Smith's VINYL CHIP

System Application Guide

PDS-VCFB-040822

Fast Cure Full Broadcast Vinyl Chip Polyaspartic System

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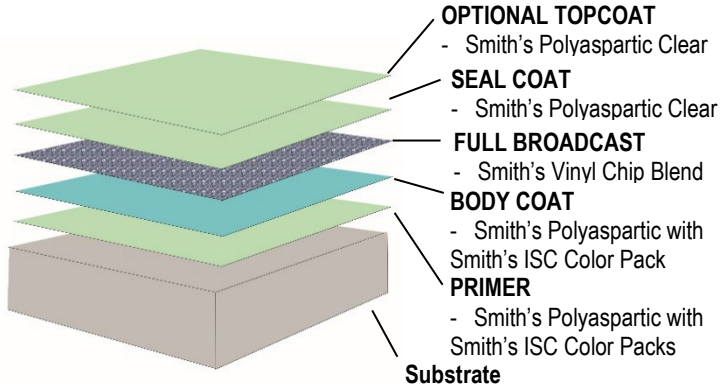
DESCRIPTION:
Smith's Polyaspartic Vinyl Chip Full Broadcast System is a fast return-to-service, single broadcast decorative vinyl chip seamless floor coating system utilizing Smith's Polyaspartic products. This system is ideal for retail, commercial, institutional, Medical & Veterinary, Kennels, as well as Residential applications, both interior and exterior with the ability to accept full traffic the following day.

HIGHLIGHTS:
- Overnight return-to-service
- UV Stable – Interior or Exterior use
- Resistant to Hot Tire Pick-up
- Good Stain and Chemical Resistance
- Decorative
- Economical
- Durable and Easy to Clean
- Low VOC's – Available in all regions

Vinyl Chip Full Broadcast System – Roughly 60 mils



NECESSARY TOOLS and EQUIPMENT:
- Plastic Sheeting or Ram Board to cover floor for mix station
- Jiffy mixing paddle
- Low speed ½" drill (Variable Speed ≤450 rpm)
- 5 gallon Plastic Mixing Buckets
- 18" wide Premium, Non-Shed 3/8" Nap Paint Roller Covers
- 18" wide Premium, Non-Shed 1/2" Nap Paint Roller Covers
- 18" wide, non-metallic Paint Roller Frames
- Multiple Extension Poles
- Flat Squeegee (Seal Coat placement)
- V-Notched 8 to 12 mil Squeegee (Body Coat placement)
- Spiked shoes or Soccer Cleats
- Cleaning Solvent (Acetone, MEK, Xylene)

NOTE: The mix station and all application equipment should be ready for immediate use prior to mixing any product. Higher temperatures and humidity will shorten pot life.

AREA PREPARATION: Be sure to mask or cover all areas that are not intended to be coated; including, but not limited to; door frames, doors, walls and windows.

SURFACE PREPARATION: Surface preparation of a Polyaspartic floor system is the *MOST IMPORTANT* phase of the application. Proper floor preparation results in the product's longevity, minimizes potential failures and creates the best environment for an aesthetically pleasing installation. In short, the more detail and time allotted to this phase of the project will dramatically affect the appearance as well as the durability and longevity of the finished floor.

1) Allow new concrete to cure for at least 28 days. A hazy appearance, blistering or loss of adhesion may occur when applied to damp or incompletely cured concrete. Moisture Vapor Testing is always recommended when coating directly over concrete. *See "Moisture /Alkalinity" section on page 2 for more details*

2) Remove paint, adhesives & loose particulates from the intended application surface

3) Mechanically prepare to a Concrete Surface Profile - CSP 2 to CSP 5 via mechanical grinding with a 30 (or less) metal bonded diamonds or shotblasting. If water is introduced to the intended application area, allow substrate to fully dry

4) Key in all termination points by saw cutting 1/8th inch wide by 1/8th inch deep termination lines at doorways, drain, etc.

5) For exterior applications – Remove 1" to 2" wide & deep of grass, mulch, landscaping rocks, etc. against the concrete to be treated to expose the vertical transition & clean

6) For a seamless appearance, all joints must be filled with an appropriate semi-rigid joint filler and finished flush to the concrete surface

7) Repair all chips, gouges, divots & other floor irregularities then grind smooth

TEMPERATURE & HUMIDITY: Substrate temperature & materials must be maintained between 50°F (10°C) to 90°F (32°C) with less than 80% Ambient Humidity for 24 hours prior to & 24 hours after installation.

INSPECT THE SUBSTRATE: Ensure the substrate is structurally sound & solid as well as free of any contaminants that may act as a bond breaker, such as oil, paint, densifier/sealers, dirt, debris, adhesives, loose/peeling existing coatings, curing compounds, wax, silicone, etc.

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CONTAMINATION OF SUBSTRATE: Concrete is porous and can become contaminated with oils, chemical from spills, etc. which act as a bond breaker. Determine if a potential bond breaker exists and a proper course of remediation.

OIL CONTAMINATION: Smith's Oil Clean may be used to remove oils, such as petroleum, synthetic and food oils, from the surface of the concrete prior to mechanical preparation. Once oil has been removed from the surface & thoroughly rinsed with clean, potable water, mechanically prepare the concrete as stated on the next page. If oil continues to "weep" out of the concrete after mechanical preparation, clean again with Smith's Oil Clean then encapsulate the oil/grease remaining in the concrete while the substrate remains damp with water but ensure no standing puddles exist prior to application of 10 to 12 mils of Smith's Epoxy MAC125 primer. Allow to cure for a minimum of 5 hours or overnight then use a sanding screen under green pad & a low-speed floor machine to abrade the surface & remove any contaminates that may have floated to the surface of the epoxy before it hard set. Vacuum off the sanding dust then tag rag with Acetone *(DO NOT USE Denatured Alcohol or Xylene for this application)*

CHEMICAL CONTAMINATION: If chemical contaminants exist, additional testing may be required. Once the type of contaminant is determined, contact Smith Paint Products for recommendations.

*****CHECK INTERIOR SUBSTRATES MOISTURE VAPOR PRESSURE & ALKALINITY LEVELS***** Testing concrete moisture via both the Calcium Chloride (ASTM F1869) & In-situ Relative Humidity (ASTM F2170) methods are highly recommended to accurately determine both the Moisture Vapor Emission Rate (ASTM F1869) & the available Moisture Content (ASTM F2170) at the time of testing. Using one test method will not give all of the necessary information & may not indicate other potential risks such as contaminants, etc. that pose a risk for delamination, chemical attack, etc. which are not caused by moisture vapor emissions or high alkalinity.

Smith's Epoxy MAC100 or Smith's Epoxy MAC125, in conjunction with proper testing & mechanical preparation, will reduce the moisture vapor emission rate to a level within the tolerance of subsequent coatings & traditional floor covering needs.

Follow the testing manufacturer's instructions precisely or visit www.astm.org, see ASTM F1869 or F2170, to purchase the test methods. Testing MUST occur within an acclimated, interior environment for the results to be valid & conclusive.

Never use silicate-based products as a means of moisture remediation as these products may crystallize in the pores of the concrete surface & impede on the adhesion of the coating system & are highly discouraged for use under any circumstance. This includes products containing Potassium Silicate nor Sodium Silicate based products.

The absence of an effective moisture vapor barrier may create an environment for moisture vapor transmission as well as high levels of alkalinity in concrete slabs. Blistering, delamination, flaking, etc. may occur in these environments when a non-breathable coating is applied over the surface of the concrete. Moisture testing is extremely important has part of the investigation process prior to quoting a project & should occur following the most current industry accepting testing methods, such as, a Calcium Chloride test (ASTM F-1869) and/or Relative Humidity probe (ASTM 2170). It is the contractor's responsibility to determine the moisture vapor transmission & pH of a floor as well as to determine whether or not a substrate is sound, solid & suitable.

Smith Paint Products is strictly a product manufacturer & does NOT offer any testing or analysis but may be able to offer guidance to an appropriate testing lab or third-party inspector. When in doubt, hire a qualified third-party testing firm.

SUBSTRATE PREPARATION:

NOTE: *DO NOT USE* MURIATIC / HYDROCLORIC ACID TO PREPARE CONCRETE AS CHLORIDE CONTAMINATION CAN OCCUR.

TEMPORARY HEAT: *During application in environments using temporary heat, make sure to exhaust emissions and toxic fumes from temporary heaters to the exterior of the building to prevent health hazards and damage to work. Many temporary heating methods emit unburned petroleum into the air which act as a bond breaker once it falls onto the surface of the substrate*

- Precautions must be taken when using LP, gasoline, diesel, etc. fueled temporary heat
- Always shut off temporary heat at least 2 to 3 hours prior to application to reduce risk of airborne petroleum contamination
- Always clean the mechanically prepared surface with Smith's Oil Clean or TSP using an auto-scrubber followed by a thorough clean water rinse when temporary heat has been in use
- Fisheyes are a result of surface contamination

CLEANING **-** Detergent scrub with Smith's Neutral Detergent, or similar, and rinse with clean, potable water to remove surface dirt, light surface grease/oil and contaminants prior to mechanical preparation. Heavy grease and oil should be removed using Smith's Oil Clean. If a densifier or dissipative curing compound is believed to have been present, use Smith's Green Clean Pro biodegradable etching gel after mechanical preparation methods.

MECHANICAL PREPARATION of CONCRETE **-** Achieve a CSP 2 to 5 *(Concrete Surface Profile in accordance with ICRI Guideline 310.2R2013, as published by the International Concrete Repair Institute)* on concrete to yield an absorbent substrate.

CRACKS, CHIPS & GOUGES **-** Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials, to include but not limited to, Smith's SKM, Smith's Epoxy GEL150; Smith's Epoxy U100 / Smith's Epoxy FC125 mixed with Silica Fume; Smith's Poly PCF-45 or similar. Ensure resinous patching products are hard enough to walk on without imprinting or damage before proceeding.

Resinous repair methods are preferred vs. cement-based products. Should a cementitious repair compound be used for repairs, it must:

- *non-water soluble*
- *rated for exterior use*
- *state "for use under a resinous coating" or similar on the cement product data sheet*

Cement based repair compounds require additional cure times prior to coating with a high solids resinous coating at 72°F / 50% Humidity:
**Follow manufacturers recommended cure rate for moisture-cured adhesives*

- Polymer-Modified Portland Cement-based Overlays & Mortars
  >5,000 psi
  Cure for 2 to 3 days per ¼" ave. thickness
- Calcium Alumina & CSA Cement-based SLU's & Mortars
  >5,000 psi
  Cure for 24 hours per ¼" ave. thickness
- Trowel Grade Cement-based Underlayments
  >5,000 psi
  Cure for 24 hours per ¼" ave. thickness
- Gypsum-based cementitious products, to include synthetic gypsum
  = NOT RECOMMENDED

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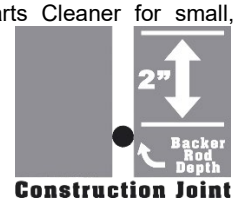
JOINTS **-** Honor expansion joints at the finish floor elevation. Follow ACI 224.3R-95: Joints in Concrete Construction guidelines for proper filling of construction & control joints. ACI recommends allowing a concrete slab to cure for a minimum of 60 to 90 days or longer to allowing the slab to shrink & acclimate to the intended joint width thus reducing the risk of joint wall separation from the joint filler. Cooler climate applications such as freezer & coolers must be brought up to & held at a minimum of 45°F substrate temperature for no less than 10 days prior to as well as 7 to 10 days after filling with an appropriate semi-rigid joint filler, such as *Smith's Poly JF* or *Smith's Poly JF/FC*, ideally longer if possible.

Always route out joints with an appropriate width diamond cutting blade attached to a vacuumized & dust controlled joint saw to flush out debris & freshly clean the side walls of the joint. Ensure that all loose edges & broken pieces of the concrete are removed & repaired prior to filling the joint with *Smith's Poly JF* or *Smith's Poly JF/FC*. Should joint side walls require extensive repairs, cut out the bad section of concrete back to a sound, solid area then fill with an appropriate mortar for the depth & application.

NOTE - Plastic Media, Soda Blasting, etc. do not achieve enough of a profiled surface & will require additional chemical etching to properly adhere the coating to the metal.

Metal surfaces should be mechanically prepared & rust scale should be removed with a scraper prior to wire brushing or sand blasting. Once the scale is removed, the surface must be solvent washed or use an automotive Brake Parts Cleaner for small, isolated rinsing. Once clean, paint the corroded metal surface with an anti-corrosion primer, such as Smith's DTM primer, then allow to fully dry prior to joint filling or concrete repairs to protect against further corrosion to the metal. To support the joint filler & assist in sag reduction, fill the bottom of the joint with a bond breaker. Sand is recommended, especially for use in shallow joints less than 2" depth. *Only use backer rod if the joint filler is to be applied greater than 2" above the backer rod.*

Control Joint



Construction Joint

Sanding & Priming Wooden Substrates **-** Wood substrates must yield the correct deflection criteria of L / 360 per ASTM C 627 *(i.e. Deflection from 300 lbs. concentrated load standard test method)*. Sand wooden substrates using an appropriate wood floor sander to clean as well as remove existing sealers, paints, wax, etc. until the wood surface is thoroughly clean and absorbent. Vacuum the entire surface, paying close attention to voids, knots and seams between boards to remove all sanding dust and debris. Skim coat the joint seams as well as any holes using *Smith's Epoxy GEL150*, *Smith's Epoxy GEL150/FC* or *Smith's SKM* to seal off voids that could potentially leak. Once cured, sand all patching relatively flush to the surrounding surface, vacuum the entire floor thoroughly then wipe the substrate with a clean microfiber mop to loosen any remaining dust prior to priming with *Smith's Epoxy FW38*. *DO NOT INSTALL over oil contaminated, dry-rotten, insect damaged or unsound substrates.

MIXING: See individual product data sheets for detailed instructions on the package label or click product name hyperlinks throughout this document.

Mechanical agitation is recommended – Hand mixing is NOT recommended. ***DO NOT MIX AT HIGH SPEEDS*** *to avoid bubbles and moisture entrapment.*

See product data sheets for more detailed mixing instructions.

APPLICATION METHOD: May be applied via brush, roller and/or squeegee.

BRUSH APPLICATION **-** Utilize traditional soft bristle brush application to cut in corners and edges.

ROLLER APPLICATION **-** Use a 3/8" non-shed chemical resistant roller cover.

INSTALLATION: *Cure times based on 72°F with 40% Ambient Humidity*

1) ***PRIMER*** *(OPTIONAL - Recommended)* **-** Apply a thin coat of *Smith's Epoxy FW38* (with Smith's WSC Color Packs) or *Smith's Polyaspartic 1000* / *Smith's Polyaspartic 2000* (with Smith's ISC Color Packs) a rate of 5 to 7 mils ≈ 175 to 240 sq.ft. per gallon. Allow to cure:
   - *Epoxy FW38* = 3 hours
   - *Polyaspartic 1000* Fast Cure = 2 hours
   - *Polyaspartic 2000* Slow Cure = 3 hours
2) ***BODY COAT & BROADCAST*** **-** Apply *Smith's Polyaspartic 1000* or *Smith's Polyaspartic 2000* with *Smith's ISC Color Pack* at 8 to 12 mils ≈ 133 to 200 sq.ft. per gallon using either the dip and roll method with a 1/2" non-shed solvent resistant roller or V-Notched 8 to 12 mil Squeegee then back roll with 3/8" non-shed solvent resistant roller. Immediately broadcast Smith's Vinyl Chip into the fresh Polyaspartic at a rate of 0.12 to 0.2 lbs. per sq.ft. Allow to cure:
   - *Polyaspartic 1000* Fast Cure = 2 to 3 hours
   - *Polyaspartic 2000* Slow Cure = 4 to 5 hours
3) ***REMOVE EXCESS*** **-** Scrape off any ridges of Vinyl Chips using a drywall tape knife or similar flat blade scrape
4) ***CLEAN*** **-** Vacuum the entire surface thoroughly to ensure all loose Vinyl Chip has been removed
5) ***GROUT COAT*** **-** Apply seal coat of clear *Smith's Polyaspartic 1000*, *Smith's Polyaspartic 2000* or *Smith's Polyaspartic 5000* at 10 to 15 mils ≈ 107 to 160 sq.ft. per gallon via flat blade squeegee then back roll with 3/8" non-shed solvent resistant roller. This will yield a heavy orange peel like texture. If an additional layer is desired, allow to cure as stated below prior to recoating:
   - *Polyaspartic 1000* Fast Cure = 2 to 3 hours
   - *Polyaspartic 2000* Slow Cure = 4 to 5 hours
   - *Polyaspartic 5000* Low Odor = 5 to 6 hours

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6) ***SEAL COAT*** **–** If a smoother / less orange peel like finish texture is desired, apply a clear seal coat of *Smith's Polyaspartic 1000* or *Polyaspartic 2000* at 8 to 15 mils ≈ 106 to 200 sq.ft. per gallon via flat blade squeegee then back roll with 3/8" non-shed solvent resistant roller. Thicker seal coat application will result in less pronounced texture.

   a) For a smooth finish, allow this layer to dry then sand with 80 grit sandpaper using a low-speed orbital buffer, vacuum thoroughly then tack rag to remove any remaining dust prior to applying an optional topcoat. * Angular traction additive, such as *Smith's Resin Sand*, may be added to this layer if desired.

7) ***TOPCOAT*** **–** If an additional layer is desired, allow to cure as stated below prior to recoating:

- *Smith's Polyaspartic 1000* Fast Cure = 2 to 3 hours
- *Smith's Polyaspartic 2000* Slow Cure = 4 to 5 hours

  - Smooth, Gloss Finish requires sanding after the optional seal coat (section 6) with 80 grit sandpaper using a low-speed orbital buffer, vacuum thoroughly then tack rag with Acetone to remove any remaining dust prior to applying an optional topcoat of *Smith's Polyaspartic 2000* or *Smith's Polyaspartic 5000*
    - 10 to 15 mils ≈ 107 to 165 sq.ft. per gallon
  - Low Sheen Finish MUST be applied via dip-and-roll method in a V-Roll pattern with straight finish roll using *Smith's Poly WB Low Sheen*
    - 500 to 600 sq.ft. per mixed gallon

  * Angular traction additive, such as *Smith's Resin Sand*, may be added to this layer if desired.

Cure rate for:

Light / Foot Traffic @ 72°F / 50% Ambient Humidity:
- *Smith's Polyaspartic 1000* Fast Cure = 2 to 3 hours
- *Smith's Polyaspartic 2000* Slow Cure = 4 to 5 hours

Vehicle / Full Traffic @ 72°F / 50% Ambient Humidity:
- *Smith's Polyaspartic 1000* Fast Cure = 12 to 24 hours
- *Smith's Polyaspartic 2000* Slow Cure = 24 to 36 hours

** Mil and sq. ft. coverage are theoretical. Substrate porosity will affect coverage rates.*

APPLICATION TEMPERATURES:

	Material	Surface	Ambient	Humidity
Best	60° to 80°F	65° to 80°F	65° to 85°F	10 to 60%
Minimum	50°F	50°F	50°F	0%
Maximum	90°F	90°F	95°F	70%

- Do not apply when substrate has direct sun
- High humidity will decrease pot life
- Priming is required for excessively absorbent substrates and for exterior applications

SLIP RESISTANCE: Smith Paint Products recommends the use of angular slip-resistant aggregate in all coatings that may be exposed to wet, oily or greasy conditions as well as any condition where increased traction may be necessary. It is the contractor & end users' responsibility to determine the appropriate traction needs & footwear necessary for the conditions as well as setting performance parameters prior to beginning the application, testing to determine parameters have been met upon completion to achieve the end users documented safety standards.

Mock-ups are highly recommended to determine the appropriate amount of slip-coefficient necessary for the environment.

RECOATING: Smith's Polyaspartic products should be recoated as soon a previous coat is dry to the touch. If recoating after 24 hours has elapsed, degloss existing sealer film with a black janitor pad, 80 to 100 grit sandpaper or sanding screen.

MAINTENANCE: *The coating system must be allowed to cure for no less than one week before using any mechanical cleaning equipment on the surface and no less than 24 hours before neutral cleaner or water exposure. This includes auto-scrubbers, swing buffers, sweepers, etc. Only dust and wet mopping may occur the first week. Please click here more in-depth maintenance procedures.*

Dust mopping, removal of debris & regular cleaning is crucial to maintaining the aesthetics of the coating & obtaining the maximum life span of the floor coating system. Cleaning cannot occur too often & inefficient cleaning will cause the floor to wear out prematurely, possibly stain or discolor depending on what comes in contact with the floor. Spills should be removed quickly. Avoid the use of Polypropylene or abrasive bristle (Tynex®) brushes as these brushes will cause the development of scratch patterns & lessen the sheen.

To maximum your investment with proper floor care & maintenance, remove all particles that may scratch and/or dull the floor coating using the least aggressive method necessary to clean the floor.

It is good practice to develop a floor maintenance schedule to be performed at the end of each shift & a set day per week or month for heavy cleaning:

- Daily = Sweep & dust mop or water only mopping/auto-scrubbing; spot clean spills & oils
- Weekly or Monthly = Scrubbed once per week or month depending on the amount & type of soils present

Health Department or DEA regulations may necessitate more frequent & stringent cleaning practices as will areas more prone to oils, inks, chemicals, etc. on the floor surface.

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- Do not drag or drop heavy objects across any floor, including coatings as scratching, gouging or chipping may occur to the concrete or the coating itself. This includes the tip of the forks on a forklift, nails protruding from a pallets, etc.
- Avoid spinning tires on the surface of a coated floor. The heat created from the friction of a spinning tire will quickly soften the coating causing permanent damage to the finish
- Should a gouge, chip or scratch occur, touch-up the damaged areas immediately to avoid chemical or water intrusion to the concrete which could create additional damage. A thin layer of clear nail polish to the damaged area will provide some minimal protection until the area can be properly repaired
- Rubber tires are prone to plasticizer migration, especially aviation tires & high-performance car tires. Plasticizer will stain coatings & commercial flooring leaving an amber, yellow-like stain that can be permanent. Some tire stains can be removed is cleaned before a set-in stain occurs using a d-Limonene based degreaser & some mild agitation using an orbital, low speed floor machine