

DARAFILL® BP

Controlled low strength material performance additive

Product Description

DaraFill® BP produces engineered Controlled Low Strength Material (CLSM)* that is highly flowable, volume stable and excavatable in the future. DaraFill BP is a viscous solution of organic compounds used in cementitious backfill mixtures.

By developing a stable-air matrix in the CLSM mixture, DaraFill BP improves flowability and reduces the required amount of mix water up to 50%, compared to a water-based CLSM. DaraFill BP is a ready-to-use liquid. One gallon weighs 8.4 lbs (1.01 kg/L).

Uses

The use of DaraFill BP produces a low water content CLSM that is primarily used to improve flowability, lower densities, eliminate segregation and settlement, and control strength development for backfill applications where future excavation is possible.

DaraFill BP is designed to be used with cement and pozzolans such as ASTM grade fly ash and ground blast furnace slag. The addition of DaraFill BP is a cost-effective alternative to a water-based CLSM mixture while CLSM is a cost-effective alternative to soil backfill.

Performance

The addition of DaraFill BP 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 BP enhances plastic and hardened properties of CLSM accordingly:

- Provides a CLSM that is highly flowable with no segregation
- Controls strength development for future excavatability, 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)
- When pumping is required, 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

Addition Rates

The addition rate of DaraFill BP is usually 4 oz/yd³ (155 mL/m³). However, a normal addition rate range may be from 3 to 6 oz/yd³ (115 to 230 mL/m³) based in materials used and the CLSM performance required. Contact your GCP representative for further information. Test all mix designs for performance before use.

Compatibility with Other Admixtures and Batch Sequencing

DaraFill BP is compatible with most GCP admixtures as long as they are added separately to the mix, usually through the water-holding tank discharge line or directly into the mixer after the CLSM materials are batched. It may be added at the concrete plant or job site.

CLSM with DaraFill BP reaches optimum consistency when the mixture reaches a creamy, flowing appearance. For central mix operations, add DaraFill BP into the central mixer and not into trucks in order to ease discharge from the central mixer.

Pretesting of the concrete mix should be performed before use, as conditions and materials change in order to assure compatibility, and to optimize dosage rates, addition times in the batch sequencing and concrete performance.

Please see GCP Technical Bulletin TB-0110, Admixture Dispenser Discharge Line Location and Sequencing for Concrete Batching Operations for further recommendations. DaraFill BP should not be mixed directly with heated mix water.

Packaging & Handling

DaraFill BP is a ready-to-use liquid delivered in bulk, totes or drums. Store DaraFill BP above freezing, away from heat sources, and out of direct sunlight. The storage temperature range should be between 32 °F to 130 °F (0 °C to 55 °C).

Dispensing Equipment

A complete line of accurate, automatic dispensing equipment is available.

Mix Proportioning

Mix proportion 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 BP.

Applications

DaraFill BP is designed for CLSM mixtures and is not recommended for use in conventional concrete. DaraFill BP offers the following benefits:

- Safe, efficient, non-corrosive fill material for trenches, tanks and pipes
- Self-leveling and high lateral flow fills for trenches, undercuts and voids
- Cost-effective in comparison to compacted soil by increasing efficiency of labor and equipment
- Flexible, mix designs to suit requirements
- Minimizes settlement in comparison to compacted-soil backfill

Specifications

Material for backfill operations shall be cementitious Controlled Low Strength Material (CLSM) mixtures as supplied by concrete producer and contain DaraFill BP, as manufactured by GCP Applied Technologies, Cambridge, MA. Mixture ingredients and proportions shall be submitted for approval. DaraFill BP 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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Last Updated: 2018-08-24

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