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Technical Bulletin

Armorgard 502 – K-502

Description:

Copps Armorgard 502 is a 100% solids, chemically resistant epoxy coating designed to provide outstanding protection for concrete floors against a wide range of aggressive fluids found in today's industrial environments. Armorgard 502 is USDA approved for applications to surfaces that will receive incidental food contact. Adhesion to concrete, metals and wood meets most demanding requirements. This material is ideally suited for chemical processing, power plants, pulp and paper mills, food and beverage plants, utilities and wherever a chemically tough floor is needed.

Armorgard 502 is available in gray and tile red colors.

Product Advantages:

- EXTREME CHEMICAL PROTECTION
- 98 % SULFURIC ACID RESISTANCE
- 100% SOLIDS, ZERO VOC'S
- EXCELLENT ADHESION
- STRENGTH AND FLEXIBILITY

Application Guidelines:

Armorgard 502 is designed as a 12-15 mil broadcast backrolled, textured coating. Not intended to be used as a "neat" coating. For the best results use Copps' C-009 aggregate at 0.025-0.035 lb/ft². Call Copps' Technical Service for application procedure and technical details.

Handling Properties:

COMPONENTS	Resin/Hardener/Aggregate		
COLOR	Gray, Tile Red		
MIXED VISCOSITY, cP	1,300-1,600		ASTM D 2196
WORKING TIME, min	20		
GEL TIME, min	25		
TACK-FREE TIME, h	6		
INITIAL CURE OR FOOT TRAFFIC TIME, h	10-12		
COVERAGE* @ 12mil (0.31 mm),ft^2 (m^2)			
1.5 gallon kit (5.68 l)	200	(18.6)	
4.0 gallon kit (15.14 l)	534	(49.6)	
APPLICATION TEMPERATURE, °F (°C)			
Ideal	70-80	(21-27)	
Acceptable	55-90	(13-32)	

* Varies with porosity of concrete

Physical Properties:

SHORE HARDNESS, Scale D	85		ASTM D 2240
ADHESION TO CONCRETE, psi (MPa)	> 500	(>3.45) (100 % failure in concrete)	ASTM D 4541
COMPRESSIVE STRENGTH, psi (MPa)	7,000	(48.28)	ASTM D 695
TENSILE STRENGTH, psi (MPa)	4,070	(28.07)	ASTM D 638
ELONGATION @ BREAK, %	8.1		ASTM D 638
FLEXURAL STRENGTH, psi (MPa)	4,000	(27.58)	ASTM D 790

Chemical Resistance:

Excellent	Good	Not Recommended
98 % Sulfuric Acid	Ethanol	20 % Acetic Acid
50 % Sodium Hydroxide	20 % Nitric Acid	30 % Nitric Acid
10 % Nitric Acid	10 % Acetic Acid	50 % Phosphoric Acid
20 % Hydrochloric Acid	36 % Hydrochloric Acid	Methylene Chloride
Ethylene Glycol	20 % Phosphoric Acid	Acetone
Motor Oil		MEK
Gasoline		Methanol
Toluene		Methyl Pyrrolidone
Water		

The above recommendations are based on a 28 day immersion @ 72°F (22°C).

Surface Preparation:

Armorgard 502 is used to seal and protect a porous concrete substrate, therefore, adhesion is paramount. To achieve excellent adhesion, the substrate should be free of all loose and foreign materials and should be roughened slightly to provide a coarse profile by shot blasting.

Before shot blasting any contaminants on/in concrete must be identified. Oil, grease, fat, wax, or other contaminants must be removed prior to roughening the concrete. The concrete may be cleaned with an application of warm (120-140 °F or 49-60 °C) caustic detergent, steam or pressure washing. De-grease the floor; follow with a hot water rinse.

Repeat this procedure until the water does not "bead up" on the concrete.

Shot blasting using self-propelled, self-contained equipment is the recommended preparation method.

NEW CONCRETE MUST CURE A MINIMUM 28 DAYS PRIOR TO THE APPLICATION OF ANY EPOXY. CONCRETE MUST BE TESTED FOR MOISTURE AND VAPOR TRANSMISSION BEFORE APPLICATION.

Mixing:

To mix Armorgard 502 pour the contents of the container marked Hardener into the larger container marked Resin. Immediately mix for 3 minutes using the Jiffy blade and a variable speed drill. Mix at slow speed (less than 500 rpm) to avoid air entrapment. DO NOT mix more material than can be used within the stated working time.

REMEMBER – you will have less working time at higher temperatures.

Armorgard 502, before it is hardened, may be removed from tools and equipment with non-flammable Copps Enviro Kleen solvent or warm soapy water.

Application:

Relative humidity and dew point must be determined before application to avoid adhesion failures. The dew point is used to predict the surface temperature at which airborne moisture begins to condense on the substrate. Never apply a coating unless the concrete surface temperature is 5 °F (2 °C) above the dew point. This temperature difference must be observed until the epoxy coating is cured to a tack-free state. A dew point calculation chart is available from Copps Technical Service.

PRIMER: The application of a primer is recommended to reduce concrete outgassing, resulting in a smoother, better bonded coating. Apply with a squeegee and a medium (3/8" nap) roller.

PRIMER MIXING: To mix Copps K-049 concrete primer pour the contents of the can marked Hardener into the large pail (Resin). Immediately mix for 3 minutes (or until uniform) using a Jiffy blade and a variable speed drill. Mix at slow speed (less than 500 rpm) to avoid air entrainment.

PRIMER APPLICATION: Apply 5 mil of Copps K-049 Concrete Primer to the prepared concrete with a short nap (1/4") roller. This insures adhesion to the concrete substrate.

DO NOT apply K-049 over standing water. Damp or dry concrete is acceptable.

TEXTURED ARMORGARD 502 COATING—Apply liquid 12-15 mil thick then evenly broadcast aggregate into the wet coating until it is saturated. Let cure (dry), then brush off the excess aggregate and apply a 5-10 mil liquids only topcoat to lock down the exposed aggregate. Repeat as needed to achieve your desired texture.

Packaging:

Armorgard 502 is conveniently packaged in pre-measured 1.5 gallon (5.68 l) and 4 gallon (15.14 l) kits containing a resin (Part A) and hardener (Part B). Larger containers are also available.

SAFETY PRECAUTIONS

Avoid breathing of vapors. Forced local exhaust is recommended to effectively minimize exposure. NIOSH approved, organic vapor respirators and forced exhaust are recommended in confined areas, or when conditions (such as heated polymers, sanding) may cause high vapor concentrations. Do not weld on, burn or torch any epoxy material. Hazardous vapor is released when an epoxy is burned. Avoid skin or eye contact. Wash skin with soap and water if contact occurs. If eye contact occurs flush with water for 15 minutes and obtain medical attention. Read and understand all cautions on container labels and safety data sheets before using this material.

WARRANTY AND DISCLAIMER