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# ARDEX CE 511

## GP Non-Shrink Grout

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Dual shrinkage control

High strength Class C grout

Suitable for pumping applications

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**ARDEX Australia Pty Ltd**

2 Buda Way,  
Kemps Creek, NSW 2178  
Phone: 1300 788 780  
Email: [technicalservices@ardexaustralia.com](mailto:technicalservices@ardexaustralia.com)  
[www.ardexaustralia.com](http://www.ardexaustralia.com)

**ARDEX New Zealand Ltd**

15 Alfred Street, Onehunga Auckland,  
New Zealand 1061  
Phone: 0800 227 339  
Email: [info@ardexnz.com](mailto:info@ardexnz.com)  
[www.ardex.co.nz](http://www.ardex.co.nz)

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### DESCRIPTION

ARDEX CE 511 is a highly fluid, dual shrinkage cementitious grout suitable for a wide range of civil engineering applications.

ARDEX CE 511 incorporates specially graded aggregates and advanced cement additives which form a Class C, high strength, low permeability grout which is suitable for permanent applications.

### RECOMMENDED USES

- Pile grouting
- Concrete repairs
- Columns and slabs
- Base plate grouting
- Precast panel grouting
- Structural repairs of beams

### ADVANTAGES

- High Strength
- Long pump life
- Low permeability
- Dual Shrinkage Class C
- Highly fluid – no segregation

### SURFACE PREPARATION

The substrate must be clean, sound, and free from all grease, oil, dust, laitance, and other surface contaminants such as curing membranes. Damaged or contaminated concrete must be removed to obtain a good bond to the substrate.

Cut the edges of the repair vertically to a minimum depth of 20mm until the area is squared or boxed in shape. Greater depth is required for heavy-duty trafficable applications. Exposed reinforcing steel should be cleaned to remove all residual rust and concrete residue. Concrete should be removed from around and behind all corroding rebar to avoid future contamination of the repaired area. The substrate must be prepared correctly to remove all the deteriorated and detached concrete until a strong substrate with a rough surface is obtained. Any areas previously repaired and which are not perfectly bonded must also be removed.

### PRIMING

To reduce the porosity of the substrate, priming the prepared substrate with ARDEX WR Prime is recommended. Alternatively, the prepared substrate can be pre-soaked using water for at least 2 hours before applying ARDEX CE 511. Remove excess freestanding water on the surface prior to the application of ARDEX CE 511. The surface should be damp to touch without standing water.

### FORMWORK PREPARATION

The area to be pumped must be enclosed with good quality rigid watertight formwork. The formwork must be able to rigidly confine the ARDEX CE 511 until it has set. It is recommended to use an appropriate form release agent. Formwork should be flushed out just prior to an application without any standing water present.

### MIXING

2.0 – 3.4 Ltrs of clean water per 20kg bag.

Measure approximately 80% of the required water into a clean suitable sized pail and then add the entire contents of the bag while mixing with a heavy-duty electric drill on medium speed (approximately 680rpm). Add the remaining water and mix for about 2 – 3 minutes or until it is fully homogenized. The mixed material must be poured immediately for best results.

### APPLICATION

ARDEX CE 511 is to be applied onto the pre-wetted or primed substrate. Make sure that the grout is applied whilst the substrate is still damp, or the substrate primer is still slightly tacky. It should be applied in a continuous pour to avoid cold joints. It is recommended to smooth the material with a steel trowel after the last pour. For ease and efficiency of application, ARDEX CE 511 can be pumped using a suitable automatic concrete or grout mixing pump. Follow the instructions as set by the pump manufacturer.

ARDEX CE 511 can be installed from a minimum depth of 10mm to 100mm. For application depths greater than 100mm, contact ARDEX for further information about aggregate addition for large volume pours.

### PUMPING

Once the grout has been mixed you need an effective pumping method to deliver it to the area of application. Various models of mixers are available for use, all with varying specifications. It is important to match your application's specifics with the capabilities of the mixer and pump. ARDEX can recommend the right mixer for your project.

Prior to pumping grout, rinse the mixer and charge the pump hopper with sufficient water to flush and cool the pump and all grout lines thoroughly. Check to ensure that all lines and hoses are clear and unobstructed. Once grout is mixed, it is important to keep it agitated continuously prior to pumping. It is important to pump continuously and avoid the formation of cold joints.

Following completion, dispose of excess production material in consideration of the environment. Carefully wash out mixer tanks and agitators into the pump hopper and pump the resulting washout material through the grout hoses to a suitable disposal site.

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### APPLICATION TEMPERATURES

The mix water's temperature should be kept as low as possible to prevent the grout from hydrating too rapidly. As with the water temperature, the higher the air temperature the more quickly the grout hydrates and sets.

ARDEX specify mixing times and set times at an ambient temperature of 20°C. These times vary with temperature fluctuations, and adjustments will be required to compensate for this.

It is estimated that every 10°C increase in temperature will halve the product set time. Likewise, every 10°C reduction will double the set time. ARDEX should be consulted for extreme temperature applications.

### CURING

It is recommended to apply a curing compound in a consistent film immediately after finishing. Alternatively after the product has set, wet hessian with polythene sheeting taped down at the edges can be used for a minimum 7 days.

### PACKAGING

20kg bags.

### SHELF LIFE

ARDEX CE 511 has a shelf life of 6months when stored in the original unopened packaging in a dry place at 23°C and 50% relative humidity.

### TECHNICAL DATA

Mixing Ratio	2.0 – 3.4 Ltrs of clean water per 20kg bag
Coverage	Trowellable 9.3ltrs @ 10% water Flowable 10.3ltrs @ 15% water
Application thickness	Refer to ARDEX Australia for advice and approval on pour thicknesses with dimensions exceeding 100mm

CHARACTERISTICS	TEST METHOD	TEST RESULT
Compressive Strength	AS 1478.2 Appendix A	Flowable
1 day		> 20MPa
7 days		> 45MPa
28 days		> 60MPa
Flexural Strength	ASTM C348	10MPa
Bleeding	ASTM C940	<0.2%
Setting time	ASTM C953	Initial - ≥ 1 hr Final - ≤ 10 hrs
Expansion @ 28 days		≤ 0.4%

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### CLEAN UP

All grouting equipment shall be thoroughly washed with clean water after grouting operations are completed.

### LIMITATIONS

Before any substrate preparation, installation or finishing methods relating to ARDEX product are undertaken, please be aware of any potential risks and use appropriate PPE (personal protective equipment). This may involve contacting substrate manufacturers for Safety Data Sheets.

### SAFETY DATA

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. Suspected of causing genetic defects. May cause damage to organs through prolonged or repeated exposure. Do not breathe dust/fume. Wear protective gloves, protective clothing, eye protection and face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/ attention. Immediately call a POISON CENTER/doctor/physician/ first aider. IF ON SKIN: Wash with plenty of water and soap. If skin irritation or rash occurs: Get medical advice/ attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Store locked up. Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. Additional information is in the Safety Data Sheet (SDS) at [ardexaustralia.com](http://ardexaustralia.com).

### GUARANTEE

ARDEX Australia Pty Ltd ("we" or "us") guarantees this product ("our goods") is free from manufacturing defects and will perform to any applicable specification published by us for 10 years from the date of purchase. Our liability under this guarantee is limited at our option to replacement of the product, repair of any damage to the immediate surface or area of application of the product, or compensation, in each case if we are satisfied loss or damage was due to a breach of this guarantee. This guarantee does not apply if damage or loss is due to failure to follow published instructions or any act or circumstance beyond our control, including shade variations and efflorescence. If you wish to make a claim under this guarantee you must notify us (ARDEX Australia Pty Ltd, 2 Buda Way, Kemps Creek, NSW 2178; Toll Free: 1800 224 070; Email: [technicalservices@ardexaustralia.com](mailto:technicalservices@ardexaustralia.com)) and provide evidence of your purchase of the product within 30 days of any alleged loss or damage occurring. We reserve the right to ask you for satisfactory evidence of any alleged loss or damage. Any claim under this guarantee is at your cost. This guarantee is in addition to any rights or remedies you may have as a "consumer" under the Australian Consumer Law and to that extent you need to be aware that: "Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also

entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure".

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