



The Chemical Company

Installation Guide

RELATED DOCUMENTS

MasterFlow 4316 Technical Data Guide

MasterFlow[®] 4316

Ultra high strength, non-shrink precision grout

PACKAGING

50 lb (22.7 kg) polyethylene-lined bags

YIELD

One 50 lb (22.7 kg) bag of Masterflow 4316 grout mixed with approximately 6 lbs. (2.7 kg) or 0.72 gallons (2.72 L) of water provides approximately 0.39 ft³ (0.011 m³) of grout.

Note: The water requirement may vary due to mixing efficiency, temperature, and other variables.

STORAGE

Store in unopened bags in cool, clean, dry conditions.

SHELF LIFE

1 year when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

HOW TO APPLY

SURFACE PREPARATION

1. Steel surfaces must be free of dirt, oil, grease, or other contaminants.
2. The surface to be grouted must be clean, SSD, strong, and roughened to a CSP of 5–9 following ICRI Guideline 310.2 to permit proper bond.
3. When dynamic, shear or tensile forces are anticipated, concrete surfaces should be chipped with a “chisel-point” hammer, to a roughness of (plus or minus) $\frac{3}{8}$ " (10 mm). Verify the absence of bruising following ICRI Guideline 310.2.
4. Concrete surfaces should be saturated (ponded) with potable water for 24 hours just before grouting.
5. All freestanding water must be removed from the foundation and bolt holes immediately before grouting.
6. Anchor bolt holes must be grouted and sufficiently set before the major portion of the grout is placed.
7. Shade the foundation from sunlight 24 hours before and 24 hours after grouting.

FORMING

1. Forms should be coated with a form release agent. Seal forms with putty, sealant, caulk or polyurethane foam. Use sufficient bracing to prevent the grout from leaking or moving.
2. Moderate to large sized equipment and narrow placement applications should utilize a head box to create additional pressure and to enhance the grout placement.
3. Side and end forms should be a minimum 1" (25 mm) distant horizontally from the equipment to be grouted to permit expulsion of air and any remaining saturation water as the grout is placed.
4. Leave a minimum of 2" between the bearing plate and the form to allow for ease of placement.
5. Eliminate large, non-supported grout areas wherever possible.
6. Extend forms a minimum of 1" (25 mm) higher than the bottom of the equipment being grouted.
7. Expansion joints may be necessary. Consult your local BASF field representative for suggestions and recommendations.

MIXING

1. Condition and maintain the grout and surfaces that contact the grout between 35 to 100° F (2 to 38° C) for mixing, placing and curing.
2. Place estimated water (Use potable water only) into the mixer, then slowly add the grout. Start with 5.75 lbs. (2.6 kg) or 0.70 gallons (2.61 L) per 50 lb bag.
3. The water demand will depend on mixing efficiency, material, and ambient-temperature conditions. Adjust the water to achieve the desired flow. The recommended flow is an 8–10" spread using a 2" diameter x 4" height plastic tube (such as pvc pipe) on a non-porous, level surface. Use the minimum amount of water required to achieve the necessary placement consistency. Do not exceed 6.25 lbs. (2.84 kg) or 0.75 gallons (2.84 L) of water per 50 lb bag.
4. Provide one or more clean mortar mixers (stationary barrel with moving paddles) for uninterrupted placement. Do not exceed one-half the maximum capacity. Pre-wet mortar mixer, empty excess water prior to use.
5. Mix grout for approximately 3 minutes after all material and water is in the mixer until a homogenous consistency is achieved. Use a mechanical mixer only.
7. Transport by wheelbarrow or buckets or pump to the equipment being grouted. Minimize the transporting distance. Do not mix more material than can be placed within the working time of the grout. If grout stiffens as it sits, remix with mechanical mixer to keep it flowable.
8. Do not retemper grout by adding additional water after it stiffens.
9. Do not add plasticizers, accelerators, retarders or other additives.

PLACEMENT

1. Always place grout from only one side of the equipment to prevent air entrapment beneath the equipment. A headbox or similar device is required for a continuous pour to avoid air pockets. When pouring into the headbox, maintain at least half full of grout to ensure even flow. Discard grout that becomes unworkable. Make sure that the material fills the entire space being grouted and that it remains in contact with plate throughout the grouting process.
2. Do not vibrate grout. Use steel straps inserted under the plate to help move the grout.
3. Minimum placement thickness is 1" (25 mm). Consult your BASF representative before placing lifts more than 6" (152 mm) in depth.
4. Immediately after placement, trim the surfaces with a trowel and cover the exposed grout with clean wet rags (not burlap). Keep rags moist until grout surface is ready for finishing or until final set.
5. The grout should offer stiff resistance to penetration with a pointed mason's trowel before the grout forms are removed or excessive grout is cut back.
6. Proper application is the responsibility of the user. Field visits by BASF personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite. For guidelines on specific anchor bolt applications, contact BASF Technical Services.

CURING

Cure all exposed grout with an approved membrane curing compound compliant with ASTM C 309 or preferably ASTM C 1315. Apply curing compound immediately after the wet rags are removed to minimize potential moisture loss.

FOR BEST PERFORMANCE

- Low temperatures delay the set, increase working time and delay the strength development. High temperatures accelerate the set, decrease working time, and accelerate the strength gain. The procedures below help compensate for this. In light of this, store and mix grout to produce the desired mixed-grout temperature. If bagged material is hot, use cold water, and if bagged material is cold, use warm water to achieve a mixed-product temperature as close to 70° F (21° C) as possible.
- When grouting at minimum temperatures, see that the foundation, plate, and grout temperatures do not fall below 35° F (2° C) until after final set. Protect the grout from freezing (32° F or 0° C) until it has attained a compressive strength of 3,000 psi (21 MPa) in accordance with ASTM C 109.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.BASF.us, e-mailing your request to basfbcsst@basf.com or calling 1(800)433-9517. Use only as directed. **For medical emergencies only, call ChemTrec® 1(800)424-9300.**

WASTE DISPOSAL METHOD

This product when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose of in a landfill in accordance with local regulations. For additional information on personal protective equipment, first aid, and emergency procedures, refer to the product Safety Data Sheet (SDS) on the job site or contact the company at the address or phone numbers given below.

BASF Corporation Construction Systems

889 Valley Park Drive
Shakopee, Minnesota 55379

master-builders-solutions.BASF.us

Customer Service 1(800) 433-9517

Technical Service 1(800) 243-6739



LIMITED WARRANTY NOTICE Every reasonable effort is made to apply BASF exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, BASF MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and BASF shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the BASF Technical Manager.

This information and all further technical advice are based on BASF's present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights. In particular, BASF disclaims all CONDITIONS AND WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and BASF SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. BASF reserves the right to make any changes according to technological progress or further developments. It is the customer's responsibility and obligation to carefully inspect and test any incoming goods. Performance of the product(s) described herein should be verified by testing and carried out only by qualified experts. It is the sole responsibility of the customer to carry out and arrange for any such testing. Reference to trade names used by other companies is neither a recommendation, nor an endorsement of any product and does not imply that similar products could not be used.

For professional use only. Not for sale to or use by the general public.