

EPOXY GROUT 7042

Date of Issue: 25/6/14



Ramset Epoxy Grout 7042 is a tough epoxy resin based grout for use in pourable form or for mixing with graded sand filler to produce a trowellable consistency.

Epoxy Grout 7042 is 100% solids epoxy with negligible shrinkage.

RECOMMENDED USES

- ◆ Grouting heavy duty supports beneath crane and transporter rails
- ◆ Grouting under machinery baseplates
- ◆ Anchoring holding down bolts, deformed bars, ferrules and threaded rod into carbide drilled and diamond cored holes in concrete
- ◆ Bonding new to old concrete
- ◆ Grouting under column base plates
- ◆ Grouting under bearing pads
- ◆ Corrosion protection on steel reinforcement prior to application of concrete repair mortar

FEATURES AND BENEFITS

- ◆ Available in Standard (Fast Cure) and Low Exotherm (Slow Cure) Versions
- ◆ Standard version reaches 80 MPa in 3 hours at 20°C
- ◆ Low exotherm version is ideal for high temperatures or deep pours
- ◆ 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

TABLE 1. Typical Properties of Unfilled Epoxy Grout 7042
Typical properties after 7 days cure at 25°C and 50% relative humidity

Appearance	Part A: Off White thixotropic liquid Part B: Amber Liquid Mixed: Off White
Viscosity	Flowable, pourable
Solid content by weight	100%
Tensile strength	32 MPa approx.
Compressive strength	95 MPa approx.
Flexural strength (Static)	50 MPa approx.
Flexural Modulus (Dynamic)	7 x 10 ³ MPa
Tensile Bond Strength (Concrete)	Concrete Substrate Failed at Ultimate Load
Service temperature	-10°C to + 85°C
Glass Transition Temp (T _g)	68°C
Tans Delta (δ)	85°C
Working Time (Pot Life)	Standard 30 – 40 mins @ 25°C Low Exotherm 2 hours @ 25°C
Mix ratio	5:1 (part A:B) by volume
Mix ratio	10:1 (part A:B) by weight
Min. Application temp.	5°C
Max. Application temp.	35°C
Density	1.7 kg/Litre
Full cure	7 days at 25°C
Dielectric strength (IEC 60243-1)	22 kV / mm
Dielectric constant 100 Hz 20°C	4.2
Volume Resistivity	1.8x10 ¹⁵ Ωcm
Thermal conductivity	0.48 W/m.K

Table 2. Typical Properties of Epoxy Grout 7042 Mixed with Ramset Fillers FG

Consistency	Volume of Epoxy Grout 7042 (Litres)	Weight of Fillers FG (Kg)	Yield of Mixture (Litres)
Fluid	1	0.5	1.2
Pourable	1	1.0	1.4
Trowellable	1	2.5	1.9
Dry Pack	1	4.0	2.5

For more details on technical data refer to the final page of this document

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PRECAUTIONS

- ◆ **Exotherm:**
 - Standard Epoxy Grout 7042 will generate heat when mixed. Mixing Epoxy Grout 7042 in volumes > 13 litres will result in rapid increase in temperature and short pot life
 - For grouting applications involving large masses of epoxy, exceeding the maximum pour thickness will result in rapid increase in temperature, which may lead to shrinking and cracking
 - When added to Epoxy Grout 7042, Fillers FG will act as a heat sink and moderate the temperature rise (exotherm)
 - To prevent cracking due to exotherm, pour to a maximum thickness of 50 mm
 - For thicknesses 50 mm to 500 mm, Low Exotherm version is recommended
 - Alternatively, for thicknesses greater than 50 mm with standard version, pour in successive layers of maximum 50 mm each
 - Wait until the first layer has started to cool before pouring the next layer
- ◆ **Minimum Thickness:** 1.5 mm
- ◆ **Anchoring**
 - Exotherm and shrinkage is not a concern in anchoring applications involving narrow boreholes
 - The large surface to volume results in exotherm heat being absorbed into the surrounding concrete
- ◆ **Mixing and Placing Temperature:**
 - If Epoxy Grout 7042 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 Grout 7042 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 Grout 7042 with solvents, as it will not perform as specified
- ◆ **Mix Ratio:**
 - 5 parts Part A to 1 parts Part B by volume. Incorrect mix ratio will affect the strength of Epoxy Grout 7042
 - Epoxy Grout 7042 is supplied as pre-measured kits. To avoid measuring errors, mix the entire contents of a kit together and avoid breaking the kit into smaller quantities

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 grout.
- ◆ Grit blast or scabble concrete to expose clean surface.
- ◆ Remove ponded water. Concrete may be damp but not wet.
- ◆ Cut steel reinforcement and formwork to size and shape and assemble before mixing commences.

MIXING

1. Read precautions section above and Material Safety Data Sheet before commencing.
2. Epoxy Grout 7042 must be thoroughly mixed. Incomplete mixing will result in hard and soft spots and affect the grout's strength.
3. Stir the hardener and base components separately before mixing together, to disperse any settlement.
4. If Fillers are required, add correct weight to Part A and mix with *Ramset* high shear mixing paddle. (See Table 2 above).
5. Pour the entire contents of the Part B container into the Part A container.
6. If kit quantity is greater than 13 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 5:1 by volume.
7. 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.
8. 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 of standard version will have 30 to 40 minutes pot life at 25°C. A 13 Litre kit of Low Exotherm Epoxy Grout 7042 will have a pot up to about 1 hour.

See table below for guide to pot life at various temperatures.

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Temperature (°C)	Pot Life (Minutes)
5	95
10	80
20	55
25	40
30	25

Table 3. Guide to Pot Life of 13 L Standard Kit at various temperatures

APPLICATION

Apply Epoxy Grout 7042 as soon as the mixing process has been completed.

Bonding New to Old Concrete:

Apply unfilled Epoxy Grout 7042 to prepared surfaces with a brush or roller.

Pour new concrete while Epoxy Grout 7042 is tacky (See Tack Free Time in Table 1 above).

Coverage: 4.5m² / Litre.

Grouting:

- ◆ Position and level baseplate
 - ◆ Construct formwork around base plate with 25 mm clearance
 - ◆ Coat formwork with a thin film of grease or other release agent to prevent permanent bond
 - ◆ Form a pouring head with minimum 150 mm above base plate level
 - ◆ Form 50 mm off-side shutter opposite pouring head to allow air and grout to escape
 - ◆ Read mixing instructions 1 to 8 above
9. Pour Epoxy Grout 7042 into the pouring hopper
 10. Keep pouring until Epoxy Grout 7042 has risen in the off-side shutter
 11. Allow Epoxy Grout 7042 to cure for 24 hours before stripping form work

Anchoring Starter Bars, Holding Down Bolts, Threaded Studs, Ferrules

Read the “Precautions” section of these instructions prior to use.

Setting and technical data provided applies to:

- ◆ Holes drilled with Dynadrill® Concrete Drilling Machines or Rotary Hammers using carbide drill bits with tolerances in accordance with DIN8035, and where holes have been cleaned using a brush and air pump.
- ◆ Diamond core drilled holes that have been cleaned using a brush and air pump.

- a) Drill hole using correctly sized drill bit to the specified depth. (See Engineer’s drawings for dimensions).

- 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) Reinforcing bars, internally threaded sockets, threaded rods or studs to be used should be cleaned and free from oil, grease, flaking rust or debris. Threaded rods or studs should be chisel ended to prevent them unthreading from the cured grout.
- 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 8) above.

Anchoring Holding Down Bolts, Threaded Rod and Studs:

9. Suspend holding down bolts, threaded rod and studs in drilled holes such that they are vertical and concentric
10. Pour Epoxy Grout 7042 into concrete holes until full
11. Do not touch or load anchor for 24 hours.
12. Once Epoxy Grout 7042 has cured, tighten to recommended torque. Consult engineer’s drawings.

Ferrules

9. Pour Epoxy Grout 7042 into drilled holes until half full
10. Ferrules must be fitted with caps to prevent Epoxy Grout 7042 entering sockets and contaminating threads
11. Puddle ferrules into Epoxy Grout 7042 until they reach the bottom of the holes
12. Clean away excess Epoxy Grout 7042 with a cloth
13. Do not touch or load ferrules for 24 hours
14. Remove caps, insert and tighten bolts to torque recommended on engineer’s drawings

CURE TIME: Epoxy Grout 7042 Standard will achieve about 84% of its final cure strength in 3 hours and will achieve full strength in 7 days.

Remove formwork and apply full torque to bolts after 24 hours.

Time	Compressive Strength @ 20°C
1 hour	32 MPa
2 hours	72 MPa
3 hours	80 MPa
7 days	95 MPa

Table 4. Compressive Strength Gain Standard Epoxy Grout 7042, 50 mm depth at 20°C (Without Fillers FG)

CLEAN UP

Clean up uncured material and equipment immediately after use using Acetone. Do not use solvents on skin.

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Remove cured Epoxy Grout 7042 by mechanical means.

STORAGE AND SHELF LIFE

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

HEALTH AND SAFETY

- ◆ Avoid contact with the skin, eyes and avoid breathing vapour.
- ◆ Wear protective gloves and glasses when drilling, mixing or using.
- ◆ If poisoning occurs, contact a doctor or Poisons Information Centre.
- ◆ If swallowed, do not induce vomiting. Give a glass of water.

- ◆ If skin contact occurs, remove contaminated clothing and wash skin thoroughly for a minimum of 15 minutes.
- ◆ If in eyes, hold eyes open, flood with water for at least 15 minutes and seek medical advice
- ◆ For more detailed information refer to the Material Safety Data Sheet available from *Ramset* by calling 1300 780 063 or from the web at www.ramset.com.au

PACK SIZES AND ORDER NUMBERS

Version	Pack Size	Order Number
Standard	13 Litres (22 Kg)	EP7042L13
Standard	3 Litres	EP7042L3
Low Exotherm	13 Litres (22 Kg)	EP7042LEL13
Low Exotherm	3 Litres	EP7042LEL3

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TECHNICAL DATA SUMMARY – EPOXY GROUT 7042 STANDARD

Typical Properties of Epoxy Grout 7042 Standard

Appearance	Part A: Off White thixotropic liquid Part B: Amber Liquid Mixed: Off White
Viscosity	Flowable, pourable
Solid content by weight	100%
Tensile strength	32 MPa approx.
Compressive strength	95 MPa approx.
Flexural strength (Static)	50 MPa approx.
Flexural Modulus (Dynamic)	7 x 10 ³ MPa
Tensile Bond Strength (Concrete)	Concrete Substrate Failed at Ultimate Load
Service temperature	-10°C to + 85°C
Glass Transition Temp (Tg)	68°C
Tans Delta (δ)	85°C
Working Time (Pot Life)	Standard 30 – 40 mins @ 25°C
Mix ratio	5:1 (part A:B) by volume
Mix ratio	10:1 (part A:B) by weight
Min. Application temp.	5°C
Max. Application temp.	35°C
Density	1.7 kg/Litre
Full cure	7 days at 25°C
Dielectric strength (IEC 60243-1)	22 kV / mm
Dielectric constant 100 Hz 20°C	4.2
Volume Resistivity	1.8x10 ¹⁵ Ωcm
Thermal conductivity	0.48 W/m.K

Compressive Strength Gain Standard Epoxy Grout 7042, 50 mm depth at 20°C (Without Fillers FG)

Time	Compressive Strength @ 20°C
1 hour	32 MPa
2 hours	72 MPa
3 hours	80 MPa
7 days	95 MPa

Pot Life of Epoxy Grout 7042 Standard at various temperatures

Temperature (°C)	Pot Life (Minutes)
5	95
10	80
20	55
25	40
30	25

Properties of Epoxy Grout 7042 Standard mixed with Fillers FG to various consistencies

Consistency	Volume of Epoxy Grout 7042 (Litres)	Weight of Fillers FG (Kg)	Yield of Mixture (Litres)	Compressive Strength (Cube) 7 days (MPa)	Working Time @ 25°C (Minutes)
Fluid	1	0.5	1.2	81	45
Pourable	1	1.0	1.4	84	55
Trowellable	1	2.5	1.9	85	75
Dry Pack	1	4.0	2.5	NA	NA

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TECHNICAL DATA SUMMARY – EPOXY GROUT 7042 LOW EXOTHERM

Typical Properties of Epoxy Grout 7042 Low Exotherm

Appearance	Part A: Off White thixotropic liquid Part B: Amber Liquid Mixed: Off White
Viscosity	Flowable, pourable
Solid content by weight	100%
Tensile strength	32 MPa approx.
Compressive strength	95 MPa approx.
Flexural strength (Static)	50 MPa approx.
Flexural Modulus (Dynamic)	7 x 10 ³ MPa
Tensile Bond Strength (Concrete)	Concrete Substrate Failed at Ultimate Load
Service temperature	-10°C to + 85°C
Glass Transition Temp (T _g)	68°C
Tans Delta (δ)	85°C
Working Time (Pot Life)	Low Exotherm 2 hours @ 25°C
Mix ratio	5:1 (part A:B) by volume
Mix ratio	10:1 (part A:B) by weight
Min. Application temp.	5°C
Max. Application temp.	35°C
Density	1.7 kg/Litre
Full cure	7 days at 25°C

Compressive Strength Gain Low Exotherm Epoxy Grout 7042, 50 mm depth at 20°C (Without Fillers FG)

Time	Compressive Strength @ 20°C
3 days	75 MPa
7 days	95 MPa

For further information, please contact Ramset™
 AU - PHONE: 1300 780 063 www.ramset.com.au
 NZ - PHONE: 1800 RAMSET (726738) www.ramset.co.nz

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