

Concrete Repair, Additives and Grouts



Product description

Ramset Epoxy Patch is a tough epoxy resin based concrete repair compound for use in pourable form or for mixing with graded sand filler to produce various consistencies. Epoxy Patch is 100% solids epoxy with negligible shrinkage.

Recommended uses

- Structural repairs to damaged concrete and masonry
- Bonding new to old concrete
- Corrosion protection on steel reinforcement prior to application of concrete repair mortar
- Repair cracks in concrete

Features and benefits

- High flow properties – good bonding and penetration
- Bonds to dry and damp concrete
- Pre-measured kits to avoid measuring errors
- High tensile and compressive strength
- 100% solids epoxy – solvent free and negligible shrinkage
- Cures at temperatures down to 5°C
- High mechanical strength
- Resistant to vibration and dynamic loads
- Add graded sand to change consistency

Typical properties of Epoxy Patch mixed with fillers

Consistency	Volume of epoxy patch (litres)	Weight of fillers (kg)	Yield of mixture (litres)	Pot life at 20°C (mins)	Compressive strength at 7 days (MPa)	Tensile strength at 7 days (MPa)	Flexural strength at 7 days (MPa)
Very fluid	1	1.7	2.0	35-45	80	16	28
Fluid	1	3.4	3.0	40-50	75	14	26
Pourable	1	5.1	4.0	55-65	70	13	26
Stiff paste	1	6.8	5.0	55-65	70	11	25
Trowellable	1	8.5	6.0	55-65	70	11	24
Dry Trowellable	1	10.2	7.0	65-70	60	10	21

Typical properties of unfilled epoxy patch

Typical Properties of Unfilled Epoxy Patch Typical properties after 7 days cure at 25°C and 50% relative humidity

Property	Typical Value
Appearance	Part A: Water white clear liquid Part B: Amber liquid Pale amber when mixed together
Viscosity	Flowable, pourable
Flammability	Non flammable
Solid content by weight	100%
Tensile strength	45 MPa approx.
Compressive strength	100MPa approx.
Flexural strength	50 MPa approx.
Tensile bond strength	15 MPa approx.
Modulus of elasticity	11 x 10 ³ MPa
Service temperature	-10°C to + 70°C
Heat distortion temp	90°C approx.
Hardness	> 80 Shore D
Pot life	20 - 33 mins @ 25°C
Tack free time	2 - 3 hours @ 25°C
Mix ratio	2:1 (part A:B) by volume
Min. Application temp.	5°C
Max. Application temp.	30°C
Density	1.15 kg/Litre
Water absorption*	<0.2% (10 days at 25°C)
Full cure	7 days at 25°C

*Tested to ASTM D570

Precautions

- Exotherm
 - Epoxy Patch will generate heat when mixed. Mixing Epoxy Patch in volumes > 10 litres will result in rapid increase in temperature and short pot life
 - Exceeding the maximum pour thickness will result in rapid increase in temperature, which may lead to shrinking and cracking
 - When added to Epoxy Patch, fillers will act as a heat sink and moderate the temperature rise (exotherm)
- Minimum Thickness: 1.5 mm
- Maximum Thickness: 50 mm
- Mixing and Placing Temperature:
 - If Epoxy Patch temperature is at or below 5°C, place sealed containers in warm water up to 25°C, for at least 4 hours before use.
 - Alternatively store containers in a temperature controlled environment for 12 hours before use.

- If Epoxy Patch temperature is above 35°C, place sealed containers in cool water (about 20°C) for at least 4 hours before use
- Alternatively store containers in a temperature controlled (eg. air-conditioned) environment for 12 hours before use
- Dilution: Do not dilute Epoxy Patch with solvents, as it will not perform as specified
- Mix Ratio: o 2 parts Part A to 1 parts Part B by volume. Incorrect mix ratio will affect the strength of Epoxy Patch
- Epoxy Patch is supplied as pre-measured kits. Where practical mix total contents of each part of 2 L and 4 L kits together to avoid measuring errors

General preparation

- Concrete must be at least 28 days old and have a minimum compressive strength of 20 MPa
- Ensure concrete is free from dust, oil, grease, laitance, form release agents, surface coatings, adhesives, loose materials or any agent, substance, material or contaminant that may interfere with the bond or may later affect the Patch
- Grit blast or scabble concrete to expose clean surface
- Remove ponded water. Concrete may be damp but not wet

Mixing

1. Read precautions section above and Material Safety Data Sheet before commencing
2. Epoxy Patch must be thoroughly mixed. Incomplete mixing will result in hard and soft spots and affect the resin's strength
3. If Fillers are required, add correct weight to Part A and mix with Ramset high shear mixing paddle LSMP. (See Table 2 above).
4. Pour the entire contents of the Part B container into the Part A container.
5. If kit quantity is greater than 10 L or if only part of a smaller kit is to be used, accurately measure the volume of Part A and Part B into a clean dry container at a ratio of 2:1 by volume.
6. Mix the two components together using a suitable slow-speed mixer and high-shear mixing paddle (No Fillers: Ramset – SSMP, With Fillers Ramset - LSMP), for 2 minutes, until a fully uniform colour is obtained.
7. Scrape the sides of the tin and continue mixing for a further 2 minutes

Pot life

Pot life depends upon ambient temperature and volume of epoxy. As a guide a 3 L kit will have 20 to 30 minutes pot life at 25°C. For pot life with fillers see table 2.

Application

Apply Epoxy Patch as soon as the mixing process has been completed.

Bonding New to Old Concrete

Apply unfilled Epoxy Patch to prepared surfaces with a brush, roller or airless spray. Pour new concrete while Epoxy Patch is tacky (See Tack Free Time in Table 1 above). Coverage: 4.5m² / Litre.

Patching

- Remove unsound concrete by chasing and chiselling (Ramset Dynadrill 575 is recommended)
 - Wirebrush exposed reinforcement and degrease with thinners or Ramset SVGPL4
 - Use unfilled Epoxy Patch to prime concrete and reinforcement. Apply primer coat with brush or airless spray
 - Read mixing instructions 1 to 7 above
8. Apply filled Epoxy Patch when primer coat is tacky
 9. Allow Epoxy Patch to cure for 24 hours before stripping form work

Holding Down Bolts

Read the "Precautions" section of these instructions prior to use.

- a) Drill or core diameter should be 1.5 to 2 times the bolt diameter. Drill hole using correctly sized drill bit to the depth specified on the engineering drawings
- b) Clean hole with stiff nylon or wire bristles. Using a combination Push/Pull and twisting (rotation) motion, ensure the sides of the hole are scrubbed at least 3 times for the full depth of the hole
- c) Remove debris, dust etc. from the hole using a hole cleaning blower with at least 4 swift pumps, alternatively use a strong blast of compressed air
- d) Holding down bolts should be cleaned and free from oil, grease, flaking rust or debris.
- e) Ensure that holes are dry. If holes have been left for a prolonged period since drilling, re-cleaning in accordance with 'b) &c)' above is recommended.
- f) Read mixing instructions (1 to 7) above.
8. Suspend holding down bolts in drilled holes such that they are vertical and concentric
9. Pour Epoxy Patch into concrete holes until full
10. Do not touch or bolt for 24 hours
11. Once Epoxy Patch has cured, tighten to recommended torque. Consult engineer's drawings

Cure time

Epoxy Patch will achieve about 80% of its final cure strength in 24 hours and will achieve full strength in 7 days. Remove formwork and apply full torque to bolts after 24 hours.

Clean up

Clean up uncured material and equipment immediately after use using Ramset Solvent (SVGP) or Xylene. Do not use solvents on skin. Remove cured Epoxy Patch by mechanical means.

Storage and shelf life

Store between 10°C and 30°C. Shelf life is 1 year in original unopened container.

Pack size	Order number
1 litre	EPPHL1
3 litres	EPPHL3
20 litres	EPPHL20

Health & Safety information as per Epoxy Putty over page