The Chemical Company

BASF CONSTRUCTION CHEMICALS AUSTRALIA and NEW ZEALAND

APPLICATION GUIDE for MASTERFLOW® CABLE GROUTS

Masterflow® 816

IMPORTANT: READ THIS FIRST

BASF Construction Chemicals does not warrant the performance of this product unless the instructions of this document and other related BASF Construction Chemicals documents are adhered to in all respects.

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1. SURFACE PREPARATION

Clean cables and ducts of all oil, grease, dirt, loose particles or coatings that may interfere with grout contact or bond, react unfavourably with Portland cement or attack the steel after stressing. Cables should be free of oxidation.

Check proposed method of mixing and pumping grout to ensure continuous placement occurs once pumping starts. It is recommended to have a source of high pressure wash water with connections for flushing out grout hoses or partially grouted cable ducts in the event the pumping is interrupted.

Test the pump and grout lines with water to make sure they are capable of providing and withstanding the required pressure, and to see that all connections are drip-tight. Loss of water from slow or non-moving grout can result in a blocked line. Ball or gate valves, or plugs, should be provided at the pump outlet, at the inlet ends of vertical cable ducts and at both ends of the horizontal ducts. Also, a valved by-pass hose or pipe from the pump discharge line back to its hopper is strongly recommended. This is so that grout recirculation from pump to hopper can be maintained during connection changes and other pumping delays.

The inside diameter of pipe, hose and valves through which **Masterflow 816** is to be pumped should be at least 19mm to 50mm. Piping should be designed to meet the requirement of the proposed pumping rate, height and distance. The grout line should be the same size or larger than the opening at the end of the duct. Reductions at connections should be discouraged but, if made, should be made smoothly through tapered fittings without abrupt changes or sharp edges. Avoid elbows and any line restrictions where grout is to be pumped through a hose, pipe or placed along with wires, rods or stands.

Avoid high temperatures while grouting. If the packaged grout is above 30˚C, chill the sealed pails of grout liquid in a tub of ice, or cover the pails with water-soaked hessian. When grouting under hot conditions (ie >30˚C), it is necessary to cool the grout below 25˚C.

2. TEMPERATURE

The recommended temperature range of the grout as mixed and of the hole or duct into which the grout is to be pumped is 10°C to 24°C. Higher temperatures increase the amount of mixing water needed for a given fluidity of the grout and limit working time. Lower temperatures retard set and early strength gain but permit reduced mixing water content for a given fluidity and, thus, increase ultimate strength.

When ambient and/or duct temperatures are above 38°C, consider mixing the grout at as cool a temperature as possible, but not below 10°C. Ducts should be cooled by circulating cold water. Cool the bags of **Masterflow 816** by storing them in a shaded area or a cool place, and use cold or iced water for mixing the grout. (Never use dry ice to cool mixing water.
Do not add ice directly into the mixer, only into the mixing water).

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Do not use at ambient temperatures of less than 15°C unless artificial means of heating can be used to assist cure. During cold weather, pails of grout liquid should be pre-warmed to between 20 and 30°C.

If heating is required, an enclosure (typical materials are polyethylene or canvas) should be erected around the equipment and foundation and suitable heating used to increase the temperature of the equipment and foundation.

3. MIXING

Jobsite conditions such as the size and complexity of the space to be grouted, pumping line diameters, height, mixing and pumping methods, and temperatures are factors which determine the actual amount of water needed. It is advisable to make the initial batch more fluid than required in order to lubricate the pump and grout lines, but do not continue with the more fluid grout for longer than necessary. Have available one or more mixers with the capacity to allow mixing and pumping to proceed simultaneously and continuously.

Place water in the mixer first, then, with the mixer operating, steadily add **Masterflow 816**. Mix for 2 to 3 minutes until the grout is uniform and essentially free of lumps. Pour grout into pump hopper through a screen with 3mm openings to catch lumps and start pumping.

CAUTION: *Some high-speed, shear mixers require only 20 to 30 seconds to mix the grout, after which the grout must be immediately transferred to a slow speed agitator for holding until it is pumped. Failure to do so will cause the grout to overheat and cause loss of flow.*

Do not mix more grout than can be put through the pump in 10 to 15 minutes. Grout that becomes unworkable should be discarded.

4. PUMPING

Before mixing grout, fill pump hopper with water and pump through grout lines to wet the pump, hose and pipe. Close valve at the end of the line, run pressure to above expected level and check for leaks. Then pump water out until pump hopper is empty. Make sure free water from pump lines has been removed before grout placement. Pour mixed grout into pump hopper through a screen with 3mm openings.

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