March 2023

ACID RESISTANT EPOXY BINDER (133AR)

Chemically Resistant Epoxy Binder

Description:

EPIREZ® Acid Resistant Epoxy Binder (133AR) has been specially formulated for combination with selected aggregates to produce a trowel applied epoxy composite for application to concrete where a chemically resistant surface is required.

EPIREZ® Acid Resistant Epoxy Binder mortars resist a wide range of acids, including concentrated sulphuric acid, as well as alkalis and solvents.

EPIREZ® Acid Resistant Epoxy Binder should be blended with suitable aggregates in varying proportions depending on the application and service conditions. For flooring applications, a mortar screed composed of one volume **EPIREZ® Acid Resistant Epoxy Binder** to four volumes **EPIREZ® Patching & Flooring Mortar Aggregate (QA2)** is recommended.

Intended Use:

- Food industries
- Mining Industries
- Plating shops
- Wastewater treatment and sewers
- Paper manufacturers
- Heavy duty applications in chemical plants
- Pharmaceutical industries
- Bleaching areas
- Chemical containment

Product Features:

- **Monolithic Protection**
- **Food traffic in 24 hours**
- **Excellent adhesion**
- **Broad chemical resistance**
- **Abrasion, Erosion and Impact resistant**
- **Excellent mechanical properties**
- **Solvent free**
- **Resists 98% sulphuric acid ***

  When fully cured resistant to the splashes and spills of many chemicals. Surface staining may result from exposure to some aggressive chemicals. Good housekeeping practice requires that spills are quickly removed and washed away.

Estimating Data:

20L **EPIREZ® Acid Resistant Epoxy Mortar Binder (133 AR)** = 20 m^2 @ 1 mm thick

20 L **EPIREZ® Acid Resistant Epoxy Mortar Binder** + 60 L **EPIREZ® Patching & Flooring Mortar Aggregate (QA2)** = 15 m^2 @ 4 mm thick (60 L)

Typical Physical Properties:

Shelf Life	2 Years
Mixing Proportions (by volume only)	1 Hardener to 3 Compound
Solids Content	100%
Application Temperatures	10ºC - 30ºC
Work Time	30 minutes at 25ºC
Cure Time	24 hours at 25˚C
Mixed Viscosity	0.7 Pa s
Full Chemical Resistance	7 days at 25ºC
Weather Resistance	Excellent
Abrasion Resistance	Excellent (withstands steel wheels)
Maximum Operating Temperature	65ºC
Flexural Strength	> 10 MPa
Compressive Strength, Ultimate	75 MPa
Tensile Strength	> 10 MPa
Tensile Bond Strength	3.8 MPa (concrete failure)
Water Permeability	1.2 x 10^{-16} m/s

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Temperature Resistance	Wet 65˚C Dry 150˚C

Chemical Resistance:

Chemical resistance tested after 112 day, room temp. cure @ 25° C

Sulphuric Acid 98%	Very good	Sodium Hydroxide 20%	Excellent
Sulphuric Acid 30%	Excellent	Sodium Hydroxide 50%	Very Good
Hydrochloric 32%	Very Good	Sodium Hypochlorite	Excellent
Nitric Acid 20%	Very Good	Ammonia Solution 10%	Excellent
Mineral Spirits	Excellent	MEK	Excellent
Acetic Acid 10%	Excellent	Hexane	Excellent
Lactic Acid 5%	Excellent	Toluene	Excellent
Phosphoric Acid 20%	Excellent	Ethyl Acetate	Excellent

Surface Preparation:

Concrete

Remove prior coatings and all loose material. New concrete must be at least 28 days old. Remove any oil or grease contamination by washing with a suitable surface degreaser. Hose off with high pressure water. Captive blast clean to expose firmly adhered aggregate. Rinse with water and allow to dry before application.

Alternatively, acid etch using 1-part commercial Muriatic Acid and 2 parts clean water. Neutralise surface by washing with fresh water and allow to dry.

Steel

Abrasive blast to AS 1627 Part 4 – 2005 to class 3 white metal and achieve profile height minimum 75 - 100 microns.

The surface should be fee of grease, oil, and other contaminants.

The surface shall have less than 7 mg/cm^2 chloride contaminants, less than 10 mg/cm^2 of soluble ferrous ion levels, and less than 17 mg/cm^2 of sulfate contaminates as verified by field or laboratory analysis using reliable, reproducible test equipment.

Surface preparation guidelines cannot cover all site or field contingencies and it is always recommended that an on-the-spot adhesion test be performed as part of the Standard Quality Assurance audit for the project

Priming

Prime concrete surfaces using Acid Resistant Epoxy Binder (133AR) only, at a coverage rate of 5m²/litre. Primer should be "touch-dry" before proceeding. The Acid Resistant Epoxy Binder (133AR) mortar should be applied within 24 hours of priming. If this time is exceeded the sub-base must be reprimed. Keep primed surfaces clean.

Mixing Instructions:

It is strongly recommended that full units be mixed, as ratios are pre-measured.

Proper homogenous mixing of resin and hardener at the correct ratio is essential for the curing and development of stated properties.

Prior to mixing, the area should be reviewed so that a fixed volume of mixed material can be applied over a fixed area to ensure correct application rate.

Measure sufficient Hardener and Compound to be used in 30 minutes. Mix thoroughly using a stirrer fitted into a low speed (400 rpm) power mixer. Ensure that all the material on the sides, under the lip of the container and on the stirrer is incorporated.

Note: Take care to avoid air entrapment into the mix. Keep propeller below liquid line, as additional air can be added to mixture, resulting in air bubbles on the surface of the finished product.

Application Instructions:

Application should only take place when surface and ambient temperature is 10°C or above and the substrate temperature is no lower than 10°C. Application not recommended with surface temperatures over 45°C. Surface to be painted must be at least 3°C above the dew point. Relative humidity must be below 85% during application (or below 50% in confined spaces).

For ± 21°C Applications

Applying epoxy at temperatures below 21°C lengthens functional cure and pot life times. Conversely, applying above 21°C shortens functional cure and pot life.

May be applied by spray, roller or brush.

Spraying should be done using suitable airless equipment – DO NOT ADD THINNERS. Spraying should be perpendicular to the surface to insure complete coverage. Each pass of the spray gun should overlap the previous pass by 50%. Weld seams and edges should be stripe coated prior to complete prime coat.

Trowellable Coating

Transfer contents to a suitable mixing pail and add **EPIREZ® Patching & Flooring Mortar Aggregate (QA2)**, while mixing, until a uniform consistency is obtained. Use table below to determine mix design. Pour out the mixed mortar onto the known subfloor area and apply by trowel. Wipe the trowel occasionally, but sparingly with EPIREZ® Epoxy Thinner (No.3) to assist final trowelling. Ensure a "tight" surface finish to minimise porosity. Minimum thickness required is 4mm.

Recommended EPIREZ® Acid Resistant Epoxy Binder / Aggregate Mixes

Characteristics	Binder / Aggregate Ratio by Volume	Litres Binder per m^3	Litres Aggregate per m^3	Mortar Aggregate Type	Compressive Strength MPa
Horizontal repair mortar	1:3	333	1000	Extender	65
Vertical repair mortar	1:4	250	1000	Patching & Flooring	60

Curing

For optimum chemical resistance EPIREZ® Acid Resistant Epoxy Binder (133AR) and mortars should be cured for seven days at 25ºC. Longer curing times should be allowed at lower temperatures.

	The figures quoted for work time, cure time and coverage are not definitive. They are dependent on job site conditions and will vary accordingly. In all cases we endeavour to provide typical figures for use as a guide.
Clean Up:	Tools and equipment may be cleaned before hardening commences by washing in **EPIREZ® Clean Up Solvent.** Do not use for cleaning hands or mixing with product.
Storage:	Store in dry conditions between 10°C and 30°C, away from sources of heat and naked flames. Protect from frost. When stored in original sealed containers, the minimum shelf life is two years.
Precautions:	Acid Resistant Epoxy Binder (133AR) should not be applied at temperatures below 10˚C.
Warranty:	Epirez will replace any material found to be defective. Because the storage, handling and application of this material is beyond our control, we can accept no liability for the results obtained.
Disclaimer:	All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Polymers & Fluids and EPIREZ® makes no representations or warranties of any kind concerning this data.
Order Information:	20 Ltr E901334
Health & Safety Information:	For Health & Safety information, refer to Safety Data Sheet available from ITW Polymers & Fluids upon request or available on our website www.epirez.com.au or www.epirez.co.nz

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