

**MONOCHEM**

# MONOCHEM<sup>®</sup> 21



100% Solids, Solvent Free Epoxy Primer/Topcoat

**TECHNICAL BULLETIN**



MADE IN U.S.A.

**PRODUCT DESCRIPTION:**

ITEM NO. 2121

**MONOCHEM 21** is a 2-component, 100% solids, high-build, liquid applied, Polyamine, Cyclo-Aliphatic Epoxy. **MONOCHEM 21** is available in high gloss clear, standard colors and can be mixed with decorative chips, sand or fire retardant **GRANITE SPHERES**. It is designed as a high performance primer, base coat or top coat.

**BASIC USES:**

**PRIMER: MONOCHEM 21** can be used as an epoxy primer with all the MONOCHEM decking systems. **MONOCHEM 21** can be pigmented or used in combination with color quartz, paint chips or light aggregates. It may also be used over almost all water, oil, solvent, alkyd base, etc coatings or stains. **MONOCHEM 21** is also ideal for glazed, sealed and very smooth non porous surfaces.

**MONOCHEM 21** can be applied on wood, concrete, prepared metal (non ferrous), plywood, glass, reinforced plastics, polyurethane elastomeric coatings, glazed surfaces and many other non-porous substrates enhancing the adhesion between the substrate and the top coat.

**FINISH COAT:** It is also a very durable coating that is recommended for protecting and dust-proofing interior concrete floors in warehouses, manufacturing plants, residential/industrial garages, mechanical rooms and commercial kitchens where seamless, chemical resistant floors are desired.

**MONOCHEM 21** is not UV stable and must be topcoated with a pigmented coating if exposed to UV.

**ADVANTAGES:**

- Solvent free
- 100% Solids
- Superior Adhesion
- Universally Compliant
- Chemical Resistant
- Self-Leveling
- Fire Retardant when mixed with **GRANITE SPHERES**.
- Very Low VOC, Zero HAPs
- Low Odor
- High Tensile Strength
- Hot Tire Resistant
- Non Blushing

**COLORS:**

Clear (slight amber hue) and standard colors. Custom colors are available on a per job basis.

Product Qualifications	
Cal Green	Yes
OTC (Industrial Maintenance)	Yes
SCAQMD (Industrial Maintenance)	Yes
CARB (Industrial Maintenance)	Yes
LEED (New Construction)	Yes
LEED (New Schools / CHPS)	Yes

**MPI APPROVED PRODUCT:**

MPI #82 Epoxy Deck Coating (Slip Resistant)

**TECHNICAL DATA:**

Composition: .....	Modified Bisphenol A Epoxy Resin
.....	Crosslinked with Aliphatic and Cycloaliphatic Polyamines
Solids by Weight (mixed) .....	100%
Solids by Volume .....	98%
Viscosity (ASTM D2196) Part A Resin .....	91 KU
Viscosity (ASTM D2196) Part B Hardener .....	81 KU
Mixed.....	88 KU
Density (Part A) .....	9.6 Lbs
Density (Part B) .....	8.5 Lbs
Color of Transparent Liquid (ASTM D1544).....	Gardner <2
Mixed Ratio by Volume .....	2:1
Pot Life, 75° F. @50% R.H.....	20 Minutes
Re-Coat Time, 75° F. @50% R.H.....	3-6 Hours
Thin Film Set Times @70° F.....	5 Hours (not to exceed 12 Hours)
Gel Time (150 mass/min) .....	65
Glass Transition Temperature (ASTM D3418-82).....	125° F.
VOC Content.....	13 g/L
Tensile Strength (ASTM D638-86) .....	8870 Psi
Tensile Modulus .....	315,000 Psi
Tensile Elongation (ASTM D638-86).....	5.2 %
Compressive Strength @Yield .....	13,000 Psi
Compressive Modulus (ASTM D695-85) .....	350,000 Psi
Flexural Strength (ASTM D790-88) .....	16,900 Psi
Flexural Modulus.....	330,000 Psi
Shore D Hardness (ASTM D 2240-86) .....	85
Pencil Hardness .....	2H
Impact, Inches-Lbs, Direct/Reverse .....	14/1
Abrasion Resistance @1000 cycles Wt. Loss (grams).....	0.0039
Mar Resistance (ASTM D5178-91) .....	1.29 kg
Finish .....	>90° High Gloss

**Factor of Friction** (ASTM C1028), when Silica Sand #20 or #30 broadcasted until rejection: **Concrete (wet):** 0.87%; **(dry):** 0.96%

**PREPARATION:**

- All surfaces to be coated must be thoroughly dry (<15% moisture) and free of all adhesion affecting contaminants including but not limited to curing compounds, oils, grease, concrete hardeners, loose paint and dirt. The concrete should be between 2500-3000 psi.
- All concrete and stucco must be cured for a minimum of 28 days.
- All holes, cracks and/or joints larger than 1/16" should be caulked with a paintable polyurethane elastomeric caulk.
- The surface temperature must be between 50-90°F during product application.
- Surfaces must display a pH below 9.
- Surfaces with hydrostatic pressure must be corrected prior to product application.
- Make sure to apply a test patch to ensure the proper adhesion, appearance and performance.
- On rare occasions, abrading the surface may be necessary for proper adhesion. This can be determined by the required test patch.

**9**

**HIGH PERFORMANCE PRIMER 09900  
PROTECTIVE COATINGS**

MONOPOLE INC.  
UPDATED SEPTEMBER 2016



**Chemex Industries, Inc.**

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### UNPAINTED METAL SURFACES:

All rust and contaminants must be removed by lightly blasting with fine abrasives or by conducting a light etching with **MONOCHEM METAL ETCH**. To minimize rust formation in areas where rust has previously formed, we require applying a rust inhibitive metal primer within 6 hours after preparing the surface.

Non Ferrous (galvanized, aluminum, stainless steel): Remove all oils or films with a neutral detergent or emulsion cleaner. Blast lightly with fine abrasives or conduct a light etching. Then rinse using a Zinc treatment.

Corrosive Metals: Remove all the loose rust, dirt, grease or other contaminants by one of the following depending on the degree of cleanliness required. Blast SSPC-SP3; SSPC-SP2; SSPC-SP6; SSPC-SP7. Blast lightly with fine abrasives or conduct a light etching. Then prime with a rust inhibitive primer within 3 hours.

### MIXING:

Premix each component separately. Mix 2 parts A with 1 part B, by volume, into a clean container. Mix thoroughly with a low speed (400-600 rpm) drill motor for 2-3 minutes or by hand for 3-5 minutes. Scrape the sides and bottom of the container during mixing to ensure a homogenous material. After mixing is completed, spread **MONOCHEM 21** immediately onto the floor.

**Pot Life:** 20 minute pot life (at 70°F and 50% relative humidity).

### COVERAGE:

*Coverage rates will vary depending on surface porosity, profile and conditions.*

#### •As a Primer or Coating:

- Smooth Surfaces: 250-300 sq/ft per gallon (yields 5-6 DMT)
- Textured Surfaces: 175-200 sq/ft per gallon (yields 8-9 DMT)

*If used as a stand alone coating, apply 2 coats.*

### DRY TIME:

- Topcoat: 3-6 hours (do not exceed 12 hours)
- Light Foot Traffic: 1 Day
- Normal Foot Traffic: 2 Days
- Hot Tire & Heavy Object Exposure: 5 Days

*\*Excessive humidity or condensation on the surface during curing can interfere with the cure time and can cause discoloration, surface hazing or blushing.*

### APPLICATION:

•USE AS IS; DO NOT DILUTE **MONOCHEM 21**.

•Primer/Coating Application: Apply immediately after mixing using a high quality short nap foam roller (1/4"-3/8"). Test first. Allow approximately 4-6 hours dry time (when the **MONOCHEM 21** is tacky but not wet enough to leave a finger print) before top coating. Do not exceed 12 hours of dry time before topcoating or repriming may be necessary. If **MONOCHEM 21** will be used as a primer and finish coat, 2 coats are recommended.

A **non-skid surface** can be achieved by broadcasting washed and dried aggregates onto the wet freshly applied **MONOCHEM 21** by hand or hopper gun. Then apply two coats of **MONOCHEM 21** pigmented as the chosen top coat at a spread rate of ~175-200 square feet per gallon to cover the sand. Monopole, Inc. recommends the use of aggregates for skid resistance in all of its floor coatings that may be exposed to wet, oily or greasy conditions.

•When using aggregates, color quartz or paint chips, we recommend applying a final clear coat of **MONOCHEM 21**, **PERMASHIELD 200** or **PERMASHIELD 2000** to encapsulate the additives.

•For clear non-skid applications, the **MONOTEX 20** can be mixed into the Part A of the **MONOCHEM 21**. Please consult the **MONOTEX 20** technical data pages or our technical department for the simple application.

•Granite Spheres Application: Refer to the **GRANITE SPHERES** Technical Data Sheet.

### LIMITATIONS:

- **MONOCHEM 21** is for interior use only unless protected by a pigmented UV resistant pigmented coating such **PERMASHIELD 200** or **PERMASHIELD 2000**.
- If solvents (such as Acetone) are added, which we do not recommend, it will make the **MONOCHEM 21** combustible or flammable. In this case caution must be taken to protect against contact with sparks or open flames.
- **MONOCHEM 21** is meant for non-ferrous surfaces and is not rust inhibitive.
- **MONOCHEM 21** is not meant for surfaces containing tannin acids.

### CLEAN-UP:

Uncured material can be removed with an environmentally safe solvent, as permitted under local regulations, immediately after use. Cured material can only be removed mechanically.

### SHELF LIFE:

When stored at 72°F in a tightly sealed container **MONOCHEM 21 Clear** has a shelf life of 12 months and **MONOCHEM 21 Colors** have a shelf life of 6 months.

### PACKAGING:

#### ITEM NO. 2121-03: MONOCHEM 21 (3 GALLON KIT)

2:1 - Part A: 256 OZ, Part B: 128 OZ.

#### ITEM NO. 2121-96OZ: MONOCHEM 21 (96 OZ KIT)

2:1 - Part A: 64 OZ, Part B: 32 OZ.

**WARRANTY INFORMATION:** All the recommended products will mirror the performance and soundness of the structure, previous coatings and filling/patching (repair) materials. For an ideal application, we recommend removing the existing coatings. If this is not an option, remove all unsound, loose and/or poorly adhering paint and conduct thorough test patches. Delamination or the failure of the existing/non Monopole coatings is not covered by any performance warranty. MONOPOLE believes that the information in this publication is an accurate description of the typical characteristics and/or uses of the product or products. But it is the end users responsibility to thoroughly test the product in the specific application to determine its performance efficacy and safety. Since use of this product is beyond our control, Monopole, Inc. cannot assume any risk or liability for results obtained when not used according to our specifications and directions. Unless MONOPOLE provides a specific written statement of fitness for a particular use, MONOPOLE'S sole warranty is that the product will meet its current sales specifications. MONOPOLE specifically disclaims any other expressed or implied warranty, including the warranty of merchantability and fitness for use. The exclusive remedy and MONOPOLE's sole liability for breach of warranty is limited to a refund of the purchase price or replacement of product proven to be defective. In no event shall the seller be liable for any loss of profits or other consequential damages. Under no circumstance will MONOPOLE pay labor charges.



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**Table 1**  
**CHEMICAL RESISTANCE (ASTM D1308)**  
**% Weight Change and Shore D Hardness as a Function of Time**

REAGENT	INITIAL HARD.	AFTER 3 HR		AFTER 24 HR		AFTER 3 DAYS		AFTER 7 DAYS		AFTER 28 DAYS		AFTER 90 DAYS	
		% wt	Hard	% wt	Hard	% wt	Hard	% wt	Hard	% wt	Hard	% wt	Hard
Skydrol	82	0.06	81	0.14	80	0.33	80	0.6	80	1.05	80	1.71	79
Deionized Water	82	0.01	81	0.1	81	0.3	81	0.55	81	1.4	81	1.49	81
Xylene	82	0.01	82	0.03	78	0.4	76	1.3	71	4.7	73	16	58
Toluene	82	0.06	81	0.79	76	3.1	66	6.9	53	19.9	47	18.1	53
Bleach	82	0.08	82	0.25	82	0.5	82	0.8	82	1.19	82	1.6	75
Methanol	82	1.9	72	5.45	53	10.1	43	15.5	28	14.3	23	13.9	23
Ethanol	82	0.7	79	2.3	70	4.4	65	6.91	60	12.2	51	13.4	38
10% Acetic Acid	82	0.33	82	1.28	79	2.45	76	4	74	7.1	71	11.1	63
10 Lactic Acid	82	0.61	81	1.96	73	3.95	70	6.11	63	10.11	64	15.1	47
Trichlorothane	82	0	81	0.41	80	2.1	77	3.5	74	13.5	65	25.1	63
Butyl Cellosolve	82	0.1	81	1.2	77	3.7	72	6.95	65	13.1	58	Destroyed	
Methyl Ethyl Ketone	82	2.46	71	Destroyed									
70% Sulfuric Acid	82	0.05	82	0.11	82	0.19	81	0.35	82	0.6	82	0.95	82
98% Sulfuric Acid	82	-5.6	70	Destroyed									
50% Sodium Hydroxide	82	-0.01	82	-0.01	82	-0.01	82	-0.01	82	0.01	82	0.03	82



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