CITADEL #9 PLE Solid

Technical Data Sheets

Primer: EP-55 – Water-based Primer *(optional)*

Base: PLE-100 (pigmented) – General Purpose Epoxy

Wear: Poly 1 HD w/UDP Additive – Aliphatic Polyurea

CITADEL® EP 55

DESCRIPTION AND USES

Citadel® EP 55 is a two component, water-based epoxy primer designed to improve the adhesion of floor coatings over difficult to coat, or marginally prepared substrates. Substrates include, hard-troweled concrete, aluminum and various types of tiles. EP 55 primer can be top coated with most types of floor coating technologies including acrylic, epoxies and polyurethanes.

PRODUCT FEATURES AND BENEFITS

- Alternative to traditional mechanical and chemical surface preparation
- Excellent as a primer/basecoat for warehouse line striping, zone marking, solid color and decorative floor coatings including metallic systems
- Can be top coated after 5 hours and before 7 days without sanding
- Compatible with most floor coating technologies
- VOC compliant nationwide

PRODUCTS

SKU	DESCRIPTION (120 fl. oz. Kit)
354982	Flat Black
355235	Flat White

NOTE: Kits contain Base and Activator.

PRODUCT APPLICATION

READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING PROJECT

SURFACE PREPARATION

New concrete should be allowed to cure for 30 days before application of any coating. Remove oil, dirt, grease and other chemical contaminants by cleaning with Krud Kutter® Pro Concentrated Cleaner Degreaser, detergent or other suitable cleaner and rinse with fresh water. Existing coatings should be well bonded and sound.

Previously coated floors need to be in good condition with proper adhesion to the concrete substrate. Check the adhesion of the previous coating by cutting a small X in the coating using a sharp razor knife. Firmly apply a piece of 2" duct tape over the center of the X cut; then pull off with a fast snap. The coating is suitable to topcoat if no significant previous coating is removed beyond the X cut. If the coating fails this test, additional surface preparation is required.

PRODUCT APPLICATION (cont.)

MIXING

Combine the base and activator components. Power mix the material using a 3" Jiffler Mixer or Hanson Plunge Mixer. Mix at 500-750 rpm for 2-3 minutes, making sure a uniform color is achieved. Do not delay the application. The useable pot life is 45 minutes. Do not mix more material than you plan to use within the listed pot life.

NOTE: It is not unusual for a soft settle of the base component to occur. Adequately power mix the base component separately to fully reincorporate the material prior to combining with the activator.

APPLICATION

Apply only when air and surface temperatures are between 50-85ºF (10-29ºC) with the surface is at least 5ºF above the dew point and the relative humidity is below 85% during and after application. Use a good quality, lint free ⅜" nap roller with a phenolic core. A brush may be used for cutting in along walls. Avoid excessive film thickness.

DRY AND RECOAT TIMES

The coated floor will be ready for foot traffic in 4-6 hours. Allow 5 hours prior to application of the desired finish coat. The finish coat must be applied within 7 days.

COVERAGE

Approximately 250-350 square feet per activated gallon.

CLEAN-UP

Tools and equipment should be washed in warm soapy water before the product starts to cure. Accidental splashes of components prior to mixing can only be removed with MEK.

Form: ARJ-1887
Rev.: 012720

EPOXY	TECHNICAL DATA	CDL-03

CITADEL® EP 55

PHYSICAL PROPERTIES

		EP 55
Resin Type		2-Component Water-based Epoxy
Pigment Type		Titanium Dioxide, Carbon Black
Solvents		Water
Weight*	**Per Gallon**	11.9 lbs.
	Per Liter	1.43 kg
Solids*	**By Weight**	67%
	By Volume	53%
Volatile Organic Compounds*		0 g/l
Mixing Ratio		4:1 base to activator by volume
Induction Period		None required
Pot Life		45 minutes
Recommended Dry Film Thickness (DFT) Per Coat		2.0-3.0 mils (50-75µ)
Wet Film to Achieve DFT (unthinned material)		4.0-6.0 mils (100-150µ)
Practical Coverage at Recommended DFT (assumes 15% material loss)		Approximately 250-350 sq.ft./gal. (6.2-8.6 m^2/l)
Dry Times at 70ºF (21°C) and 50% Relative Humidity	**Foot Traffic**	4-6 hours depending on the porosity of the substrate
	Apply Finish Coat	After 5 hours and before 7 days
	Full Cure	7 days
Shelf Life		2 years (unopened containers)
Safety Information		For additional information, see SDS

Calculated values are shown and may vary slightly from the actual manufactured material.
*Activated material

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Form: ARJ-1887
Rev.: 012720

CITADEL® PLE-100
100% SOLIDS GENERAL PURPOSE EPOXY

DESCRIPTION AND USES

Citadel® PLE-100 General Purpose Epoxy is an epoxy-based coating system that provides outstanding customer value. Its great value, slower dry time, and low odor formulation makes PLE-100 General Purpose Epoxy ideal for larger indoor application areas.

PRODUCT FEATURES AND BENEFITS

- Versatile - Direct to Concrete
- Low odor 100% solids
- Tenacious adhesion
- Chemical resistant
- Compliant nationwide with near zero VOC

PRODUCTS

SKU	DESCRIPTION
388944	Light Gray 3-Gallon Kit
382563	Light Gray 15-Gallon Kit
388945	Armor Gray 3-Gallon Kit
382564	Armor Gray 15-Gallon Kit
388946	Dunes Tan 3-Gallon Kit
382566	Dunes Tan 15-Gallon Kit*
388947	Clear 3-Gallon Kit
382562	Clear 15-Gallon Kit*
388948	Custom 3-Gallon Kit
382565	Custom 15-Gallon Kit*

*Made-to-Order only. Contact Rust-Oleum Customer Service for details.

PRODUCT APPLICATION

READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING PROJECT

SURFACE PREPARATION

NEW CONCRETE: Laitance must be removed by diamond for a minimum of 28 days. The concrete must be structurally sound, dry, and free of grease, oils, dust, curing compounds and other coatings or contaminants. Surface laitance must be removed. Rising moisture vapor emission rate must not exceed 3 lb. per 1000 sq. ft. over a 24 hour period as measured by calcium chloride test method ASTM F-1869. The preferred method of surface preparation is to mechanically abrade the floor by diamond grinding to achieve a final 80–120 grit finish, reference profile CSP-2 according to ICRI. If patching is required, use Fortification Formula concrete repair.

PREVIOUSLY COATED: Previously coated surfaces must be sound and in good condition. Smooth, hard, or glossy finishes should be scarified by sanding or sweep blasting to create a surface profile. PLE-100 General Purpose Epoxy is compatible with most coatings, but a test patch is suggested.

NOTE: Concrete must be visibly dry at time of application.

PRODUCT APPLICATION (cont.)

MIXING EQUIPMENT

Low speed drill and spiral mixing wand. Must pre-mix prior to use.

Important: Hand mixing will produce inconsistent results and is not an approved method.

Note: Three gallon kits are packaged in Citadel's new and exclusive All-In-One packaging. Both A and B components are shipped together inside an outer 5 gallon pail that can be used for combining both components at the application site. For best results use narrow spiral paint mixer (SKU:388011) to premix individual components within the 3 gallon kits.

MIXING

Note: Before starting, ensure that the material, concrete surface, and the ambient air are all at 50-90°F. Mixing ratio is 2 parts by volume of Part A to 1 part by volume of part B.

Pre-mix both A and B sides prior to combining.

Add part “A” to the mixing container.

Add part “B” to the mixing container and mix for 3 minutes.

APPLICATION EQUIPMENT

24” notched squeegee
18" short nap lint free roller

APPLICATION

Mix only what you can squeegee and back roll within 30-45 minutes (approximately 1 gallon of mixed material per crew of two applicators wearing spiked shoes). Do not aerate the mix.

Before starting, ensure that the material, concrete surface, and the ambient air are all at 50-90°F. Do not apply in direct sunlight or when temperature is rising. Wearing spiked shoes, immediately pour mixed PLE-100 General Purpose Epoxy on the floor in ribbons. Spread using a squeegee and then back roll using a short nap lint-free roller. If priming is required, PLE-100 General Purpose Epoxy can be thinned up to 10% by volume with xylene and squeegeed tight to help fill small voids. Refer to recoat window below for best practice when abrading and/or applying subsequent coats.

CLEAN UP

Clean Tools and application equipment immediately after use with active solvent like xylene (in SCAQMD use acetone only). Clean spills or drips while still wet with solvent. Dried product will require mechanical abrasion for removal.

Form: ARJ-2400
Rev.: 070323

CITADEL® PLE-100
100% SOLIDS GENERAL PURPOSE EPOXY

PRODUCT APPLICATION (cont.)

LIMITATIONS

Do not apply if water or ice is present. Lower temperatures will slow cure time. Do not store PLE-100 General Purpose Epoxy at temperatures below 50°F or above 95°F. Do not apply to slabs on grade unless a heavy uninterrupted vapor barrier has been installed under the slab. Do not apply PLE-100 General Purpose Epoxy if the floor is subject to moisture vapor drive or hydrostatic pressure. PLE-100 General Purpose Epoxy will yellow upon prolonged exposure to sunlight or high intensity artificial lights.

PERFORMANCE CHARACTERISTICS

COMPRESSIVE STRENGTH

METHOD: ASTM C695
RESULT: 7,500 psi @ 24 hours and 9,800 psi @ 7 days

TENSILE STRENGTH

METHOD: ASTM D412
RESULT: 4500-5200 psi

BOND STRENGTH TO CONCRETE

METHOD: ASTM D4541
RESULT: >600 psi

TABER ABRASION

METHOD: ASTM 4060, CS 17
RESULT: Loss/1000 cycles = 36 mg.

FLAMMABILITY

METHOD: ASTM D635
RESULT: Self-extinguishing

WATER ABSORPTION (24 HOURS)

METHOD: ASTM D570
RESULT: <0.5%

KONIG HARDNESS

METHOD: ASTM D4366
RESULT: 120

TENSILE ELONGATION %

METHOD: ASTM D638
RESULT: 20-30%

MONOLITHIC SURFACING

METHOD: ASTM C722
RESULT: Pass

IMPACT RESISTANCE

METHOD: ASTM D2794
RESULT: Pass

CHEMICAL RESISTANCE

CHEMICAL	RESULT
Acetic Acid 100%	Y
Acetone	N
Ammonium 30%	Y
Ammonium Hydroxide 30%	Y
Animal Urine	S
Antifreeze	Y
Benzyl Alcohol	S
Brake Fluid	Y
Calcium Hypochlorite (Chlorine)	Y
Chromic Acid 10%	Y
Citric Acid 10%	Y
Clorox	Y
Ethyl Acetate	N
Gasoline	Y
Glycol Ether	N
Hydraulic Fluids	N
Hydrochloric Acid 35%	Y
Hydrofluoric Acid 40%	N
Hydrogen Peroxide 30%	S
Iodine 2%	Y
MEK	N
Methanol	N
Methyl Cellosolve	N
Methylene Chloride	N
Mineral Spirits	S
Motor Oil	Y
Mustard	N
Nitric Acid 20%	S
Nitric Acid 40%	N
Orange Juice	Y
Phosphoric Acid 10%	Y
Phosphoric Acid 30%	S
Phosphoric Acid 50%	S
PM Solvent	Y
Silver Nitrate 20%	Y
Skydrol	S
Sodium Hydroxide 50% (Caustic Soda)	Y
Sodium Hypchlorite 15% (Bleach)	Y
Sodium Hypchlorite 50% (Bleach)	N
Sulfuric Acid 10% (Battery Acid)	Y
Sulfuric Acid 50% (Battery Acid)	Y
Toluene	N
Trichloroethylene (1, 1,1)	S
Trichloroethylene	N
Windshield Wiper Fluid	Y
Xylene	S

Chemical Resistance: Chart Key

Y= Resistant
S= Splash & Spill
N=Not recommended

CITADEL® PLE-100
100% SOLIDS GENERAL PURPOSE EPOXY

PHYSICAL PROPERTIES

		PLE-100 100% SOLIDS GENERAL PURPOSE EPOXY
Resin Type		Epoxy Amine
Pigment Type		Varies depending on color
Weight	**Per Gallon**	8.5-10.8 lbs.
	Per Liter	1.0-1.3 kg
Solids	**By Weight**	100%
	By Volume	100%
Volatile Organic Compounds*		<10 g/l
Recommended Dry Film Thickness (DFT) Per Coat		8-12 mils
Recommended Wet Film Thickness (WFT) Per Coat		8-12 mils
Practical Coverage (assume 15% material loss)		115-170 sq. ft./gal. Coverage rates will vary based on application method.
Mixing Ratio		2A : 1B
Pot Life		30-35 minutes
Re-Coat Window (Min./Max)		12 hours/24 hours
Dry Times at 77°F (25ºC) and 50% Relative Humidity	**Touch**	4-6 hours
	Vehicle Traffic	48-72 hours
	Full Cure**	7 days
Shelf Life		5 years
Flash Point		>200°F (93°C)
Safety Information		**PROTECT FROM FREEZING** For additional information, see SDS

*EPA Method 24 Floor Category
**Coating achieves its full physical and chemical resistant properties.
Calculated values are shown and may vary from the actual manufactured material.

CITADEL®
POLYUREA-1 HD

DESCRIPTION AND USES

Polyurea-1 HD is a high solids, single component Aliphatic Polyurea that provides a high gloss, smooth finish with excellent protection from UV rays, abrasion, and many of today's harshest chemicals. Polyurea-1 HD provides reliable performance in a wide range of temperatures and climate conditions. For a beautiful satin finish, just add our Ultra Durability Plus additive. Ideal for interior, exterior horizontal and vertical use.

PRODUCT

DESCRIPTION	SKU
Clear 2 Gallon Kit	10607

PACKAGING

5 gallon bucket containing two - 1 gallon pouches and two stabilizer shots.

COMPANION PRODUCT

DESCRIPTION	SKU
Ultra Durability Plus Additive	15302

RECOMMENDED PRIMERS

- EP-55
- Hard Surface Primer
- Ultra-Hydro Stop
- Ultra-Hydro Stop H2O
- SLE-100
- Polyurea-350

PRODUCT FEATURES AND BENEFITS

- Fast return to service time, can accept vehicle traffic in 24 hours
- UV Stable, excellent chemical and abrasion resistance
- Easy roller application
- One gallon covers 400-500 square feet
- Unlimited Pot Life

PRODUCT APPLICATION

READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING PROJECT

CONCRETE REPAIR

All spalls and cracks must be chased out and repaired to ICRI standards using an appropriate patching material.

SURFACE PREPARATION

The concrete surface must be free of all dirt, grease, oil, fats, and other contamination. Remove surface contamination by cleaning with Krud Kutter® Original Cleaner Degreaser, detergent, or other suitable cleaner. Rinse thoroughly with clean, fresh water and allowed to dry.

PRODUCT APPLICATION (cont.)

SURFACE PREPARATION (cont.)

NOTE: The substrate must be completely dry prior to application of Polyurea-1 HD. Urethane coatings are sensitive to moisture and can affect proper curing of the coating.

NEW, UNCOATED CONCRETE: New concrete must be allowed to cure for a minimum of 30 days before application. In addition to the aforementioned cleaning, the concrete must be further prepared by mechanical grinding or acid etch to remove all laitance and produce a suitable surface profile.

PREVIOUSLY COATED CONCRETE: Previously coated concrete must be in good sound condition with the existing coating tightly adhering to the concrete. In addition to the aforementioned cleaning the existing coating must be sanded to dull the finish and produce a slight surface profile. Remove all sanding dust by vacuum. Do not wipe the floor with denatured alcohol or other solvent. If wiping is necessary, use only urethane grade Methyl Ethyl Ketone (MEK).

MIXING

Both components and environment should be pre conditioned to a minimum of 50º F (10º C) prior to use. Be sure the air and surface temperatures are at least 5º above the dew point. Polyurea-1 HD is moisture sensitive, so be sure the outside of the containers are dry and free of condensation.

Shake the container of Stabilized for one full minute before combining with the Polyurea-1 HD. The components can be mixed in a separate container or mixed in the gallon pouch. After combining the components, power mix at 500-700 rpm for 2-3 minutes. Use an appropriate size mixer and use care to not entrain air into the coating while mixing. Once mixed, the material has a 6 month shelf life.

EQUIPMENT RECOMMENDATIONS

ROLLER: Use a high quality 3/8 or 1/4 inch lint-free roller with a phenolic core.

BRUSH: Use a disposable natural fiber chip brush, 2-4 inch wide for cut in work.

APPLICATION

Apply only when air, material and floor temperatures are between 50-90°F (10-32°C) and the surface temperature is at least 5°F (3°C) above the dew point. The relative humidity should not be greater than 85%. Do not apply in direct sunlight or when temperature is rising. Be sure the substrate is completely dry.

Form: ARJ-2099
Rev.: 071420

CITADEL®
POLYUREA-1 HD

PRODUCT APPLICATION (cont.)

APPLICATION (cont.)

Pour out only the amount of material to be used into a roller pan. Unused material can be saved in the mixing container for up to 6 months provided it is properly sealed. Do not return unused material from the roller pan to the mixing container.

Use a 3/8 or 1/4 inch, lint free roller with a phenolic core to roll out the coating. Begin with rolling out a W or M pattern, then cross roll to fill in and smooth out the coating.

NOTE: Do not exceed recommended coverage rate, as film defects are possible.

THINNING

Not recommended

CLEAN-UP

Methyl Ethyl Ketone (MEK)

PERFORMANCE CHARACTERISTICS

TENSILE STRENGTH

METHOD: ASTM D412
RESULT: 5,500

ABRASION RESISTANCE

METHOD: ASTM D4060, CS 17 Wheel, 1,000 g load, 1,000 cycles
RESULT: 43

COMPRESSIVE STRENGTH

METHOD: ASTM D695
RESULT: 12,000

HARDNESS, SHORE D

METHOD: ASTM D2240
RESULT: 84

ELONGATION

METHOD: ASTM D412
RESULT: 75

GLOSS

METHOD:ASTM D23 @ 60°
RESULT: 91+

COEFFICIENT OF FRICTION

METHOD: ASTM D1894
RESULT: 0.69 Wet, 0.80 Dry

CHEMICAL RESISTANCE

CHEMICAL	RESULT (77°F/25°C)
Acetic Acid 100%	RC
Acetone	R
Ammonium Hydroxide 50%	RC
Benzene	RC
Brake Fluid	RC
Brine saturated H2O	R
Chlorinated H2O	R
Clorox (10%) H2O	R
Diesel fuel	RC
Gasoline	R
Gasoline/5% MTBE	R
Gasoline/5% Methanol	R
Hydrochloric Acid 20%	R
Hydrofluoric Acid 10%	RC
Hydraulic fluid (oil)	RC
Isopropyl Alcohol	R
Jet Fuel (JP-4)	R
Lactic Acid	RC
MEK	NR
Methanol	R
Methylene Chloride	C
Mineral Spirits	R
Motor Oil	R
MTBE	C
Muriatic Acid 10%	R
NaCl/H2O 10%	R
Nitric Acid 20%	R
Phosphoric Acid 10%	RC
Phosphoric Acid 50%	NR
Potassium Hydroxide 10%	R
Potassium Hydroxide 20%	R, Dis
Propylene Carbonate	RC
Skydrol	RC
Sodium Hydroxide 25%	R
Sodium Hydroxide 50%	R, Dis
Sodium Hypchlorite 10%	RC
Sodium Bicarbonate	R
Stearic Acid	R
Sugar/H20	R
Sulfuric Acid 10%	R
Sulfuric Acid >50%	R
Toluene	R
1, 1,1-Trichlorethane	C
Trisodium Phosphate	R
Vinegar/H2O 5%	R
H2O 14 days @ 82°	R
Xylene	NR

Chemical Resistance: Chart Key

R=recommended/little or no visible damage
RC=recommended conditional/some effect, swelling or discoloration
C=Conditional/Cracking-wash within one hour of spillage to avoid affects
NR=Not recommended
Dis=discolorative

Form: ARJ-2099
Rev.: 071420

CITADEL®
POLYUREA-1 HD

PHYSICAL PROPERTIES

		POLYUREA-1 HD
Resin Type		Aliphatic Urethane
Weight*	**Per Gallon**	9.59 lbs.
	Per Liter	1.1 kg
Solids By Volume		90%
Volatile Organic Compounds*		<50 g/l*
Practical Coverage Rate		400 sq.ft./gal. Coverage rate can vary depending on the texture and porosity of the concrete
Dry Times at 72°F (22ºC) and 50% Relative Humidity†	**Recoat****	4-12 hours***
	Light Traffic	4-6 hours
	Full Traffic	24 hours
Shelf Life		18 months unopened 6 months once the Stabilizer/Tint has been added
Flash Point		>200°F (93°C)
Safety Information		See SDS

Calculated values are shown and may vary slightly from the actual manufactured material.
† Dry times will be increase if temperatures are less than 65º F (18ºC) and /or Relative Humidity is less than 50%.
* Calculated applied VOC
** As temperature, humidity, and dew points rise, re-coat windows are drastically shortened. Please contact Tech Service for recommended installation practices.
*** If 12 hour recoat time has elapsed, the coating must be sanded prior to recoating.