

DESCRIPTION: MICROSIL® SHOTCRETE is a preblended, dry shotcrete containing silica fume and other carefully selected components. MICROSIL® SHOTCRETE has greatly enhanced shooting characteristics and physical properties.

USES: In the dry process, MICROSIL® SHOTCRETE is blown through the hose and mixing water is added at the nozzle. The shotcrete impacts the surface at high velocity resulting in a well compacted, high quality concrete with excellent bond. Some common uses include:

1. Slope stabilization
2. Initial and secondary tunnel support
3. Structural linings
4. Concrete rehabilitation

MICROSIL® SHOTCRETE may be used in combination with steel fibre reinforcement to enhance load carrying capacity and with a non-caustic shotcrete accelerator to provide high early strengths and fast set times. It can be blended to meet ACI 506 gradation #1 or #2.

ADVANTAGES:

1. **STICKINESS:** MICROSIL® SHOTCRETE has vastly improved adhesion and cohesion characteristics compared to conventional shotcrete. This STICKINESS saves time and money because:
 - Rebound is significantly reduced, resulting in lower material usage.
 - Sagging and sloughing is eliminated.
 - Thick layers can be applied in a single pass in both the vertical and overhead orientations.
2. **PHYSICAL PROPERTIES:** Silica fume in MICROSIL® SHOTCRETE creates a higher strength shotcrete with low permeability and excellent freeze/thaw durability.
3. **RESISTANCE TO WATER WASHOUT:** MICROSIL® SHOTCRETE in the plastic state has tremendous resistance to washout by flowing water. This allows it to be applied to moderately wet surfaces and to be used in rainy weather. MICROSIL® SHOTCRETE is ideal for shotcreting in marine environments as rising tides and currents will not adversely affect freshly placed material.

PROCEDURES: See the ACI publication 506.R-90 "Guide To Shotcrete". Call BASALITE CONCRETE PRODUCTS LIMITED for further information.

TECHNICAL DATA: The data outlined below is typical of values achievable using proper application techniques as outlined in ACI 506.R-90 "Guide to Shotcrete". The data was obtained during project field tests and in-house shotcrete studies.

**TECHNICAL DATA:
(CONTINUED)**

	<u>Test Method</u>	<u>Results</u>	
Compressive Strength	CAN3-A23.-14C ASTM C42	MPa (psi)	
1-Day		20 (2900)	
7-Day		35 (5075)	
28-Day		50 (7250)	
8-Hour 3% accelerator		7 (1015)	
Flexural Strengths	ASTM 1018	6.8 (986) @ 28 days	
Boiled Absorption	ASTM C642	6.0%	
Volume of Permeable Voids	ASTM C642	15.0%	
Toughness- As per fibre specified: Fibre 60 kg/m ³ (100 lb/yd ³)	ASTM C1018	Toughness Performance Level III – V (5 MPa design flexural strength)	
Set Times (3% accelerator)	ASTM C403	Initial Set 10 minutes Final Set 15 minutes	
Freeze Thaw Resistance	ASTM C666	96%	
Rebound	Acceptable 80% Basalite Test	<u>Vertical</u>	<u>Overhead</u>
	Microsil Shotcrete	12%	20%
	Plain Shotcrete	25%	35%

Aggregate Gradation - ACI 506 R-90 Table 2.1

<u>Sieve (IMP.)</u>	<u>Gradation #1</u>	<u>Gradation #2</u>
	<u>% Passing</u>	<u>% Passing</u>
12 mm (1/2)	100	100
10 mm (3/8)	100	90 - 100
5.0 mm (#4)	95 - 100	70 - 85
2.50 mm (#8)	80 - 100	50 - 70
1.25 mm (#16)	50 - 85	35 - 55
630 um (#30)	25 - 60	20 - 35
315 um (#50)	10 - 30	8 - 20
160 um (#100)	2 - 10	2 - 10

LIMITATIONS:

The performance of in-place shotcrete relies heavily upon application techniques. To adequately determine the quality of in-place shotcrete, the material, equipment and key personnel should all be pre-qualified prior to project start up. Liability for damages or defective goods shall be limited to the refund of the purchase price or product replacement.

PACKAGING:

MICROSIL[®] SHOTCRETE can be custom blended with or without steel fibre reinforcement and/or shotcrete accelerator. MICROSIL[®] SHOTCRETE is packaged in 30 kg (66 lb) triple-lined bags or 1680 kg (1 cubic yard) bulk bags, stretchwrap and cap on wooden pallets. All Basalite Dry Mix can be custom packaged to meet specific project requirements.

**SAFETY
PRECAUTIONS:**

MICROSIL[®] SHOTCRETE contains Portland cement, silica fume and other carefully selected additives. Normal safety wear such as rubber gloves, dust mask and safety glasses used to handle conventional cement based products should be worn. Material Safety Data Sheets are available on request.

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