

Product Data Sheet

DESCRIPTION: CEM SPAR FC-100 is a 2-Component, Fast-Cure, High-Performance, 76% Solids Aliphatic Polyaspartic coating with a gloss finish which yields a Resilient, U.V. Stable and Abrasion Resistant film with exceptional splash and chemical spill properties for application to a variety of substrates including, but not limited to concrete, wood and metal.

CEM SPAR FC-100 was developed for ease of use with a convenient equal volume mix ratio and thin consistency plus a longer working time than most competitor's regular curing Polyaspartic products.

CEM SPAR FC-100 is an excellent coating system for *Vinyl Chip*, *Color Quartz*, fast return-to-service broadcast shop floors and pigmented applications for Residential, Retail, Commercial or Industrial environments which demand color stability, faster return-to-service and durability.

RECOMMENDED USES:

- Fast Return-to-Service Applications
- Food & Beverage Floors
- Forklift traffic areas
- Manufacturing Areas & Aisleways
- Decorative Concrete Systems & Stains
- Loading Docks
- Institutional, Retail, Commercial & Residential Environments
- Schools & Universities
- Pharmaceutical Floors

HIGHLIGHTS:

- For Interior & Exterior Use
- Low VOC's – Less than 2 g/L
- Meets Source Specific Standards Rule 1113 established by AQMD in California
- Highly Durable
- Easy to Clean
- Overnight Return to Service
- Hot Tire Pickup Resistant
- Meets FDA & USDA standards for floor coatings

STORAGE:

Indoors between 40°F (4.4°C) to 90°F (32.2°C)

SUBSTRATE SURFACE TEMPERATURE:

40°F (4.4°C) to 85°F (29.4°C) with less than 80% Ambient Humidity

SHELF LIFE:

12 Months in original, unopened containers
30 days once opened

PART NUMBER & PACKAGING:

Gloss, 2 Gallon Kit
Gloss, 10 Gallon Kit

COLORS (sold separately): CEM Color Packs

Clear

CURE TIMES:

**Higher temperatures and humidity will shorten pot-life.*

***Based on 8 mil wet film thickness, higher build will lengthen the cure time necessary for traffic*

Temperature / Humidity	55°F (50% Humidity)	72°F (50% Humidity)	85°F (50% Humidity)
Pot Life	60 to 80 min.	30 minutes	15 minutes
Working Time	60 minutes	30 minutes	10 to 15 min.
Tack Free	3 to 4 hours	1 to 2 hours	60 to 90 min.
Recoat Window	5 to 24 hours	2 to 24 hrs	1 ½ to 18 hrs
Foot Traffic (@ 8 mils)	± 8 hours	± 4 hours	± 2 ½ hours
Heavy Traffic (Vehicular/Forklift)	± 48 hours	± 24 hours	± 20 hours
Max. Chemical Resistance	4 to 6 days	2 to 3 days	± 2 days

CURED COATING PROPERTIES (DRY FILM):

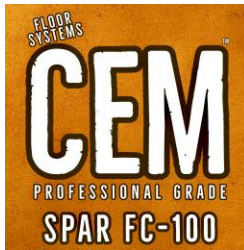
Property	Test Method	Results
Abrasion Resistance, mg/loss* Taber Abraser	ASTM D4060	50 mg loss
Hardness (Pencil)	ASTM 3363	F
Impact	ASTM D2794	160 in.lbs. Direct & 120 in.lbs. Reverse
Tensile Strength, psi (MPa)	ASTM D2370	6,526 psi (45 MPa)
Conical Mandrel Elongation	ASTM D522	50% (Pass)
Gloss	60 degree	90 (±5)
Viscosity (Mixed)	ASTM 2196	148 cP
VOC's	ASTM D3960	<2 g/L

*CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions Results are based on conditions at 77°F (25°C), 50% relative humidity

APPROXIMATE COVERAGE PER MIXED GALLON:

Coverage varies due to application thickness, texture & absorption of concrete.
Coverage Equation: $1604 \div \text{millage} = \text{Wet Film Thickness} \times 0.76 = \text{Dry Film Thickness}$

Mil Thickness DFT (WFT)	Approximate Coverage per mixed gallon
5 mils DFT (6.5 mils WFT)	244 sq.ft./gal
6 mils DFT (7.9 mils WFT)	203 sq.ft./gal
7 mils DFT (9.2 mils WFT)	174 sq.ft./gal
8 mils DFT (10.5 mils WFT)	152 sq.ft./gal
10 mils DFT (13.1 mils WFT)	122 sq.ft./gal
12 mils DFT (15.7 mils WFT)	101 sq.ft./gal



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Typical Chemical & Stain Resistance

Covered Spot Test - 3 mil film at 7 day cure:

E – Excellent; **G** – Good (slight sign of exposure/stains, coating recovers);
D – Discolored / Stain; **NR** – Not Recommended (Permanent Damage)

24 hour Exposure

ACIDS	
Acetic Acid 25% (Vinegar)	E
Citric Acid 10%	E
Lactic Acid 88%	G
Phosphoric Acid 85%	D
Sulfuric Acid 25% (Battery Acid)	E
Sulfuric Acid 98%	NR
Hydrochloric Acid 32% (Muriatic)	E
Nitric Acid 67%	NR
BASES	
Ammonium Hydroxide 10%	E
Sodium Chloride 20%	E
Sodium Hydroxide 50%	E
Sodium Hypochlorite (Bleach)	E
Trisodium Phosphate 10%	E
ALCOHOLS	
Ethylene Glycol (Antifreeze)	E
Isopropyl Alcohol 91%	E
Methanol	E
Hand Sanitizer (Purell)	G
SOLVENTS	
Acetone	G
d-Limonene	E
MEK	G
Methylene Chloride	G
Mineral Spirits	E
PGMEA	G
HYDROCARBONS	
Brake Fluid	G
Transmission Fluid	E
Motor Oil	E
Kerosene	E
Hydraulic Fluid	E
Skydrol® – LD-4	D
MISCELLANEOUS	
Coffee	E
Coke®	E
Dish Detergent (Dawn®)	E
Hydrogen Peroxide 3%	E
Ketchup	E
Monster Energy® Drink	E
Mustard	E
Povidone-iodine (BETADINE®)	D
Tide® 1%	E
Windex® (Ammonia Based)	E
Wine – Red	E

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INSPECT THE SUBSTRATE: Ensure the concrete is structurally sound and solid as well as free of any contaminants that may act as a bond breaker, such as oil, paint, densifier/sealers, curing compounds, wax, silicone, etc.

TEMPERATURE and HUMIDITY: Substrate temperature and materials must be maintained between 40°F (4.4°C) and 85°F (29.4°C) with less than 80% Ambient Humidity for 24 hours prior to and 24 hours after installation.

**Do Not Install coatings when the Dew point is within 5° of the temperature*

LIMITATIONS:

- AVOID applying while humidity is greater than 80% during installation
- HEAVY TEXTURE SURFACES - Use a 1/2" to 3/4" nap roller cover when applying over heavy texture surfaces, such as knockdown overlays or heavy stamped patterns, while ensuring no puddling remain
- As best practice, apply a thin primer coat (@ 5 to 7 mils / 230 to 320 sq.ft. per gallon) when installing directly to bare to avoid air bubbles from becoming trapped in the in the coating film while curing
- DO NOT PUDDLE – Maximum single layer thickness wet should not exceed 82 sq.ft. per gallon (19.7 mils WFT) to avoid solvent entrapment/fogging/foaming
 - May be applied in multiple layers to achieve a thicker film if desired
- DO NOT INSTALL when the Dew point is within ±5° of the temperature

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

CEM's MVB System in conjunction with proper testing and mechanical preparation, will reduce the moisture vapor emission rate to a level within the tolerance of subsequent coatings and 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 and conclusive.

CEM Coatings Group, Inc. is strictly a product manufacturer and 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.

For Wooden substrates, no greater than 12% is recommended prior to coating when using a wood substrate moisture meter.

CEM Coatings Group, Inc. Products is not responsible for failures due to the presence of moisture vapor emissions nor high levels of alkalinity.

SUBSTRATE CONTAMINATION: 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: CEM's Oil Stop may be used to remove oils, such as petroleum, synthetic and food oils, from the surface of the concrete prior to mechanical preparation. Remove and replace wooden substrates contaminated with oil with new exterior grade or marine grade wood subflooring.

CHEMICAL CONTAMINATION: Chemical contamination should be determined and may require additional testing. Once the type of contaminant is determined, contact CEM Coatings Group, Inc. for recommendations while following local regulations regarding contaminant and disposal.

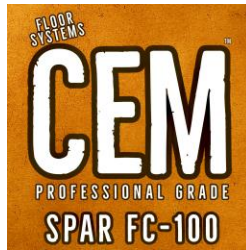
PRECAUTIONS / WARNING (*See SDS for details):

Contains Solvent - Material is Combustible

- Extinguish all flames and avoid sparks, heat, open flames, pilot lights & electric motors until all vapors are gone and coating is hard
- Use with adequate ventilation when mixing, applying & curing
- Product emits harmful vapors during application which can cause respiratory irritation
 - Individuals with chronic lung or breathing problems or negative reaction to isocyanates, should not use this product

PERSONAL PROTECTION EQUIPMENT RECOMMENDED:

- Use of a self-contained respiratory equipment (TC 19C NIOSH/MESA)
 - Avoid inhaling atomized spray & fumes
- Wear Chemical Resistant Gloves – Avoid all contact with skin
- Wear Chemical Resistant Eye Protection – Prevent contact with eyes



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NECESSARY TOOLS and EQUIPMENT:

- Plastic Sheeting or Ram Board to cover floor for mix station
- Jiffy mixing paddle
- Self-contained respiratory equipment/mask (TC 19C NIOSH/MESA)
- Low speed 1/2" drill (Variable Speed 450 rpm or less)
- 5 gallon Plastic Mixing Buckets
- Premium, Non-Shed 3/8" Nap Paint Roller Covers
- Several 18" wide, non-metallic Paint Roller Frames
- Multiple Extension Poles
- Spiked shoes or Cleats
- Masking Tap
- Cleaning Solvent (Acetone, MEK, Xylene)

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

SUBSTRATE PREPARATION:

CLEANING - Detergent scrub with *A 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 *CEM's Oil Stop*. If a densifier or dissipative curing compound is believed to have been present, use biodegradable etching gel after mechanical preparation methods.

NOTE: *Methyl Methacrylate (MMA)* is NOT an acceptable substrate and delamination will occur if topcoated.

Diamond Grind - Use 25 to 80 grit metal bond diamonds with an appropriate industrial, weighted head floor grinder to thoroughly remove the concrete surface until uniformly white. Do NOT use resin bond diamonds to prepare concrete to be sealed due to the risk of resin residue transfer to the concrete surface and potential for fisheyes or a bond breaker.

***Etching Compound** - A buffered etching compound may be used as follows:

- Preparation method for new concrete that has **NOT** been previously sealed, to include curing compounds for foot traffic or residential traffic applications prior to staining.
- Remediation method for removing densifiers/silicates prior to mechanical preparation for floor coatings.

When using an *etching product*, ensure an even, dull appearance with a uniform sandpaper like finish with no patterning or dis-similar appearance. Shiny areas should not exist and will need further treatment. Thoroughly rinse.

NOTE:

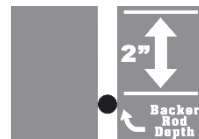
- DO NOT USE MURIATIC / HYDROCHLORIC ACID TO PREPARE CONCRETE AS CHLORIDE CONTAMINATION CAN OCCUR
- When etching, ensure all has been thoroughly removed with potable water with no remaining soapy residue or cement slurry.
- DO NOT USE on "Green" concrete (less than 30 days old), *Hard Trowel Finished* concrete or *previously sealed/coated/painted* concrete to including any type of curing compound.

**Key in all termination points using a diamond cutting blade prior to any above preparation method.*

Please refer to ICRI Guideline 310.2R2013 for more in-depth preparation details and recommendations.

JOINTS, CRACKS & PATCHING: Honor expansion joints at the finish floor elevation. Follow ACI 224.3R-95: Joints in Concrete Construction guidelines for proper filling of construction and control joints. Honoring of the joint at the surface after the coating is applied then fill with an appropriate joint filler can lessen joint telegraphing. Ensure patching products are hard enough to walk on without the risk of damage before proceeding with subsequent coatings.

ACI recommends allowing a concrete slab to cure for a minimum of 60 to 90 days or



Construction Joint

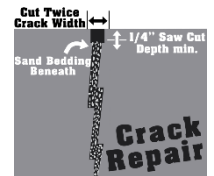
longer to allowing the slab to shrink and acclimate to the intended joint width thus reducing the risk of joint wall separation from the joint filler. Cooler climate applications such as freezer and coolers must be



Control Joint

brought up to and 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.

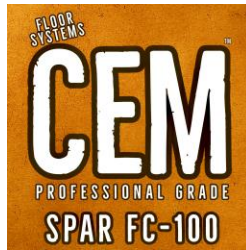
Clean out all joints and moving cracks open with a Diamond cutting blade prior to filling or patching as necessary with an appropriate repair material or crack filler. Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials.



Crack Repair

Patching of chips, gouges, etc. may be repaired with a variety of different, compatible coating materials, to include:

Please contact CEM Coatings Group, Inc. for more recommendations for crack repairs, joint wall rebuilding, etc.



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MIXING: Premix the Part A for approximately 1 minute using a clean, paint mixing paddle on a low RPM drill (≤ 450 RPM). If part mixing, measure equal parts by volume (1 Part A to 1 Part B) and mix in a clean 5 gallon plastic pail using a paint mixing paddle attached to a slow speed drill (≤ 450 RPM) for 1 to 2 minutes. Hand mixing is NOT recommended.

1A TO 1B
VOLUME MIX RATIO

Solid Colors (optional) - Add 1 unit of CEM's Solid Color Pack to 1 gallon of mixed CEM SPAR FC-100 while mixing for an additional minute.

NOTE: DO NOT TURN THE MIXING VESSEL UPSIDE DOWN ON THE SUBSTRATE TO ALLOW THE RESIDUAL PRODUCT TO DRAIN ONTO THE FLOOR TO AVOID THE RISK OF ANY UNMIXED OR NON-THOROUGHLY CATALYZED PRODUCT FROM THE SIDES & BOTTOM OF THE MIXING VESSEL FROM REACHING THE FINISHED FLOOR.

TOPCOAT OVER A NEW COATING SYSTEM: Ensure the previous layer has cured enough to receive another layer, shows no indication of blushing and has NOT exceeded the recoat window. Correct any surface imperfections in the previous layer prior to top coating with CEM SPAR FC-100. If the previous layer has cured beyond the recoat window, the surface must be mechanically abraded using 80 to 120 grit sandpaper or screens to a uniformly dull surface with no remaining shiny areas then cleaned to remove all dust/debris prior to receiving a topcoat of CEM SPAR FC-100.

TOPCOAT EXISTING FLOOR COATING SYSTEMS: Adhesion to any existing coating system is only as good as the adhesion the existing coating system has to its substrate. Always test to determine the suitability of an existing substrate and mock-ups are highly encouraged.

MAINTENANCE: Allow the coating system to cure for at least:

- One week before using any mechanical cleaning equipment on the surface
- Minimum 24 hours before neutral cleaner or water exposure (To include auto-scrubbers, swing buffers, sweepers, etc.)
- Only dust or damp water mop within the first 72 hours after installation

Dust mopping, removal of debris and regular cleaning is crucial to maintaining the aesthetics of the coating and obtaining the maximum life span of the floor coating system. Cleaning cannot occur too often and inefficient cleaning will cause the floor to wear out prematurely and 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 and lessen the sheen.

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

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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

DETERGENT: Always use the least aggressive detergent necessary to

remove the residue or similar, may be used for general purpose cleaning. Use CEM's Oil Stop, or similar degreaser, for more degreasing & heavy-duty weekly or monthly cleaning.

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

Caution: 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 pallet, 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 soft, sticky compound aviation tires & high-performance car tires. Plasticizer will stain coating & commercial flooring leaving an amber, yellow-like stain that can be permanent. This can be more noticeable where aircraft or vehicles are stationary for longer period of time, more so in non-climate-controlled environments such as aircraft hangar with lighter colored floors. To avoid plasticizer staining, use a piece of Plexiglas® or LEXAN® panels, cut a few inches in diameter larger than the tires that will rest on the panels, between the floor & the contact point of the tire when storing rubber-tired vehicles on any floor system. Some tire stains can be removed is cleaned before a set-in stain occurs using a d-Limonene based degreaser with some mild agitation using an orbital, low speed floor machine.

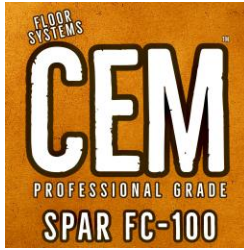
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SLIP RESISTANCE: CEM Coatings Group, Inc. recommends the use of angular slip-resistant aggregate in all coatings that may be exposed to wet, oily or greasy conditions as well as any condition where increased traction is deemed necessary. It is the 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 as part of the evaluation process to determine the appropriate amount of slip-coefficient necessary for the environment.

LIMITED LIABILITY: Liability is limited to replacement of defectively manufactured product of the same type and cost of the originally purchased product upon presentation of a valid, fully paid invoice at the time of a claim. No warranty shall be granted for outstanding invoices or for accounts with unpaid balances until paid in full. No damages, whether consequential, liquidated or other, shall be provided under this Limitation of Liability and Limited Warranty. Should a product defect be suspected at the time of application, cease use of the product immediately and notify CEM Coatings Group, Inc. for investigation as you will be responsible for the cost to repair or replace any work performed with product(s) suspected of defect. Record batch codes and save all products you purchased in order for any warranty to occur allow with the invoice that matches said quantity. Defects determined after installation must be reported to Smith Paint Products within 10 business days of discovery.

Upon information, belief and to the best of our knowledge, the information contained herein is true accurate as of the date of issuance of this particular document and any and all information conveyed, whether expressed or implied. Is subject to change without prior notice. We guarantee our products to conform to CEM Coatings Group, Inc. quality control standards, but not to any other standards unless specifically stated in written documentation. CEM Coatings Group, Inc. assumes no liability for coverage, performance, injury results from use, misuse or usage not described in any promotional materials or regulatory infraction determined by using our products. The applicator assumes all



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