



The Chemical Company

PRODUCT DATA

3 03 62 13 Non-Metallic Non-Shrink Grouting

# MASTERFLOW® 555

Semi-fluid, nonshrink mineral-aggregate grout

### Description

Masterflow® 555 grout is a semi-fluid, nonshrink mineral-aggregate grout. It is ideally suited for grouting machines or plates requiring optimum load-bearing support. It meets ASTM C 1107 and CRD C 621, Grades B and C, requirements at a semi-fluid (30 – 40 second flow) consistency over a temperature range of 50 to 85° F (10 to 29° C), and City of Los Angeles Research Report Number RR 23137.

### Yield

One 50 lb (22.7 kg) bag of Masterflow® 555 grout mixed with approximately 8.3 lbs (3.8 kg) or 1.0 gallon (3.8 L) of water yields approximately 0.42 ft³ (0.012 m³) of grout.

Water requirements may vary with mixing efficiency and other variables.

### Packaging

50 lb (22.7 kg) multi-wall paper bags  
3,300 lb (1,500 kg) bulk bags

### Shelf Life

1 year when properly stored

### Storage

Store in unopened bags in clean, dry conditions.

### Features

- Semi-fluid consistency and good working time
- Hardens free of bleeding, segregation, or settlement shrinkage
- Can be installed from 50 to 85° F (10 to 29° C)
- Contains no inorganic accelerators, including chlorides or other salts

### Benefits

- Excellent handling and placing characteristics
- Ensures optimum performance in hardened state
- Reduces dependence on weather conditions
- Will not corrode reinforcing steel

### Where to Use

#### APPLICATION

- Where ease of placement of a semi-fluid grout with cost savings is desired
- Where high one-day and later-age compressive strengths are desired
- Where nonshrink grouting must achieve ample bearing for optimum load transfer
- Machinery and equipment—baseplates and soleplates
- Precast wall panels, beams, and columns
- Curtain walls, concrete systems, and other structural and nonstructural building members
- Anchor bolts, reinforcing bars, and dowel rods
- Grouting voids, rock pockets, and large cracks

#### LOCATION

- Interior or exterior

### How to Apply

#### Surface Preparation

1. Steel must be free of dirt, oil, grease, or other contaminants.
2. The surface to be grouted must be clean, saturated surface-dry (SSD), strong, and roughened to a CSP of 5 – 9 following ICRI Guideline 03732 to permit proper bond. For freshly placed concrete, consider using Liquid Surface Etchant (see product data sheet No. 1020198) to achieve the required surface profile.

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) 3/8” (10 mm). Verify the absence of bruising following ICRI 03732 guidelines.
4. Concrete surfaces should be rough and saturated (ponded) with clean 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 summer sunlight 24 hours before and 24 hours after grouting.

#### Forming

1. Forms should be liquid tight and nonabsorbent. Seal forms with putty, sealant, caulk, polyurethane foam.
2. Moderately sized equipment should utilize a head form sloped at 45 degrees to enhance the grout placement. A moveable head box may provide additional head at minimum cost.
3. Side and end forms should be a minimum 1” (25 mm) distant horizontally from the object grouted to permit expulsion of air and any remaining saturation water as the grout is placed.



## Technical Data

### Composition

Masterflow® 555 grout is a semi-fluid, nonshrink mineral-aggregate grout.

### Test Data

PROPERTY	RESULTS	TEST METHODS
<b>Compressive Strengths, psi (MPa)</b>		
		ASTM C 942, according to ASTM C 1107
		<b>Consistency</b>
	<b>Plastic<sup>1</sup></b>	<b>Flowable<sup>2</sup></b>
		<b>Fluid<sup>3</sup></b>
1 day	4,200 (29)	3,700 (26)
3 days	5,800 (40)	4,500 (31)
7 days	7,300 (50)	6,500 (45)
28 days	8,500 (59)	7,500 (52)
		7,000 (48)
<b>Volume Change</b>		
		ASTM C 1090
	<b>% Change of Masterflow® 555</b>	<b>% Requirement of ASTM C 1107</b>
1 day	> 0	0.0 – 0.30
3 days	0.04	0.0 – 0.30
7 days	0.06	0.0 – 0.30
28 days	0.07	0.0 – 0.30
<b>Setting time, semi-fluid consistency<sup>3</sup></b>		
		ASTM C 191
Final set (hr:min)	6:00	

<sup>1</sup>100 – 125% flow on flow table according to ASTM C 230.

<sup>2</sup>125 – 145% flow on flow table according to ASTM C 230.

<sup>3</sup>30 – 40 seconds through flow cone according to ASTM C 939.

The above data was developed under controlled laboratory conditions. Properties in the field may vary. Expect reasonable variations from these results, depending on jobsite or test conditions.

### Jobsite Testing

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

- Extend forms a minimum of 1" (25 mm) higher than the bottom of the equipment being grouted.
- Leave a minimum of 2" (51 mm) between the bearing plate and the form to allow for ease of placement.
- A minimum of 1" (25 mm) clearance is required where the grout will be placed.
- Use sufficient bracing to prevent the grout from leaking or the forms from moving.
- Eliminate large, nonsupported grout areas wherever possible.
- Expansion joints may be necessary for both indoor and outdoor installation. Consult your local BASF field representative for suggestions and recommendations.

### Temperature

- For nonshrink grouting, store and mix grout to produce the desired mixed-grout temperature based upon ambient temperatures and jobsite conditions.

### Recommended Temperature Guidelines for Nonshrink Grouting

	MINIMUM ° F (° C)	MAXIMUM ° F (° C)
Foundation and plates	50 (10)	85 (29)
Mixing water	50 (10)	85 (29)
Grout at mixed and placed temperature	50 (10)	85 (29)

- If temperature extremes are anticipated or if special placement procedures are planned, contact your local BASF representative for assistance.

- When grouting at minimum temperatures, be certain that foundation, plate, and grout temperatures do not fall below 50° F (10° 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 (20.7 MPa) in accordance with ASTM C 942 or ASTM C 1107.

### Mixing

- Masterflow® 555 grout should be mixed with a mechanical mixer for at least 3 minutes. For a semi-fluid consistency, start with 8.3 lb (3.8 kg) or 1.0 gallon (3.8 L) per 50 lb (22.7 kg) bag. (Use potable water only.) Adjust mixing water, as needed, to establish a semi-fluid consistency (30 – 40 seconds) through a flow cone according to ASTM C 939 / CRD C 611). Less mixing water will be required to achieve stiffer consistencies. Slowly add the dry grout to mixing water.

2. The water demand will depend on mixing efficiency and material and ambient temperatures. Use the minimum amount of water required to achieve the necessary placement consistency. Recommended flow is 30 – 40 seconds or greater using the ASTM C 939 Flow-Cone Method. Before placing grout at ambient temperatures below 50° F (10° C) and above 85° F (29° C), consult your BASF representative.
3. Moderate size batches of grout are best mixed in one or more clean mortar mixers. Large batches of grout are effectively, economically, and most efficiently mixed in ready-mix trucks using 3,300 lb (1,500 kg) bulk bags.
4. Mix grout a minimum of 3 minutes after all material and water are in mixer. Use mechanical mixer only.
5. Do not mix more grout than can be placed in approximately 20 minutes or less, depending on ambient temperatures.
6. Transport by wheelbarrow or buckets or pump to the equipment being grouted. Minimize the transporting distance.
7. Do not retemper grout by adding water.
8. For aggregate-extension guidelines, refer to Appendix A-10: Guide to Cementitious Grouting.

#### **Application**

1. Place Masterflow® 555 in a continuous pour. Discard grout that becomes unworkable. Place grout from one side to avoid entrapment of air. Make sure that the grout fills the entire space being grouted and remains in contact with the plate throughout the grouting process. Straps may be used to move the grout to ensure the entire space is filled. **DO NOT VIBRATE.**
2. Immediately after placement, trim the surfaces with a trowel and cover the exposed grout with clean wet rags (not burlap). Maintain moisture for 5 – 6 hours.
3. 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.
4. To further minimize the potential moisture loss within the grout, cure all exposed grout with an approved membrane curing compound (compliant with ASTM C 309 or preferably ASTM C 1315) immediately after the wet rags are removed.
5. Consult your BASF representative before placing lifts more than 6" (152 mm) in depth.

#### **For Best Performance**

- Hold a pre-job conference with your local representative to plan the installation. Hold conferences as early as possible—before the installation of equipment, sole plates, or rail mounts. Conferences are important for applying the recommendations in this product data sheet to a given project, and they help ensure a placement of highest quality and lowest cost.
- Masterflow® 555 is not intended for use as a floor topping or in large areas with exposed shoulders around baseplates. Where grout is exposed for shoulders, occasional hairline cracks may occur. Cracks may also occur near sharp corners of the baseplate and at anchor bolts. These superficial cracks are usually caused by temperature and moisture changes that affect the grout at exposed shoulders at a faster rate than the grout beneath the baseplate. They do not affect the structural, nonshrink, or vertical support provided by the grout if the foundation-preparation, placing, and curing procedures are properly carried out.
- Ambient and initial material temperature of the grout should be in the range of 50 to 85° F (10 to 29° C) for both mixing and placing. Ideally, the amount of mixing water should be that necessary to achieve a 30 – 40 second flow according to ASTM C 939 (CRD C 611) or stiffer. For placement outside of 50 to 85° F (10 to 29° C), contact your local BASF representative.
- Do not add plasticizers, accelerators, retarders, or other additives unless advised in writing by BASF Technical Service.
- The water requirement may vary with mixing efficiency, temperature, and other variables.
- Minimum placement depth is 1.5" (38 mm).
- For pours greater than 6" (152 mm) deep, consult your local BASF representative for special precautions and installation procedures.
- Use Masterflow® 816, Masterflow® 1205, or Masterflow® 1341 post-tensioning cable grouts when the grout will be in contact with steel stressed over 80,000 psi (550 MPa).
- Use Masterflow® 928 grout for precision applications requiring a fluid consistency (25 – 30 second flow according to ASTM C 939 or CRD C 611) with extended working time over a temperature range of 45 to 85° F (7 to 29° C).
- Use Embeco® 885 grout for precision applications requiring a fluid consistency (25 – 30 second flow according to ASTM C 93 or CRD C 611) with extended working time over a temperature range of 45 to 85° F (7 to 29° C) and dynamic load-bearing support.

- Make certain the most current versions of product data sheet and MSDS are being used; call Customer Service (1-800-433-9517) to verify the most current versions.
- 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.

#### **Health and Safety**

MASTERFLOW® 555

##### **WARNING!**

Masterflow® 555 contains silica, crystalline quartz; portland cement; calcium oxide; silica, amorphous.

##### **Risks**

Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

##### **Precautions**

Avoid contact with skin, eyes and clothing. Prevent inhalation of dust. Wash thoroughly after handling. Keep container closed when not in use. **DO NOT** take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable Federal, state and local regulations.

##### **First Aid**

In case of eye contact, flush thoroughly with water for at least 15 minutes. In case of skin contact, wash affected areas with soap and water. If irritation persists, **SEEK MEDICAL ATTENTION.** Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, **SEEK IMMEDIATE MEDICAL ATTENTION.**

**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 Material Safety Data Sheet (MSDS) on the job site or contact the company at the address or phone numbers given below.

**Proposition 65**

This product contains material listed by the State of California as known to cause cancer, birth defects or other reproductive harm.

**VOC Content**

0 g/L or 0 lbs/gal less water and exempt solvents.

**For medical emergencies only,  
call ChemTrec (1-800-424-9300).**

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Form No. 1019300 7/07

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