



# MONOCHEM 21<sup>®</sup>



**MONOPOLE INC.**  
Manufacturer of  
U.S. SPECIALTY COATINGS

**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, color micas, or silica sand. It is designed as a high performance primer, base coat or interior 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 to any color or used in combination with color quartz, paint chips, micas or light aggregates. It may also be used over almost all water, oil, solvent, alkyd base, coatings or stains. **MONOCHEM 21** is also ideal for top-coating unknown coatings, glazed, sealed and very smooth non-porous surfaces.

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

**MONOCHEM 21 as a 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, chemically resistant floors are desired.

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

### ADVANTAGES:

- Solvent Free
- 100% Solids
- Superior Adhesion
- Universally Compliant
- Chemical Resistant
- Self-Leveling
- Acceptable for Use in USDA Inspection Facilities
- Compatible with acrylic, epoxy, polyurethane, polyurea topcoats
- Fire Retardant when mixed with **GRANITE SPHERES**.
- Very Low VOC, Zero HAPs
- Low Odor
- High Tensile Strength
- Hot Tire Resistant
- Non Blushing
- Custom Color Matching

### COLORS:

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

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

### PHYSICAL PROPERTIES

**Composition:** Modified Bisphenol A Epoxy Resin

Crosslinked with Aliphatic & Cycloaliphatic Polyamines

**VOC:** < 13 g/L

**Mixed Weight Solids:** 100% ±2

**Mixed Base Volume Solids:** 98% ±2

**Weight per Gallon:** 10.5 Lbs

**Color of Transparent Liquid:** Gardner <2

**Finish:** High Gloss

**Viscosity:** Part A: 91 Kus Part B: 81 Kus Mixed: 88 Kus

**Mixing Ratio by Volume:** 2:1

**Pot Life, 75°F, @50%RH:** 20 Minutes

**Coverage:** Smooth Surfaces: 250-300 Sq/Ft per Gallon

Textured Surfaces: 175-200 Sq/Ft per Gallon

**Drying Time @77° and 50% Relative Humidity:**

Dry to Touch: 30 Minutes

Dry to Recoat: 3-6 Hours

Thin Film Set Times @70°F: 5 Hours, Do not exceed 12 Hours

**Shelf Life: Clear:** 1 Year **Colors:** 6 Months

### SURFACE 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.

### UNPAINTED METAL SURFACES:

All rust and contaminants must be removed by lightly blasting with fine abrasives or by conducting a light etching. To minimize rust formation in areas where rust has previously formed, we require applying **MONOBOND RI**, rust inhibitive metal primer within 4 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 and apply **MONOCHEM 21**

within 4 hours to avoid corrosion.

**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 **MONOBOND RI**, rust inhibitive primer, within 3 hours to avoid corrosion.

**MIXING:**

Premix Part A separately prior to adding Part B (do not mix Part B by itself). 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 foam core short nap roller (1/4"-3/8"). 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 (or any other pigmented topcoat) 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

**PERFORMANCE CHARACTERISTICS**

**Crosshatch Adhesion:**

Method: ASTM D3359

Result: 5B

**Pencil Hardness**

Method: ASTM D3363 · Result: F/2H

**Impact Resistance**

Method: ASTM D2794 250 Lbs · Result: Pass

**Flexibility:**

Method: ASTM D522, 180° bend, 1/2 Mandrel

Result: Pass

**Fade Resistance:**

Method: ASTM D151, QUV Type A Bulb, 1,000 Hours

Result: AE=0.89

**Dry Heat Resistance:**

Method: ASTM D2485

Result: 325°F

**Cyclic Prohesion:**

Rating: 1-10 10=best

Method: ASTM D5894, 2 cycles, 800 hours

Result: 10 per ASTM D610 for rusting

Result: 10 per ASTM D714 for blistering

Result: 10 per ASTM D1654 for corrosion

**Salt Fog Spray**

Method: ASTM B117, CRS, 30 Day Cure

Result: 800 hours @ 4 DFT

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.

**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:**

Ideally clean material off of equipment while still wet. 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.

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

| REAGENT              | INITIAL<br>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   |

**WARRANTY INFORMATION:** MONOPOLE believes that the information in this publication is an accurate description of the typical characteristics and/or uses of the product or products. It is the applicator's responsibility to thoroughly test the product in the specific application to determine its safety and performance capabilities. 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 specifically written statement of fitness for a particular use, MONOPOLE'S sole warranty is that the product will meet its current sales specifications. MONOPOLE disclaims any other expressed or implied warranties, including the warranty of merchantability and fitness for use. Your exclusive remedy and MONOPOLE'S sole liability for breach of warranty is limited to a refund of the purchase price or replacement of any product proven to be defective. In no event shall the seller be liable for any loss of profits or other consequential damages, including labor charges.