

PRODUCT DATA SHEET

King® RS ArmourGuard

RAPID STRENGTH HIGH ABRASION RESISTANCE SHOTCRETE MATERIAL FOR DRY-MIX PROCESS APPLICATIONS

PRODUCT DESCRIPTION

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

WHERE TO USE

- Ore pass linings
- Ore pass brows
- Truck dumps
- Ore and rock chutes
- Other areas of high impact and abrasion

PRODUCT INFORMATION

Packaging	▪ 1000 kg (2205 lb) FIBC <i>*Custom packaging is available to suit specific job requirements.</i>
Shelf Life	12 months in original, unopened packaging
Storage Conditions	Store dry, ensuring that product is not exposed to rain, condensation or high humidity

CHARACTERISTICS / ADVANTAGES

- Superior impact and abrasion resistance 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

TECHNICAL INFORMATION

Abrasion Resistance	7 days	170 µm/min (6.7 x 10 ⁻³ in/min)	ASTM C779 (PROCEDURE C)		
	28 days	120 µm/min (4.7 x 10 ⁻³ in/min)			
		(Rate of wear)			
LASA modified tumbling					
	24 hours	0.20 L (12.2 in ³)			
	48 hours	0.34 L (20.7 in ³)			
		(volume of material lost)			
Compressive Strength		+21 °C (70 °F)	ASTM C116 (ADAP- TED)		
	2 hours	21 MPa (3000 psi)			
	1 day	45 MPa (6500 psi)	ASTM C1604		
	7 days	50 MPa (7250 psi)			
	28 days	55 MPa (8000 psi)			
Flexural rigidity	ASTM C1550				
	Peak ap- plied load	Toughness as a function of flexure			
	5 mm	10 mm	20 mm	30 mm	40 mm
40 kN (8992 lbf)	> 100 J	> 215 J	> 350 J	> 450 J	> 500 J
Yield	Approx. 0.45 m ³ (16.5 ft ³) / 1000 kg bag <small>*Yield in service may slightly vary according to projects conditions</small>				
Curing Time	Good curing conditions are beneficial to optimizing the physical properties of King® 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".				

BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LIMITATIONS

- The use of a pre-dampener in conjunction with dry-process accelerated shotcrete is not recommended. Contact your local Sika Technical Representative for more information.
- Physical properties of King® RS ArmourGuard may be adversely affected if material is stored in temperatures below 0 °C (32 °F).
- 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.

ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling,

storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

SURFACE PREPARATION

Rock Surfaces: All surfaces to be in contact with King® 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 in accordance with the ACI 506 "Guide to Shotcrete" publication.

OPTIMUM PERFORMANCE

- Recommended minimum inside diameter of shotcrete hoses should be 50 mm (2 inches).
- 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.

CLEAN UP

Clean all tools and equipment after use with water. Once hardened, the product can only be removed mechanically.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.