# ARDEX RA 144

## Low Viscosity Structural Concrete Crack Injection Epoxy

100% solids, solvent free system with low VOC content

Pressure injection and gravity feed structural crack repair in horizontal concrete, masonry for cracks from 3mm to 6mm

Epoxy resin binder for epoxy mortar patching and overlay of interior surface using addition of aggregate

Shear fracture repairs on interior and exterior concrete slabs

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# ARDEX RA 144

## Low Viscosity Structural Concrete Crack Injection Epoxy

### DESCRIPTION

ARDEX RA 144 is a low viscosity, high modulus structural epoxy adhesive used for a variety of repair projects. With its low viscosity, it is perfect for horizontal gravity-feed repair of fine to medium size cracks and can be used in temperatures between 10°C and 35°C. Its bonding and sealing capabilities for interior and exterior slabs are exceptional. It can also be used as an epoxy mortar for spall repair when mixed with aggregate.

### INSTRUCTIONS

Always be sure the bonding surfaces are prepared in advance before starting a new cartridge or mixing product. If possible, schedule dispensing to consume an entire cartridge at one time with no interruption of the flow.

### SURFACE PREPARATION

Old concrete must be clean, profiled or textured. New concrete must be a minimum of 28 days old. Before using ARDEX RA 142, make sure that the surfaces to be bonded are sound and clean so there is no dust, dirt, grease, wax, oil, or any other contaminant present. Smooth surfaces should be mechanically roughened with a wire brush or sand paper before application.

### CARTRIDGE SET-UP

Whilst preparing cartridge, keep in an upright position to prevent material from leaking from cartridge.

1. Shake cartridge for 1 minute then stand cartridge upright for 1 minute allowing bubbles to rise to top.
2. Place cartridge into the dispenser, and hold the dispenser pointing upward at about 45° angle due to the products low viscosity. Remove plastic cap and plug.
3. Dispense enough material into a disposable container until both resin and hardener flow evenly.
4. Insert the flow control port and then the nozzle to the top of the cartridge. Still holding the dispenser at about a 45° angle, slowly dispense the material up through the nozzle and dispose of 1-2 trigger pulls.

### BONDING AGENT APPLICATIONS

**For bonding fresh concrete to hardened concrete or when repairing concrete spalls use as a bonding agent:** Use a brush or roller and apply an even coat of the mixed ARDEX RA 144 to the clean and prepared concrete surface. While the epoxy is still tacky, place fresh concrete over the top of the mixed epoxy.

**For bonding hardened concrete to hardened concrete**: Use a brush or roller and apply an even coat of the mixed ARDEX RA 144 to the clean and prepared concrete surface. Make sure to fill all gaps between the two concrete surfaces.

### GRAVITY FEED CRACK REPAIR FOR HORIZONTAL APPLICATIONS

ARDEX RA 144 is formulated to repair fine to medium sized cracks: (3mm to 6mm). For hairline cracks use ARDEX RA 142, for larger cracks use RA 146. For best results, cut a groove to open up the crack using an abrasive or diamond blade to a width 6mm and minimum depth 10mm. Use a wire brush to abrade and then blow out the crack to remove all dust, dirt, grease, wax, oil or any other contaminants. Pour or inject ARDEX RA 144 into the crack and its self-levelling ability will fill the entire area. Repeat application if necessary to completely fill the crack. Follow the cartridge preparation instructions.

### SPALL REPAIR

To avoid a feathered edge, cut around the spall into sound concrete with a grinder or circular saw using a diamond or concrete abrasive blade. The edge cut should be equal to the maximum depth of the spall or to at least a minimum depth 20mm. Avoid a feathered edge.

Chip out all loose concrete within the entire spall to a minimum depth 20mm. Follow surface preparation instructions to clean the spall. Estimate the amount of product needed and slowly add 4-5 parts by volume of Kiln-dried sand or aggregate of choice and mix well, pour and trowel until smooth/level. Maximum mortar thickness is 40mm per coat.

### CRACK INJECTION SYSTEM FOR VERTICAL CRACKS

Before repairs are attempted, the crack should be analysed to determine the type of repair that is required. Cracks in concrete and wood members are classified as either active (moving) or dormant. Dormant cracks may occur with one-time overload events such as earthquakes or floods. For dormant cracks in a structure that is to be rehabilitated, structural crack injection is recommended. By contrast, active cracks are caused by inadequate design, seasonal heaving, temperature swings or repeated over-loading.

#### Preparation

Clean the surface immediately surrounding the crack with a wire brush to achieve a proper bond. Remove all dust, debris, oil and any other contaminants from the crack by blowing out with clean, oil-free compressed air. For best results crack must be dry at the time of injection. If water is seeping from crack, steps must be taken to stop the flow in order to achieve desired repair.

ARDEX RA 88 is ideal to be used as capping paste for the crack injection procedure. Place and secure injection ports with ARDEX RA 88, taking care not to leave

any pin-holes. Port spacing should be approximately 15 – 30cm apart (typically the width of the concrete member). Do not allow the epoxy to block the passage between the port and the crack face. Place additional ARDEX RA 88 between the ports making sure the entire face of the crack is sealed off and ports are securely fastened to the concrete. If the crack is evident and accessible on the back side of the concrete member, seal with capping paste. See ARDEX RA 88 for cartridge set-up.

**Injection**

1. Attach the tube assembly to the barbed end of nozzle.
2. Attach other end of tubing to the bottom injection port. Inject epoxy into port until there is flow from adjacent port or until epoxy stops flowing. Plug the port injecting into and attach tubing to adjacent port. Continue procedure until complete.
3. Leave the tubing attached to the last port on each crack for 30 seconds under pressure to assure crack is completely filled.
4. Allow Injection resin to cure (at least 24 hours). Ports and capping material can be removed with a chisel and/or grinder.

Note: Some cracks may take more time to inject. Cracks may be smaller in width (or larger) than they appear from the surface.

**Dispensing and Injection Tips**

**Pneumatic Dispenser:**
Must be used with an air pressure regulator. Start at a low setting and gradually increase pressure as needed until desired epoxy flow. Use maximum 275 kPa (40 psi) air pressure. Excessive pressure may result in cartridge plunger leakage.

For basement walls (where back side of concrete is not accessible) inject with slightly higher viscosity, ARDEX RA 146. This is a unique thixotropic gel that will feed into small cracks and bridge the back side without runoff.

Do not dispense epoxy through gelled mixer nozzle. If epoxy gels in nozzle, replace nozzle before continuing.

## CURING

ARDEX RA 144 is fully cured in 24 hours. After such time, ports and capping material can be removed with a chisel and/or grinder.

## APPLICATION TEMPERATURE

Substrate and ambient air temperature should be between 10°C and 35°C. When the work environment or substrate falls below 21°C, condition the product to 21°C – 24°C prior to use. Cold product will react (cure) slower and product that is too warm will react (cure) much faster than normal.

## CLEAN UP

Clean tools and equipment with white spirits, mineral turps or aerosol dewatering agent or lubricant. Do not allow epoxy to harden on equipment.

## COVERAGE

Please refer to the calculator on the ARDEX website. www.ardexaustralia.com

## PACKAGING

ARDEX RA 144 is sold in a 470mL dual cartridge.

## SHELF LIFE

RA 142 has a shelf life of 24 months when stored in the original unopened packaging in a dry place between 13°C and 27°C and 50% relative humidity. If recapped and stored properly, product may be reused.

## PLEASE PAY ATTENTION TO THE FOLLOWING

Do not thin with solvents, as this will prevent cure.
Not intended for repairing cracks subject with movement.
Repairs should be made to the cracked member to eliminate the cause of the cracking prior to repair.
It is not designed to stop seeping or flowing water. It may be applied in moist or damp environments as long as standing water is removed.

## SAFETY PRECAUTION

This product is considered hazardous. Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection. Avoid exposure - obtain special instructions before use. Do not empty into drains. This material and its container must be disposed of in a safe way.
Harmful in contact with skin and if swallowed. Causes burns. Risk of serious damage to eyes. SENSITISATION by skin contact. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Store as per Material Safety Data Sheet. In case of accident or if you feel unwell, IMMEDIATELY contact Doctor or Poisons Information Centre. Refer to special instructions / safety data sheet.

## FIRST AID

If swallowed, drink plenty of water in small portions, do not induce vomiting and seek medical advice. In case of eye contact, rinse with plenty of clean water for at least 15 minutes and seek medical advice. If skin contact occurs, wipe off and wash skin with running water and soap. In case of inhalation, supply fresh air. In case of any symptoms, see a doctor.

## TECHNICAL DATA

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|---|---|
| **Colour:** | Amber tint |
| **Mixed Viscosity:** | 500 cps |
| **Gel Time (+24°C):** | 20 minutes |
| **Mixing Ratio:** | 2:1 |
| **Compressive Strength 7 days:** | 70 MPa |
| **Shear Bond Strength 2 days:** | 8 MPa |
| **Shear Bond Strength 7 days:** | 11 MPa |
| **Elongation at break 7 days:** | 1.8% |
| **Water Absorption 24 hours:** | 0.28% |

**DISCLAIMER**
The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable Australian Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations. The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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