

DESCRIPTION: MICROSIL® CONCENTRATE is a carefully balanced blend of powdered silica fume and admixtures for use in wet shotcrete and ready mix concrete. When added to plastic concrete or shotcrete, MICROSIL® CONCENTRATE improves placing properties, increases strength and reduces permeability. It is designed to have negligible effect on the slump and air content of the concrete.

USES:

1. **WET SHOTCRETE:** MICROSIL® CONCENTRATE vastly improves the pumping and shooting characteristics of wet shotcrete. Shotcrete can be pumped with less material segregation and applied to a greater thickness in a single pass. Rebound is substantially reduced and shooting overhead is possible without the use of accelerators.
2. **CONCRETE:** MICROSIL® CONCENTRATE can be added to plastic concrete to increase compressive and flexural strengths, reduce permeability, and reduce surface bleeding. MICROSIL® CONCENTRATE is compatible with most conventional air-entraining agents, superplasticizers, water reducers, set accelerators and retarders.

ADVANTAGE:

1. **PLASTIC CONCRETE/SHOTCRETE**
 - reduction of bleed water allowing earlier finishing.
 - increased pumpability.
 - improved resistance to water wash out and tidal flushing.
 - improved adhesion and cohesion in shotcrete mixes allowing the application of thick layers on vertical and overhead surfaces.
 - reduced cost through a reduction in shotcrete rebound and improved productivity.
2. **HARDENED CONCRETE/SHOTCRETE**
 - increased compressive and flexural strengths.
 - reduced permeability.
 - improved resistance to the penetration of sulphates and road de-icing salts.
 - improved freeze-thaw resistance.
 - reduced corrosion of reinforcing steel.
 - improved resistance to chemical attack.

MICROSIL® CONCENTRATE is packaged in a powdered form; therefore no special storage, dispensing or agitating equipment is necessary.

PROCEDURES:

- The dosage rates for the addition of silica fume admixtures to concrete or shotcrete range from 8 to 15 percent by weight of cement and vary depending on the application. Basalite technical staff can be of assistance in determining appropriate dosages.
- MICROSIL® CONCENTRATE contains the necessary admixtures to offset the increased water demand and delayed set characteristics which the addition of silica fume can induce.

**PROCEDURES:
(CONTINUED)**

- MICROSIL® CONCENTRATE is simply added to the plastic concrete or shotcrete at a central mixer or directly into a transit mixer on site. A 5 to 10 minute mixing time is required depending on the volume of concrete being mixed. No extra water should be added. If excessive slump loss occurs due to a delay in discharge, workability can be restored by the addition of a superplasticizer. The normal working time of the silica fume concrete/shotcrete mix is approximately 45 minutes. MICROSIL® CONCENTRATE has little effect on the air content of the plastic concrete/shotcrete. Air entrainment should be used at the normal dosages required for expected exposure conditions.

TECHNICAL DATA: Below are some typical properties achieved:

Mix Type	<u>PLASTIC PROPERTIES</u>	
	Air-Entrained Wet-Mix Shotcrete	Wet-Mix Shotcrete
Cement content (kg/m ³)	468	468
Original slump (mm)	110	115
Original air (%)	5.0	3.1
New slump (mm) *	115	120
New air (%) *	4.9	3.0

(* After addition of MICROSIL® CONCENTRATE)

Property	<u>HARDENED PROPERTIES</u>	
	Plain Wet Shotcrete	Wet Shotcrete with MICROSIL® CONCENTRATE
Compressive strength MPa (psi):		
7 - day	31 (4,495)	40 (5,800)
28 - day	40 (5,800)	60 (8,700)
Boiled Absorption %		
7 - day	8.0%	4.1%
Volume of Permeable Voids %		
7 - day	15.5%	9.5%

Compressive/flexural strengths and permeable voids achievable with the use of MICROSIL® CONCENTRATE depend on the overall mix design. The MICROSIL® CONCENTRATE can be custom-designed to achieve desired results for specific project requirements.

PACKAGING:

MICROSIL® CONCENTRATE is packaged in bulk bin bags or lined paper bags. All Basalite Dry Mix can be custom-packaged to suit specific project requirements.

Liability for damages or defective goods shall be limited to the refund of the purchase price or product replacement.