

RS ArmourGuard is a specially formulated, rapid-setting, steel fiber-reinforced, shotcrete mix designed to provide superior impact and abrasion resistant characteristics. This product is a pre-blended, pre-packaged, dry-process shotcrete material powered by Rapid Set® technology, containing steel fiber, blended aggregates and other carefully selected components. It is designed to produce superior impact and abrasion resistant characteristics, greatly reduced setting times and very rapid strength development.

FEATURES & BENEFITS

- Superior impact and abrasion resistant characteristics
- Significantly increased load carrying capacity
- Significantly increased energy absorbing capacity (toughness)
- Very rapid early age strength development
- Significantly reduced rebound, resulting in lower material usage
- Low shrinkage
- Blended to meet ACI 506 "Guide to Shotcrete", Table 1.1, Gradation No. 2
- All KING products are manufactured using ISO 9001:2015 Certified Processes

USES

- Ore pass linings
- Ore pass brows
- Truck dumps
- Ore and rock chutes
- Other areas of high impact and abrasion
- Use of a pre-dampener in conjunction with dry-process accelerated shotcrete is not recommended. Contact your local KING Technical Representative for more information.

PROCEDURES

Surface Preparation (Rock Surfaces): All surfaces to be in contact with RS ArmourGuard must be free from dust, oil, grease or any other foreign substances that may interfere with the bond of the material. Remove all loose or delaminated rock. Clean the area with potable water, leaving the substrate saturated but free of standing water (SSD).

Application: Apply RS ArmourGuard in accordance with the ACI 506 "Guide to Shotcrete" publication.

CURING

Good curing conditions are beneficial to optimizing the physical properties of RS ArmourGuard. Although the high relative humidity commonly found in underground environments provides for good curing conditions, additional curing is often appropriate and should be performed in accordance with ACI 308 "Guide to Curing Concrete".

TECHNICAL DATA

The following data is representative of typical values achievable using proper application techniques as outlined in the ACI 506 "Guide to Shotcrete" publication. The data was obtained during project field tests and in-house shotcrete studies.

COMPRESSIVE STRENGTH

**ASTM C 116
(ADAPTED)**
21 °C (70 °F)
2 Hour 21 MPa (3000 psi)

ASTM C 1604
1 Day 45 MPa (6500 psi)
7 Day 50 MPa (7250 psi)
28 Day 55 MPa (8000 psi)

ABRASION RESISTANCE

ASTM C 779 (PROCEDURE C)
7 Day 170 µm/min (6.7 x 10⁻³ in/min)
28 Day 120 µm/min (4.7 x 10⁻³ in/min)
(Rate of wear)

LASA MODIFIED TUMBLING

24 Hour 0.20 L (12.2 in³)
48 Hour 0.34 L (20.7 in³)
(Volume of material lost)

FLEXURAL TOUGHNESS

ASTM C 1550
Peak Applied Load Toughness as a Function of Flexure

Peak Applied Load	5 mm	10 mm	20 mm	30 mm	40 mm
40 kN (8992 lbf)	>100J	>215J	>350J	>450J	>500J

OPTIMUM PERFORMANCE

- Performance of in-place shotcrete relies heavily upon application techniques. To ensure optimum quality of in-place shotcrete, the material, equipment and key personnel should be pre-qualified prior to project start-up.
- Recommended minimum inside diameter of shotcrete hoses should be 50 mm (2 inches).

YIELD

1,000 KG (2,205 lb) bag contains approximately 0.45 m³ (16.5 ft³).

PACKAGING

RS ArmourGuard is normally packaged in 1,000 KG (2,205 lb) bulk bags and polywrapped on wooden pallets. All KING products can be custom packaged to suit specific job requirements.

STORAGE AND SHELF LIFE

Material should be stored in a dry covered area protected from the elements. Unopened bags have a shelf life of 12 months. Physical properties of RS ArmourGuard may be adversely affected if material is stored in temperatures below 0 °C (32 °F). Material should be allowed to warm to at least 15 °C (60 °F) prior to shooting in order to optimize early-age compressive strength results.

SAFETY PROCEDURES

RS ArmourGuard contains rapid-setting cement. Normal safety-wear, such as rubber gloves, a dust mask and safety glasses, used to handle conventional cement-based products, should be worn. Safety Data Sheets are available upon request.

Warranty: This product is designed to meet the performance specifications outlined in this product data sheet. If the product is used in conditions for which it was not intended, or applied in a manner contrary to the written recommendations contained in the product data sheet, the product may not reach such performance specifications. The foregoing is in lieu of any other warranties, representations or conditions, expressed or implied, including, but not limited to, implied warranties or conditions of merchantable quality or fitness for particular purposes, and those arising by statute or otherwise in law or from a course of dealing or usage of trade. [REV.0008_2458717.5]

Head Office

601, avenue Delmar
Pointe-Claire (Québec) H9R 4A9

Other Sites:

Boisbriand, Qc
Brantford; Cambridge; Sudbury; Toronto(ON)

Edmonton (Alberta)
Surrey (British Columbia)