

Bulk Shotcrete

Our sands and aggregates are thoroughly dried, then mixed with powders and admixtures in precise quantities to accurately formulate the required shotcrete mix design. This dry pre-blended mixture is then placed in 13 cubic yard trailers for bulk delivery to the minesite. Fiber reinforcement is not available in bulk deliveries, fiber is added at the final batching point of the bulk handling plant.

Thiessen Team produces base mix designs for shotcrete application, and can be customized to meet your requirements:

Ultra-Stick Hybrid Shotcrete – Wet Application

Description

Ultra-Stick Hybrid Shotcrete is a dried pre-blended, cement based shotcrete that includes carefully selected materials. Ultra-Stick Hybrid Shotcrete has greatly enhanced shooting characteristics and physical properties.



Uses

Water is added to the dry shotcrete mix at the minesite batching plant, and is either transported wet via an underground remixer to the required location; or transported dry via an underground hybrid shotcrete carrier to the working heading where it is batched to wet mix. The wet application of Ultra-Stick Hybrid Shotcrete is possible through two different processes. The most common process involves the wet material being pumped with a Schwing concrete pump. Air is introduced at the nozzle. The second process involves the wet material being pneumatically conveyed through an Aliva shotcrete machine.

With both processes the shotcrete impacts at high velocity resulting in a well compacted, high quality application with excellent bond properties. Ultra-Stick Hybrid Shotcrete may be used with fiber reinforcement (in final batching or super sacks only) to enhance load carrying capacity. It may also be used with non-caustic and alkali-free accelerators, to provide high early strengths. Some common uses include:

- Slope stabilization
- Initial and secondary tunnel support
- Structural linings
- Concrete rehabilitation



Advantages

- Ultra-Stick Hybrid Shotcrete is a dry bulk blended product with an infinite life as long as it is stored in a dry location.
- Ultra-Stick Hybrid Shotcrete is delivered and stored at site in a dry state for on-demand batching ability.
- Ultra-Stick Hybrid Shotcrete reduces waste with the ability to batch only the amount needed for the project.
- Ultra-Stick Hybrid Shotcrete reduces the amount of admixtures needed to deliver the material to the jobsite.

Stickiness: Ultra-Stick Hybrid Shotcrete has vastly improved cohesion characteristics compared to conventional shotcrete. This stickiness saves time and money because:

- Rebound is significantly reduced, resulting in lower product usage
- Volumes are increased with wet shotcreting



Technical Data

Test

Test Method

CAN3-A23-1 4C
ASTM C42

MPa

PSI

Compressive Strengths

1 Day

17

2,500

7 Day

28

4,000

28 Day

41.5

6,000

First Crack Flexural Strength ASTM 1018

6.8

986

Boiled Absorption ASTM C842

5%

Volume of Permeable Voids ASTM C842

14%

Toughness (10lbs.GSF/yd³) ASTM 1018

I - 5 4.2

I - 105.6

Set Times

ASTM C403

Initial set 10 minutes

(3% accelerator)

Final set 15 minutes

Freeze / Thaw Resistance

ASTM C555

Ultra-Stick Shotcrete

95%

Acceptable 80%

Rebound

Consultant's Test

Vertical

5%

Overhead

10%



Shotcrete / Concrete Products