

DARAFILL[®] DRY

Controlled low strength material performance additive

Product Description

DARAFILL[®]Dry produces engineered Controlled Low Strength Material (CLSM) that is highly flowable, volume stable and excavatable in the future. By developing a stable air matrix in the CLSM mixture, DARAFILL[®]Dry improves flowability and reduces the required amount of mix water up to 50%, compared to a water-based CLSM. DARAFILL[®] Dry is packaged in bags.

Uses

The use of DARAFILL[®]Dry produces a low water content CLSM that is primarily used to improve flowability, lower densities, eliminate segregation and settlement, and control strength development in applications where future excavation is required.

DARAFILL[®]Dry is designed to be used with cement, and pozzolans such as ASTM grade fly ash and ground blast furnace slag. The addition of DARAFILL[®]Dry is a cost-effective alternative to a water-based CLSM mixture, and CLSM is a cost-effective alternative to soil backfill.

DARAFILL[®]Dry is designed for CLSM mixtures and is not recommended for use in conventional concrete.

Performance

The addition of DARAFILL[®]Dry generates stable air contents of 15 to 30% and significantly reduces mix water requirements by as much as 50% when compared to water-based CLSM. When used as recommended, DARAFILL[®]Dry enhances plastic and hardened properties of CLSM accordingly:

- Provides a CLSM which is highly flowable with no segregation.
- Controls strength development for future excavation, usually in the range of 50 to 200 psi (0.35 to 1.40 MPa) depending on the application requirements.
- Increases yield of materials up to 30%.
- Provides densities in the range of 90 to 120 lbs/ft³ (1440 to 1920 kg/m³).
- Aids pumpability and minimizes segregation in pump between loads. Pre-job testing with actual equipment and intended configuration is strongly recommended.
- Reduces buoyancy problems in CLSM around embedded pipes and tanks when compared to water-based CLSM.

Batch Sequencing

The contents of DARAFILL®Dry bags are added in their entirety to the CLSM load. DARAFILL®Dry should be added directly into mixers after the CLSM load is batched. For optimization of freight volumes, add DARAFILL®Dry at the job site. CLSM with DARAFILL®Dry reaches optimum consistency when the mixture reaches a creamy, flowing appearance. For central mix operations, add the contents of DARAFILL®Dry bags into the central mixer and not into trucks to ease discharge from the central mixer.

Mix design information may be obtained from a GCP Applied Technologies representative. If water-based CLSM is now being used, a mix design adjustment will be required in order to use DARAFILL®Dry.

Product Advantages

- Makes re-excavatable CLSM with 15–30% air entrainment and reduced buoyancy
- Produces CLSM with minimal subsidence relative to water-based fill systems
- Can be used in wide range of mix designs, to satisfy different performance requirements
- Dry product increases convenience of job site addition

Addition Rates

Addition rates are typically one bag containing 0.38 lbs (0.17 kg) DARAFILL®Dry to dose 1 yd³ (0.75 m³) of CLSM or one large bag containing 1.5 lbs (0.68 kg) DARAFILL®Dry to dose 4 yd³ (3 m³) of CLSM.

Packaging & Handling

DARAFILL®Dry bags have a storage tolerance in the temperature range of 32°F to 130°F (0°C to 55°C). Store DARAFILL®Dry above freezing, away from heat sources and out of direct sunlight.

Specifications

Material for backfill operations shall be cementitious Controlled Low Strength Material as supplied by the concrete producer and contain DARAFILL®Dry, as manufactured by GCP Applied Technologies, Cambridge, MA. Mixture ingredients and proportions shall be submitted for approval. DARAFILL®Dry shall be added by the concrete producer personnel as per manufacturers' recommendations.

* CLSM may be referred to as "Flowable Fill", "Controlled Density Fill" or "Cement Stabilized Sand" in different geographical areas.

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