



WIL-COR, INC.

Formulators and Manufacturers of Linings, Surfacing Materials, Mortars, Cements, Grouts and Specialty Plastic Products for Industry

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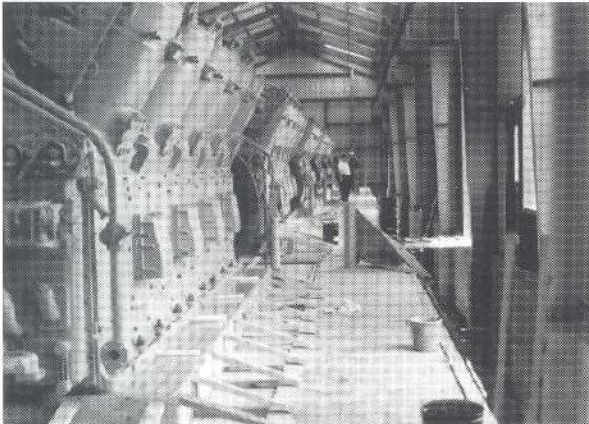
AP-999 HIGH-STRENGTH EPOXY GROUT

PRODUCT DATA

ARMOR PLATE® 999

DESCRIPTION

Armor Plate 999 is a high strength, thermosetting, epoxy grout system. AP 999 is a packaged, premeasured, three-component system of epoxy resin, epoxy catalyst, and inert aggregate. This laboratory tested mixture produces a foundation grout with homogenous aggregate distribution. The rapid high strength and chemical resistance of the AP 999 grout provides an equipment foundation which is long-lasting, economical and maintenance free.



Because of its quick cure time, AP 999 is excellent for areas where equipment must be placed in service with a short downtime. It has been used to grout all the equipment at the Prudhoe Bay, Alaska, North Slope Operations. AP 999 is used to pace equipment such as:

- compressors
- pumps
- centrifuges
- turbines
- generators
- kilns
- steam engines
- diesel engines
- milling machines
- blowers
- presses

ADVANTAGES

- Short cure time – Can be placed in service quickly
- No surface bubbling – Uniform, high strength surface with more than 95% bearing area
- Easy mixing – Premeasured, color-coded components
- Can be placed at temperatures as low as 45 °F
- High, non-volatile flashpoint – Can be shipped by air
- **Used for grouting at Prudhoe Bay, Alaska**

CHEMICAL RESISTANCE

Armor Plate 999 is resistant to:

- strong caustics
- mild acids
- oils
- grease
- water
- steam
- salts
- solvents

Contact the Wil-Cor, Inc. Technical Department for chemical resistance in specific service conditions.

PHYSICAL PROPERTIES

Color

Resin (part A)	White
Cure (part B)	Black
Mixture	Gray
Density	122.48 lbs / cu. ft.
Consistency	Flowable
Pot Life @ 80 °F	2 hrs
Cure Time @ 80 °F	22 hrs

Flash Point

Resin (part A)	343 °F
Cure (part B)	320 °F

Operating Temperature Range

Continuous High	180 °F
Continuous Low	- 320 °F

Bond to Concrete

Greater than Concrete

Tensile Strength, Bond to Steel

(ASTM C-321)

2,400 psi

Shear Strength, Bond to Steel

2,400 psi

Compressive Strength

(ANSI/ASTM C-109-80)

At -320 °F, after 2 hours

18,375 psi

At Atmospheric Temperature

15,000 psi

At 180 °F, after 2 hours

14,125 psi

At 200 °F, after 2 hours

12,450 psi

Coefficient of Expansion,

in./in./°F (72°F-210°F)

Cured @ 75 °F

11.3 x 10⁻⁶

Cured @ 175 °F

5.6 x 10⁻⁶

Shrinkage, unrestrained

(ASTM D-531-63T)

0.005%

The information contained herein is correct to the best of our knowledge. These recommendations or suggestions in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by Wil-Cor, Inc. or others is not to be inferred from any statement contained herein.

SURFACE PREPARATION

1. A clean surface is necessary. Remove dirt, oil and other contaminants from old concrete surfaces. Remove laitance from all new concrete. The surface can be cleaned by detergent washing, acid etching, sandblasting, or other mechanical means.
2. Metal surfaces should be cleaned of any rust or scale by sandblasting or other mechanical means.
3. All application surfaces must be dry.
4. Wax construction forms to prevent bonding of the AP 999. They should also be liquid-tight and strong enough to support the weight of the AP 999.
5. Wax any other surfaces that are not to be bonded to the AP 999.
6. Remove all oil-contaminated concrete.

MIXING

Armor Plate 999 is packaged as a three-part, premeasured system of Resin (A), Cure (B), and Aggregate (C).

**Resin and cure must be thoroughly mixed before aggregate is added.
DO NOT add aggregate before resin and cure are properly mixed.**

Mix the AP 999 according to the following instructions:

1. Add Armor Plate 999 Cure (part B) to Armor Plate 999 Resin (part A). DO NOT add Aggregate at this time.
2. Mix Resin and Cure thoroughly for at least 2 minutes. Use an electric mixing blade, a horizontal agitator, or other mechanical equipment suited for producing a homogenous mix/
3. Pour the completely mixed AP 999 Resin and Cure into a concrete or mortar mixer.
4. Add one-half of the AP 999 Aggregate (part C) and mix until it is thoroughly wetted.
5. Add the remainder of the Aggregate and mix until all of the aggregate is thoroughly wetted.
6. For smaller batches use a 3/4" drill and mix one (1) gallon with 50 lbs. of Aggregate (part C).

PACKAGING

Armor Plate 999 is a three-component system available in the following units:

Unit Size	1.2 cu. ft.	2 cu. ft.
Net Weight	61.04 lbs	244.16 lbs
Resin (part A)	10.00 lbs	40.00 lbs
Cure (part B)	1.04 lbs	4.16 lbs
Aggregate (part C)	50.00 lbs	200.00 lbs

When estimating the amount of AP 999 needed for the job, consider the loss of material when mixing and placing the grout.

APPLICATION

To achieve the best results, Armor Plate 999 should be kept at about 70 °F prior to application.

Armor Plate 999 is poured to a depth of between 1.5 and 4 inches. The maximum depth of a pour in large areas should not exceed 4 in., unless reinforcing is used. Pours deeper than 4 in. may be made in small areas only. Use rebar steel or clean rocks as a heat sink in deep areas.

Consecutive pours (maximum 4 in.) may be made without reinforcing after each previous layer has cured and its heat has dissipated. Previous pours should be sanded or chipped before the next pour is made.

Provide expansion joints every four (4) to five (5) feet.

Armor Plate 999 may be pumped when grouting wide, shallow areas. For pumping information contact Wil-Cor, Inc. for equipment rental rates and supervision.

Armor Clean, MEK, Methylene Chloride or gun cleaner may be used to clean equipment.

The table below gives an estimate of the working and cure times of AP 999 at various temperatures. These times are approximations and will vary with humidity and desired service conditions.

GROUT TIME TABLE			
Temperature (°F)	Working Time (hrs)	Cure Time (hrs)	
		Static Load	Dynamic Load
50	3.5	74	146
60	3	50	98
70	2.5	32	74
80	2	22	50
90	1.5	18	34
100	1	15	30
110	0.75	12	24
120	0.5	12	24

SHELF LIFE

Resin (part A) Indefinite
 Cure (part B) Minimum of 2 years in tightly sealed containers. Contact Wil-Cor, Inc. for longer storage.
 Aggregate (part C) Indefinite

FREIGHT CLASSIFICATION

Resin (part A) Plastic Liquid, N.O.I.
 Cure (part B) Chemicals, N.O.I.B.N
 Aggregate (part C) Silica Sand, N.O.S.

WARNING!

- Causes eye irritation.
- May cause allergic skin reaction.
- Avoid breathing vapor or mist.
- Wear a dusk mask when grinding.
- Do not get into eyes, on skin or clothing.