



The Chemical Company

Technical Data Guide

RELATED DOCUMENTS

MasterFlow 928 Installation Guide

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Non-Metallic
Non-Shrink Grouting

MasterFlow[®] 928

High-precision mineral-aggregate grout with extended working time

PACKAGING

55 lb (25 kg) polyethylene-lined bags
3,300 lb (1,500 kg) bulk bags

YIELD

One 55 lb (25 kg) bag of MasterFlow 928 grout mixed with 10.5 lbs (4.8 kg) or 1.26 gallons (4.8 L) of water (fluid consistency) provides approximately 0.50 ft³ (0.014 m³) of grout.

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

STORAGE

Store in unopened containers in cool, clean, dry conditions

SHELF LIFE

55 LB BAG: 1 year when properly stored
3,300 LB BULK BAG: 3 months when properly stored

VOC CONTENT

0 g/L less water and exempt solvents

DESCRIPTION

MasterFlow 928 grout is a hydraulic cement-based mineral aggregate non-shrink grout with extended working time. It is ideally suited for grouting machines or plates requiring precision load-bearing support. It can be placed from fluid to damp pack over a temperature range of 45 to 90° F (7 to 32° C).

PRODUCT HIGHLIGHTS

- Meets the requirements of ASTM C1107 and US Army Corps of Engineers CRD C621 (Grades B and C), at a fluid consistency over a 30-minute working time
- ANSI/NSF 61 certified for use with potable water
- Pumpable
- Extended working time
- Can be mixed at a wide range of consistencies
- Freeze/thaw resistant making it suitable for exterior applications
- Hardens free of bleeding, segregation, or settlement shrinkage to provide maximum effective bearing area for optimum load transfer
- Contains high-quality, well-graded quartz aggregate for optimum strength and workability
- Sulfate resistant for marine, wastewater and other sulfate-containing environments

APPLICATIONS

- Grouting of equipment, such as compressors and generators, pump bases and drive motors, tank bases, conveyors, etc.
- Grouting anchor bolts, rebar and dowel rods
- Grouting of precast wall panels, beams, columns, curtain walls, concrete systems and other structural and non-structural building components
- Repairing concrete, including grouting voids and rock pockets

SUBSTRATES

- Concrete

Technical Data

Composition

MasterFlow 928 is a hydraulic cement-based mineral-aggregate grout.

Compliances

- ASTM C 1107 and CRD 621, Grades B and C, requirements at a fluid consistency over a temperature range of 40–90° F (4–32° C)
- ANSI / NSF 61 for use with potable water

Test Data

PROPERTY	RESULTS	TEST METHOD
Compressive strengths, psi (MPa)		ASTM C 942, according to ASTM C 1107 of ASTM C 109
	Plastic¹	Consistency
		Flowable²
		Fluid³
1 day	4,500 (31)	4,000 (28)
3 days	6,000 (41)	5,000 (34)
7 days	7,500 (52)	6,700 (46)
28 days	9,000 (62)	8,000 (55)
		7,500 (52)
Volume change		ASTM C 1090
	% Change	% Requirement of ASTM C 1107
1 day	> 0	0.0 – 0.30
3 days	0.04	0.0 – 0.30
14 days	0.05	0.0 – 0.30
28 days	0.06	0.0 – 0.30
Setting time, hr:min		ASTM C 191
	Plastic¹	Consistency
		Flowable²
		Fluid³
Initial set	2:30	3:00
Final set	4:00	5:00
		6:00
Flexural strength,* psi (MPa)		ASTM C 78
3 days		1,000 (6.9)
7 days		1,050 (7.2)
28 days		1,150 (7.9)
Modulus of elasticity,* psi (MPa)		ASTM C 469, modified
3 days		2.82 x 10 ⁶ (1.94 x 10 ⁴)
7 days		3.02 x 10 ⁶ (2.08 x 10 ⁴)
28 days		3.24 x 10 ⁶ (2.23 x 10 ⁴)
Coefficient of thermal expansion,* in/in/° F (cm/cm/° C)		ASTM C 531
		6.5 x 10 ⁻⁶ (11.7 x 10 ⁻⁶)
Punching shear strength,* psi (MPa), 3 by 3 by 11" (76 by 76 by 279 mm) beam		BASF Method
3 days		2,200 (15.2)
7 days		2,260 (15.6)
28 days		2,650 (18.3)
Split tensile and tensile strength,* psi (MPa)		ASTM C 496 (splitting tensile) ASTM C 190 (tensile)
		Splitting Tensile
		Tensile
3 days		575 (4.0)
7 days		630 (4.3)
28 days		675 (4.7)
		500 (3.4)
Resistance to rapid freezing and thawing, 300 Cycles	Durability Factor 99%	ASTM C 666, Procedure A

¹100–125% flow on flow table per ASTM C 230

²125–145% flow on flow table per ASTM C 230

³25 to 30 seconds through flow cone per ASTM C 939

*Test conducted at a fluid consistency

This data was developed under controlled laboratory conditions. Expect reasonable variations

Test Data (continued)

PROPERTY		RESULTS		TEST METHOD
Ultimate tensile strength and bond stress				ASTM E 488, tests*
Diameter in (mm)	Depth in (mm)	Tensile strength lbs (kg)	Bond stress psi (MPa)	
5/8 (15.9)	4 (101.6)	23,500 (10,575)	2,991 (20.3)	
3/4 (19.1)	5 (127.0)	30,900 (13,905)	2,623 (18.1)	
1 (25.4)	6.75 (171.5)	65,500 (29,475)	3,090 (21.3)	

*Average of 5 tests in $\geq 4,000$ psi (27.6 MPa) concrete, using 125 ksi threaded rod in 2" (51 mm) diameter, damp, core-drilled holes.

Notes

1. Grout was mixed to a fluid consistency.
2. Recommended design stress: 2,275 psi (15.7 MPa).
3. For more detailed information regarding anchor bolt applications, contact Technical Service.
4. Tensile tests with headed fasteners were governed by concrete failure.

Jobsite Testing

If strength tests must be made at the jobsite, use 2" (51 mm) metal cube molds as specified by ASTM C 942 and the ASTM C 1107 modification of ASTM C 109. DO NOT use cylinder molds. Control field and laboratory tests on the basis of desired placement consistency rather than strictly on water content.

HOW TO APPLY

DO NOT INSTALL THIS PRODUCT WITHOUT READING AND REFERENCING THE COMPANION MASTERFLOW 928 INSTALLATION GUIDE.

SURFACE PREPARATION

- 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. For freshly placed concrete, consider using MasterEmaco A 500 to achieve the required surface profile.
- 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 210.3.

FORMING

- Forms should be liquid tight and nonabsorbent. Seal forms with putty, sealant, caulk or polyurethane foam.
- Expansion joints may be necessary for both indoor and outdoor installation. Consult your local BASF field representative for suggestions and recommendations.

MIXING

- Place estimated water (use potable water only) into the mixer, then slowly add the grout. For a fluid consistency, start with 9 lbs (4 kg) (1.1 gallon [4.2L]) per 55 lb bag.
- The water demand will depend on mixing efficiency, material, and ambient-temperature conditions. Adjust the water to achieve the desired flow.
- Mix grout between 3 and 5 minutes after all material and water is in the mixer until a homogenous consistency is achieved. Use mechanical mixer only.

APPLICATION

- Contact your local representative for a pre-job conference to plan the installation.
- Always place grout from only one side of the equipment to prevent air or water entrapment beneath the equipment. Place Masterflow 928 in a continuous pour.
- Minimum placement thickness is 1" (25 mm). Consult your BASF representative before placing lifts more than 6" (152 mm) in depth.
- The water requirement may vary with mixing efficiency, temperature and other variables
- Should not be used as a floor topping.
- Large, exposed areas of grout should be avoided.
- Structural integrity of the grout is not affected by superficial, hairline cracks occasionally observed in shoulders, near base plate edges and around anchor bolts.

CURING

Cure all exposed grout with an approved membrane curing compound compliant with ASTM C 309 or preferably ASTM C 1315.

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 basfbcst@basf.com or calling 1(800)433-9517. Use only as directed.

**For medical emergencies only,
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