

Benjamin Moore & Co.



INDUSTRIAL MAINTENANCE COATINGS

CM40 100% Solids Epoxy Floor Coating

Features

- Solvent free — No VOC's
- Low odor
- Low viscosity
- Easy to apply
- Non-flammable
- Excellent abrasion resistance
- Excellent color retention
- 100% solids provides no shrinkage
- Self-leveling
- Resists most chemical stains

General Properties

This 100% solids epoxy floor coating was specially designed for use as a protective coating, resurfacing, and/or for patching surfaces exposed to severe and aggressive industrial environments. Advanced technology has provided us with a tough coating for high abuse areas and also an attractive finish that is easy to maintain. This film offers greater compressive strength than concrete and contains no solvent to cause shrinkage and fire hazard during application. Systems designed for squeegee, roller, brush, hand broadcast, or trowel application.

Recommended For:

- Aircraft hangers
- Animal housing
- Battery charging areas
- Beverage plants
- Breweries
- Chemical processing
- Clean rooms
- Correctional facilities
- Dairies
- Food processing
- Laboratories
- Loading docks
- Locker rooms
- Meat & poultry plants
- Pickling and plating rooms
- Ramps
- Refineries
- Showers
- Textile plants
- Traffic aisles
- Waste treatment plants

Limitations:

- Proper curing requires 50° minimum application temperature and relative humidity below 50%
- Substrate must be free of curing membranes and hardening components, or any foreign material that would be detrimental to coating adhesion
- Slight color variation can be experienced from over-rolling
- Not recommended for immersion in oxidizing agents or mineral acids
- Not recommended for vertical surfaces

Product Information

Mixing Instructions:

This two-component product is mixed by volume of components "A" to "B" (see technical data for ratios). Mix each component separately until uniform. Combine components "A" & "B" and mix thoroughly (5 minutes) or until homogeneous. For best results, use a spiral mixing blade in a variable speed (400-600 rpm) electric drill. Place the spiral mixing blade at the bottom of the container before turning on the mixer. This will help avoid inducting air into the material. Inducted air will cause "bubbles" in the coating when applied. Gently move the mixer head up to the surface while running. Do not remove the head while it is still spinning. This product has a workable pot life of 25 minutes at 70° F. Applying the material immediately after mixing will provide best results.

Note: Higher air and mixture temperatures will decrease the pot life and working time.

Colors: **MUST BE MIXED WITH CM40-84 CATALYST**

- **Standard:** CM40-00 Clear
CM40-22 Tile Red
CM40-73 Platinum Gray
CM40-74 Light Gray
CM40-75 Battleship Gray
- **Tint Bases:** CM40-90 Tintable White
CM40-91 Deep Base
- **Special Colors:** Contact your Benjamin Moore & Co. Representative

Certification:

Formulated without lead, mercury, or chromates. Does not contain any ozone-depleting substances, either Class I or Class II.

Analysis:

(typical — may vary by color)

Clear
CM40 00-G mixed with CM40 84-G
Pigment: 0%

Vehicle: 100%
Amine Epoxy 69.2%
Solvent 30.8%
Additives 100.0%

Light Gray
CM40 74-G mixed with CM40 84-G
Pigment: 7.6%
Titanium Dioxide 87.5%
Inert Pigments 12.5%
Vehicle: 91.5%
Cycloaliphatic Amine Epoxy . 30.6%
Solvent 60.5%
Additives 8.9%
100.0%

Technical Data

	Clear	Light Gray
Generic Type	Amine epoxy	Amine epoxy
Pigment Type	clear	TiO ₂ & carbon black
Volume Solids (mixed as recommended)	100%	100%
Theoretical Coverage	200 sq. ft. @ 8 Mils	200 sq. ft. @ 8 Mils
Film Thickness	– Wet – Dry	8.0 Mils 8.0 Mils
Dry Time @ 70° F	– To Touch – To Recoat	8 Hours 12 Hours
Dries By	Chemical Cure	Chemical Cure
Dry Heat Resistance	– Intermittent	300° F 300° F
Viscosity @ 70° F (mixed as recommended)	85-95 KU	105-115 KU
Flash Point (Seta)	> 200° F	> 200° F
60° Specular Gloss	95% Gloss	95% Gloss
Surface Temperature – Min. at application	50° F 85° F	50° F 85° F
Reducer	M95	M95
Reduction	– Brush – Roller – Spray	5% 5% not recommended
Clean Up Thinner	M95	M95
Mixing Ratio (by volume)	1.36:1	1.45:1
Induction Time @ 70° F	N/A	N/A
Pot Life @ 70° F	20 Minutes	25 Minutes
Weight Per Gallon (mixed as recommended)	9.17 lbs	9.64 lbs
Storage Temperature – Min. – Max.	50° F 80° F	50° F 80° F

Volatile Organic Compounds (VOC)

**Mixed, Unthinned	Grams/Liter	zero	zero
	Lbs./Gal.	zero	zero

** Contact Benjamin Moore & Co. for actual levels, which may or may not be substantially less than stated.

TDSCM40D



CM40 100% Solids Epoxy Floor Coating

Surface Preparation

Surface preparation is the most critical portion of any successful flooring system application. All substrates must be properly prepared using the following information. Keep in mind — “There are no shortcuts to a successful floor coating system.”

Concrete

Present conditions

- Slabs on ground or grade must have an efficient vapor barrier, necessary to prevent moisture vapor transmission
- Proper jointing will minimize cracking which could transmit through the coating system
- Concrete must be a minimum of 30 days old before applying floor systems
- Remove all oil, grease, or fats using Oil & Grease Emulsifier (M83)
- Remove all curing compounds, hardeners, sealers, and laitances using portable shot blast cleaning systems
- Test for moisture following ASTM D-4253 Plastic Sheet Test. Tape down a clear piece of plastic to the concrete floor for 72 hours. If moisture collects or slab has darkened, the moisture/vapor transmission is too high for coating
- All unsound concrete must be repaired or replaced prior to coating application
- Cracks should be repaired prior to coating application
- Expansion joints are treated after the coating is applied

Mechanical preparation vs. acid etching

Epoxy floor coatings ideally bond to concrete that has a rough, sandpaper finish. This can be achieved either by mechanical methods or by acid etching. Some factors that can affect this decision are:

- Ecological restrictions involved with waste removal which could prohibit the use of acids or other chemical methods
- Acid etching works best in preparing surfaces for thin film coating systems
- Sealed concrete must be prepared by mechanical method

Oil, grease, and fat removal

- Remove all oil, grease, and fat by scrubbing floor with a solution of one part Oil & Grease Emulsifier (M83) mixed with 6 parts water and applied at a rate of 100 square feet per gallon of solution
- When surface is clean rinse well with water and pick up all rinse water using industrial wet/dry vacuum

Acid etching

- Dilute one part Concrete Pretreatment & Etch (M85) with three parts water. Always add acid to water; never add water to acid. Workers should wear safety glasses, rubber gloves, and boots
- This solution is best applied by plastic garden weed sprayer. Apply at a rate of 100 square feet per gallon of solution
- Scrub the acid into the concrete using stiff bristle broom to remove loose concrete and laitance. Pay particular attention to areas that did not bubble. They may need mechanical abrading and additional acid etching
- When acid stops bubbling (approximately 15 minutes) scrub thoroughly with water solution of one part Oil & Grease Emulsifier (M83) mixed with 25 parts water. This leaves the floor with an alkaline pH instead of an acid pH. Do not allow the floor to dry before thorough rinsing because salts formed by the acid reaction may cause adhesion problems to the floor coating
- Vacuum entire floor using heavy duty wet/dry vacuum to remove all water plus any residue from the laitance removal, out of the pores or voids of the floor

Mechanical preparation

- Remove existing coatings, curing compounds, hardeners, sealer, laitance, and other foreign matter by using mechanical methods such as sand blasting, vacuum blasting, scarifiers, Rotapeen, or vacuum shotblasting
- This operation should expose clean, sound, opened and roughened surfaces for the floor coating system to adhere to

WARNING! If you scrape, sand or remove old paint, you may release lead dust. **LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE.** Wear a NIOSH-approved respirator to control lead exposure. Carefully clean up with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead.

Application Instructions

We recommend that all new or uncoated concrete floors should receive a base coat of Fast Dry Epoxy Floor Sealer/Finish (M41) applied at a rate of 325 square feet per gallon. This coating may be applied by squeegee, spray*, brush, or roller. The purpose of using this sealer is to penetrate into the substrate, forming the necessary foundation needed to support the high build topcoats.

Finish Coats

For best results with 100% Solids Epoxy Floor Coating (CM40), a total dry film thickness of 16 mils is recommended. This system will produce the required amount of coating protection. The best way to achieve this is with a two coat system.

Prime Coat All new or uncoated concrete surfaces should receive one coat of Fast Dry Epoxy Floor Sealer/Finish (M41) applied by squeegee and roller, spray*, or brush at a spread rate of 325 square feet per gallon. This sealer/finish will tolerate some moisture on the surface. When one coat is applied it serves as a penetrating sealer that will form the foundation necessary to support the high build top coat system. May be used as a clear finish for protection against water, oil, greasy soils, salts, and many chemicals by applying a second coat at 325 square feet per gallon. For additional product information see the product data sheet for Fast Dry Epoxy Floor Sealer/Finish (M41).

First Coat Apply the first coat of 100% Solids Epoxy Floor Coating (CM40) at a spread rate of 200 square feet per gallon. The best way to achieve this is by using a straight blade squeegee. One 100% Solids Epoxy Floor Coating (CM40) kit provides approximately two and one half gallons of material, so mark out 475 square foot areas and apply one kit to each area.

Finish Coat Apply the finish coat at a rate of 200 square feet per gallon using a squeegee. The addition of one pint Epoxy Thinner (M95) per 3 gallon kit will be helpful in eliminating potential bubbling and will slow the set time. For best results pour the mixed material onto the floor in "ribbons," then spread with a 24" squeegee and lightly back roll using a 1/4" to 3/8" phenolic core lint free roller. Place the roller at the beginning of each work area and pull it to you. Over rolling or re-rolling could affect the color.

Anti-Slip To obtain a non-slip surface, within 30 minutes after applying the first coat, hand broadcast Anti-Slip Aggregate (M67) in the desired amounts into the first coat, taking care to leave a 12" unsanded area on each edge for the next batch to overlap. Wearing spiked shoes, lightly back roll the aggregate into the coating so it is encapsulated. The best way to hand broadcast aggregate is to take small amounts at a time and cast it in a raining fashion which will more evenly disperse the aggregate into the epoxy film.

Cautions: When a heavier coat is applied, there is always a possibility of bubbles developing through the entrapment of air on a bare concrete surface, which is called out gassing. The addition of one pint of Epoxy Thinner (M95) per three gallon kit of mixed 100% Solids Epoxy Floor Coating (CM40) will be helpful in eliminating potential bubbling, but will slow the set time. Also, an increase in floor temperature during the cure of the first coat on bare concrete may also cause out gassing in the cured coating. For best results and to minimize out gassing, apply 100% Solids Epoxy Floor Coating (CM40) when the floor temperature is constant or decreasing during the curing process. If air entrapment or bubbling occurs in thicker monolithic floors, the use of a porcupine roller is recommended.

* While both the 100% Solids Epoxy Floor Coating (CM40) and the Fast Dry Epoxy Floor Sealer/Finish (M41) may be applied by spray, it is mandatory to use dual component airless spray equipment which mixes the two components of the product at the spray head. Do not attempt to spray either product in conventional air or airless spray equipment using premixed product.



CM40 100% Solids Epoxy Floor Coating

Physical Properties Data

Test	Test Method	Results
Compressive Strength	ASTM C-579	11,652 psi
Flexural Strength	ASTM C-580	7040 psi
Elongation	ASTM C-638	0.40%
Tensile Strength	ASTM C-307	8,500 psi
Hardness	ASTM D-2240	85
Bond Strength	ASTM D-4541	480 psi
Water Absorption	ASTM C-413	0.15%
Coefficient of Friction	ASTM D-2047	0.6
Flammability	ASTM D-635	self-extinguishing
Abrasion Resistance (Taber test)	ASTM D-4060	0.06 g
Impact Resistance	ASTM D-2794	> 60 in-lbs
Heat Resistance		140° F (60° C)

Note: All tests run in triplicate. Above values are the average results.

Environmental, Health & Safety Information

DANGER! Contains benzyl alcohol, benzene-1, 3-dimethamine, epoxy resin and isophoronediamine. CAUSES EYE AND SKIN BURNS. HARMFUL IF INHALED. MAY BE ABSORBED THOROUGH THE SKIN CAUSING SYSTEMIC TOXICITY. MAY CAUSE ALLERGIC RESPIRATORY REACTION. MAY AFFECT THE BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES EYE, SKIN, NOSE AND THROAT IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION.

IMPORTANT: Designed to be mixed with other components. Mixture will have hazards of both components. Before opening packages, read all warning labels. Follow all precautions.

NOTICE: Repeated and prolonged exposure to solvents may lead to permanent brain and nervous system damage. Eye watering, headaches, nausea, dizziness and loss of coordination are signs that solvent levels are too high. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. To avoid breathing vapors or spray mist, open window and doors or use other means to ensure fresh air entry during application and drying.

Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. **Use only with adequate ventilation.** Do not breathe vapors, spray mist or sanding dust. Do not get in eyes or on skin.

WEAR A PROPERLY FITTED VAPOR/PARTICULATE RESPIRATOR APPROVED BY NIOSH FOR USE WITH PAINTS, eye protection, gloves, and protective clothing during application (or sanding) and until all vapors and spray mist are exhausted. In confined places or in situation where continuous spray operations are typical, or if proper respirator fit is not possible, wear a positive-pressure, supplied air respirator approved by NIOSH. In all cases, follow respirator manufacturer's directions. Do not permit anyone without protection in the painting area. Close container after each use.

FIRST AID: If affected by inhalation of vapors or spray mist, remove to fresh air. In case of eye contact, flush immediately with plenty of water for at least 15 minutes and call a physician; for skin, wash thoroughly with soap and water. In case of ingestion - DO NOT INDUCE VOMITING, get medical help immediately.

IN CASE OF: FIRE – Use foam, CO₂, dry chemical or water fog.

SPILL – Absorb with inert material and dispose of in accordance with applicable regulations.

USE COMPLETELY OR DISPOSE OF PROPERLY. Empty container with product residue may still be flammable; follow all hazard statements until it has been disposed of. This product contains organic solvents which may cause adverse effects to the environment if handled improperly. Disposal of wastes containing either organic solvents or free-liquids in landfills is prohibited. Dry, empty containers may be recycled in a can recycling program. **Local disposal requirements vary; consult your sanitation department or state-designated environmental agency on disposal options.**

FOR PROFESSIONAL USE ONLY KEEP OUT OF REACH OF CHILDREN

Refer to Material Safety Data Sheet available from your retailer for further safety and handling information.

Warranty & Limitation of Sellers Liability

All statements made on any product label, product manual, product data sheets, technical data charts or specification charts contained herein, are accurate to the best of our knowledge. The products and information are intended for use by persons having skill and know-how in the industry at their own discretion and risk. Benjamin Moore & Co. warrants only that its coatings represented herein meet the formulation standards of Benjamin Moore & Co. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY THE SELLER, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OR LAW, OR OTHERWISE INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Workmanship, weather, construction equipment, quality of other materials and other variables affecting the results are beyond our control. No agent, employee or representative of seller has any authority to bind seller to any affirmation, representation or warranty except as stated above.