecoat D-100** is used in combination with **XL-Flakecoat Primer** and performs as a corrosion resistant lining up to 140°F in severe corrosive environments. **XL-Flakecoat D-100** provides superior performance in primary and secondary containment where excellent acid and caustic resistance is required. **XL-Flakecoat D-100** finds wide spread use in waste treatment applications, and also an excellent high build exterior coating for moderate to severe corrosive environments.

XL-Flakecoat D-100 comes in two versions. **XL-Flakecoat D-100TW** is for trowel application

TYPICAL PROPERTIES

Solids Content :	100% Reactive
Volatile Organic Content :	0.45lbs per gallon
Volume Mix Ratio :	64 parts Base to 1 part Hardener
Flash Point : (Pensky-Martens Closed Cup)	Base.....>102°F Hardener 2 C (MEKP).....>137°F
Viscosity :	2200-2600 cps @ 75°F
Thinner :	DO NOT THIN !
Weight per gallon :	9.1 lbs (mixed)
Coverage for Steel : (Theoretical)	70 sq. ft. per gallon per coat when applied at 22.5 wet mils average
Coverage for Concrete : (Practical)	60 sq. ft. per gallon per coat when applied at 20 to 25 wet mils yielding 15 to 20 dry mils. To be applied in two coats to yield 30 to 40 dry mils.
Coverage for Concrete :	Same as steel; if concrete is dense and primer is used. Porous or unprimed concrete may reduce coverage to 40 to 50 sq. ft. per gallon per coat at 20 to 25 wet mils.
Color :	Gray; Beige (Off-white) are standard. Minimum quantities apply for special colors.

PHYSICAL PROPERTIES OF CURED SYSTEM

Tensile Bond Strength :	Sandblasted Steel - 1200 psi Concrete - exceeds 500 psi
Taber Abrasion (ASTM C501-80) :	25 mg. Loss / 1000 cycles with 1000 gms. CS - 17 Wheel
Barcol Hardness :	40 +
Moisture Permeability (ASTM E96-85) :	0.0015 perm-inch

POT LIFE AND RECOAT TIME

Temp.	Pot Life	Recoat Time	
		Minimum	Maximum
@ 50°F	120 min.	12 hrs.	1 days *
@ 75°F	90 min.	4 hrs.	1 days *
@90°F	60 min.	3 hrs.	1 days *

Pot life test on 200gm. sample; working time in larger quantities will be shorter !

** If protected from direct sunlight*

PACKAGING

Base : 20kg tin

Hardener : 5kg bottle

BID SPECIFICATION

Concrete or steel shall be primed with a nominal 3 wet mils of XL- **Flakecoat Primer**. This primer shall be top coated with a nominal 30 to 40 mil thickness of XL-**Flakecoat D-100** applied in two coats at 20 to 25 wet mils. The materials shall be applied to substrate prepared in accordance with the manufacturer's specifications.

STORAGE AND SHELF LIFE

XL-Flakecoat D-100 must be stored in cool dry area and out of direct sunlight. **XL-Flakecoat D-100** should be used immediately. Storage is not recommended. The hardener is a PEROXIDE and SHOULD NOT BE STORED NEAR AMINES.

TYPICAL SHELF LIFE

Temperature	Months
@ 50°F	4
@ 75°F	4
@ 80-90°F	3

INSTALLATION PROCEDURES

The installation procedures in this bulletin will be as specific as possible. If any questions arise after reading this bulletin, please contact Wearresist Technologies for more specific information.

➤ Equipment Design, Fabrication and Surface Preparation

Whether the vessel is to be protected from the corrosive action of the content or the contents are to be protected from contamination from the vessel surface, the coating must be continuous. The vessel design must consider the need to eliminate sharp corners, projections, crevices and acute angles and provide access to all surfaces. The design must also minimize movement when in operation.

Steel

External stiffeners and bracing should be used when acceptable. Internal bracing, dividers, nozzle projections, etc. must have continuous welding (no skip welding) with weld rippling, undercutting and weld splatter ground smooth. Edges must be ground to a $\frac{1}{8}$ " radius. To facilitate the coating application, nozzles should have a large diameter (4" minimum) and short pipe nipple length. Nozzle smaller in diameter or with long pipe nipple lengths should be made of an alloy or utilize a fibreglass plastic nozzle insert. Threaded fittings must be avoided or be of an alloy suitable to resist the corrosive contents.

All surfaces to be coated require a white metal blast to SSPC-SP-5 or NACE 1 specification with a blast media that removes all visible mill scale and rust. Performance is directly related to the anchor pattern profile and cleanliness of the steel.

For immersion service conditions, highly corrosive environments and thermal shock, the substrate should be clean, dry and have a minimum anchor profile of 3 mils. For less severe conditions, non-immersion service, splash, spillage and no thermal shock, a 2 mil anchor profile may be acceptable, contact Wearresist Technologies.

Concrete

All oil, grease, chemicals, polymeric materials and/or weak laitance should be removed by either mechanical or chemical methods. Mechanical methods such as sandblasting, blasttracking or scarifying are the preferred methods. Chemical methods such as acid etching and detergent should be utilized to remove oil and grease or when mechanical methods cannot be utilized. The concrete should have sufficient tensile strength (250 psi), and be clean and dry.

All pits and surface imperfections, sharp corners, undercut areas from forms, honeycombing and bug holes opened up as a result of surface preparation must be filled with a scratch coat compatible with the coating system. It is the physical forcing, by troweling of a scratch coat onto and into the concrete surface that makes it possible to obtain an impervious coat. For recommendations, contact Wearresist Technologies.

Mixing and Application

DO NOT ATTEMPT COATING APPLICATION IF SUBSTRATE TEMPERATURE IS WITHIN 5°F OF DEW POINT OR IF RELATIVE HUMIDITY IS GREATER THAN 95%

If coating concrete surfaces, concrete expels air during the day and intakes during the night. The best time to apply primer and top coat is late afternoon or early evening at which time concrete is least likely to expel air. Other precautions such as shading the work area from direct sunlight to minimize the heating of the substrate will also reduce expulsion of air.

The base component should be stirred thoroughly prior to use whether the application will be by brush, roller, batch-mix conventional spray, or plural component spray. For brush, roller and batch-mix spray, add Hardener 2C and mix thoroughly for approximately 2 minutes. For plural component spray, the hardener is not added to the base in the container, but mixes with the base internally at the spray gun (red tracer dye in hardener is recommended). Proper ratio of base to hardener is important to ultimate cure and film properties. **DO NOT THIN !**

XL-Flakecoat D-100 can be applied by brush, roller, conventional and plural component spray. When spraying batch-mix with conventional equipment, the pot and material lines should be flushed with suitable solvent after every 3 to 4 batches when temperatures exceed 80° F.

APPLICATION METHODS

Brush-Roller : Natural bristle brush. Short nap wool or mohair roller.

Spray : Single and plural component airless spray equipment

A check for suitability of spray equipment can be made by first stirring the base component of the product for two minutes with a jiffy mixer (no hardener), then spraying the product without the hardener. This procedure eliminates the risk of the product curing while adjusting or testing the spray unit.

➤ Pot Life

The pot life or working time of the material is mass sensitive, the larger the volume the shorter the pot life. Do not catalyze more material than can be used within the pot life. At ambient temperature above 90° F, best results are obtained when catalyzed material is poured into smaller containers reducing the mass. If ambient temperature exceeds 80° F, by cooling the materials, the pot life can be extended. The materials should be stored between 65° F and 75° F for 24 hours prior to use, for optimum handling properties. If plural components application equipment is used, materials are not premixed and pot life is not a factor. Mixing chamber and spray tip must be kept clean and flushed with solvent.

➤ Clean-Up

All mixing equipment, spray equipment and brushes should be cleaned immediately after use. Solvents recommended for clean-up are methyl ethyl ketone. **DO NOT USE ACETONE !**

RECOAT AND TOPCOAT LIMITATIONS

The maximum recoat exposed to direct sunlight (ultraviolet light) is 4 hours. This time period can be extended to 7 days by protecting the product from exposure of direct sunlight. The first coat should always be tested for suitability for topcoating by utilizing a styrene sensitivity test. This test is performed by wiping several small areas of the first coat with styrene, waiting until the styrene flashes off (just a minute or two) and then checking to insure that the first coat surface contacted by styrene is now "tacky" to the touch. If the surface does not become "tacky", the surface must then be roughened or abraded by light abrasive blasting to remove all shiny surfaces of the product and then after wiping all dust from the surface, the product is ready for topcoat application. After light roughening of the surface the surface must be topcoated within 3 hours.

CURE TIME

The cure time is dependent on temperature of the substrate. The ambient air temperature may not be the temperature of the substrate, i.e. direct sunlight will heat substrate to higher temperature than ambient air. In winter, substrate

may be colder than ambient air. The substrate temperature should be measured and dew point calculated prior to priming. Substrate temperatures below 50° F will retard curing, and adversely retard curing.

	Time to Complete Cure
If substrate is maintained :	
@ 50° F.....	48 hours
@ 75° F.....	24 hours
@ 90° F.....	16 hours

CAUTION : Styrene fumes are offensive to personnel and heavier than air, therefore, it is necessary to maintain sufficient ventilation in closed areas to meet OSHA regulations, and to continuously ventilate closed areas such as tanks, pits and trenches to keep the working environment safe, and prevent styrene fumes from being trapped and building up, which will prevent the proper cure of the product.

INSPECTION OF FILM INTEGRITY

During installation of the coating, care should be taken to provide for the correct specified uniform thickness of material by carefully checking at regular, pre-specified intervals, with a wet film thickness gauge.

After allowing adequate cure time based on the actual substrate temperature, the surface should be inspected for runs, sags, foreign matter and under cured areas caused by insufficient hardener quantity, incomplete mixing or low temperature. Product sprayed using a plural component equipment with red tracer dye in the catalyst, can be visually inspected by looking for variations in color. If under cured areas are found, they must be repaired. Film thickness on steel structure should be checked with a magnetic dry film thickness gauge. Coatings to be subjected to immersion service should be tested for minute discontinuities (pin holes) using a high voltage DC holiday detector, set at no more than 100 volts per mil of the film thickness being tested.

Coating on concrete surfaces may be checked for continuity by spark testing if so desired. If a coating is to be spark tested, a conductive primer or veil must be used on the concrete in place of standard primer. Follow test procedure for completed coating outlined above.

SAFETY

XL-Flakecoat D-100 base is flammable. It contains polyester base and styrene. Hardener 2 C contains PEROXIDES and SHOULD NOT BE STORED NEAR AMINES. All components should be stored in a cool dry place out of direct sunlight.

When working with any polymers, hardeners and dry aggregate fillers always wear appropriate safety glasses, breathing protection, clothing, and gloves. Any contaminated clothing should be washed prior to being worn. The vapors given off during applications and cure should not be allowed to build up. The ventilation should be sufficient to turn over the air with special consideration for enclosed area. When using these types of materials any sources of ignition should be eliminated within a 50ft. radius
