



# a.b.e.<sup>®</sup> Construction Chemicals **dura.<sup>®</sup>rep QS** Quick Set

## FAST-SETTING CHEMICAL-ACTION CONCRETE

### DESCRIPTION

**dura.<sup>®</sup>rep QS** is a one-component, concrete repair and anchoring material which sets rapidly and takes rubber-tyre traffic 45 minutes after placement. This product bonds to both concrete and masonry and can be used indoors and outdoors for a variety of highway and heavy industrial repair jobs. It is a chemical action product specially formulated to be fast acting, permitting the job to be done in minutes instead of days.

### USES

**dura.<sup>®</sup>rep QS** is a non-shrink material. Its slight expansive qualities are beneficial to grouting, anchoring and patching procedures.

**dura.<sup>®</sup>rep QS** will bond to almost any material such as concrete, masonry, wood or steel.

- Concrete pavement joint repairs.
- Airport runway light installations.
- Expansion device nosing.
- Anchoring bridge railings.
- Truck dock repairs.
- Large balustrades.
- Parking deck and ramp repairs.
- Heavy industrial repairs.
- Do not use if it will come into contact with galvanised steel or aluminium.

### ADVANTAGES

- Requires only the addition of water.
- Cold room applications (NB - where material, substrate and surrounding temperatures are elevated to 25°C, in a 'tent' - quick setting properties).
- No pre-saturation.
- No curing required.
- No bonding agents required.

- Water soluble for easy cleaning of equipment.
- Self-levelling matrix (flowable).
- Hardens in 15 minutes – ready for traffic in 45 minutes.
- Yield per bag extended by addition of coarse aggregate (9 - 13mm stone).
- Ideal for repair work in coastal regions (prevents corrosion of re-bars) and aggressive environments such as mining, heavy industry, sewerage.
- Bonds to concrete, masonry, steel, wood.
- Internationally proven since 1973.

### TYPICAL PHYSICAL PROPERTIES

Min. compressive strengths – MPa ASTM C - 109 (modified)		
Period	dura. <sup>®</sup> rep QS	Typical concrete
1 hour	8	
3 hours	20	
24 hours	30	3,5
3 days	38	13
28 days	50	25
Flexural strengths – MPa ASTM C - 78 (modified)		
3 hours		2,5
24 hours		4,5
7 days		5,5
Expansion % CRDC – 589		
1 hour		0,19
24 hours		0,23
7 days		0,23
Setting time ASTM C - 266 Gilmore Needles @ 22°C		
Initial set		8 minutes
Final set		22 minutes
Pull-out tests conducted on No. 4 reinforcing bars show bond strength in excess of 6,8 MPa.		

## SURFACE PREPARATION

The substrate must be sound, firm and clean, free of oil, grease, loose particles and cement laitance, old layers of paint, or other contaminants. The surface may be damp or dry but dust free prior to placing **dura.®rep QS**.

All edges to be repaired must be square cut to a minimum of 10mm deep, perpendicular to the surface, followed by the removal of all unsound material. When using compressed air for cleaning, the air must be clean and oil free.

Never feather edge the product.

All metal to be coated must be clean, mechanically sound and dry. Expose all corroded reinforcing steel and grit blast. A clean bright finish is required ensuring that all corrosion products are removed particularly behind the steel. The anchor pattern should be approximately 40 to 60 microns from peak to valley.

Note: Consult the product data sheet 'Preparation of Surfaces' for detailed preparation information.

## MIXING

A suitable size mixing vessel that will accommodate full bag lots using a pan mixer or a heavy duty mechanical drill type mixer and spiral paddle stirrer that operates around 400 - 500 r/min is recommended.

After adding clean water to the mixing vessel, preferably mechanically, slowly add the **dura.®rep QS** powder and mix for approximately 1,5 to 2 minutes, until the mortar is homogeneous and lump free. Never exceed the prescribed amount of water. Place the material immediately before setting occurs. Set/stiffened material must be discarded. Never re-temper the product - discard and use a fresh batch. When adding coarse aggregate never exceed the powder: water ratio recommended - workability will be reduced by the addition of aggregate.

Note: High-speed mixing entraps an excessive amount of air and therefore should be avoided. The yield per bag can be extended by the addition of 15kg of clean, dry, dust free, coarse aggregate (9 - 13mm). It is important that the water demand per 25kg of **dura.®rep QS** must not change or be increased due to the addition of stone. Never contaminate or add Portland cement to **dura.®rep QS**, this will destroy the product's performance.

## COVERAGE

25kg of **dura.®rep QS** with 2,2 litres of water yields approximately 13 litres.

## APPLICATION

Ensure that all preparation, shutters and other equipment and tools are ready and in place to receive **dura.®rep QS** prior to mixing as the material sets quickly. The flowable thixotropic mortar can be poured into place and finished by trowel or float.

Use neat material for repairs between 25mm to 50mm in depth and 100mm width - joint repair edges should not be less than 50mm deep. For deeper repairs, > 50mm, a 25kg bag of **dura.®rep QS** concrete may be extended by adding up to 15kg of properly prepared aggregate (not larger than 13mm). Application may be carried out in layers or applied up to 250mm in one pass.

As **dura.®rep QS** bonds to most building materials, ensure that all surfaces where bonding is not required, i.e. shuttering, be coated with a high quality release agent.

## CLEANING

Clean tools with water before the mortar hardens. Hardened material can only be removed by mechanical means.

## PROTECTION ON COMPLETION

**dura.®rep QS** should air-dry for proper cure. Do not use a curing compound or wet cure.

## TEMPERATURE AND RELATIVE HUMIDITY

Surface and ambient temperature must be at least + 5°C and rising, ideally between 20°C and 30°C.

## MODEL SPECIFICATION

Chemical action, fast-setting repair mortar.

The repair mortar will be **dura.®rep QS**, a single component, chemical action, fast-setting repair mortar applied in accordance with the recommendations of **a.b.e.® Construction Chemicals**. The mortar will have a minimum 1-hour compressive strength of 8 MPa.

## PACKAGING

**dura.®rep QS** is supplied in 25kg polyethylene lined paper bags.

## HANDLING & STORAGE

This product has a shelf life of 12 months if kept in a dry cool place in the original packaging. In more extreme conditions this period might be shortened.



## HEALTH & SAFETY

**dura.®rep QS** is alkaline and should not be allowed contact with skin and eyes. Avoid inhalation of dust during mixing by wearing dust masks. The use of gloves, eye protection and dust masks is advised. Immediately wash with water in the event of contact with skin. Splashes into eyes should also be washed immediately with plenty of clean water and medical advice sought.

## PRECAUTIONS

**dura.®rep QS** is a pre-blended formula and must be used as supplied. No further sands, cements or components must be added. Mix only with the prescribed quantity of water. The addition of clean water must be carefully gauged and controlled as this ratio is critical to the correct functioning of **dura.®rep QS**.

Ideally **dura.®rep QS** should be placed to a thickness of 25mm or more. Never use where the thickness will be less than 15 mm.

Due to its alkaline nature **dura.®rep QS** must never be used in direct contact with aluminium or galvanized steel.

**dura.®rep QS** is designed as a rapid setting mortar for concrete repair and patchwork and should not be used as a precision mortar.

## IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.® Construction Chemicals** endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot - because **a.b.e.®** has no direct or continuous control over where and how **a.b.e.®** products are applied - accept any liability either directly or indirectly arising from the use of **a.b.e.®** products, whether or not in accordance with any advice, specification, recommendation, or information given by the company.

## FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements. **a.b.e.® Construction Chemicals** has a wealth of technical and practical experience built up over years in the company's pursuit of excellence in building and construction technology.



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