

MasterInject® 1333

Low viscosity epoxy resin for injection grouting

Method Statement

MasterInject 1333
Epoxy Injection Grouting

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Section 1 – General Information and Instructions

1.1 Background

MasterInject 1333 is a two components solvent free epoxy resin based injection grouting system. With injecting cracks to restore structural integrity.

Installation information contained in this procedure are as specific as possible, but cannot cover all variations in field conditions. If anticipated conditions do not permit following these guidelines, do not hesitate to call your BASF Representative.

IMPORTANT: READ THIS FIRST

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

1.2 High Temperature Working

The following recommendation is suggested as guideline for good working practices for temperatures above 35°C whenever using epoxy resin product:

- Store and place any unmixed materials in a cool and dry environment (preferably temperature controlled), avoiding exposure to direct sunlight.
- If possible, try to avoid any application during the hottest times of the day. Arrange temporary shading and cover as necessary.
- Make sufficient materials, labour and power supply available to ensure continuous application process.
- Maintain all equipments that will be in use at cool environment to ensure that surfaces in direct contact with materials are in cool condition.

1.3 Equipment

The following list of equipment and necessities are recommended to be adopted as a minimum requirement.

Protective Clothing:

- Protective overalls,
- Industrial gloves
- Goggles and Facemask, Safety glasses, Dust masks
- Ear plugs

Surface Preparation Equipment:

- Equipment to mechanically abrading the surface to remove laitance
- Industrial vacuum
- Masking tape, paper and / or polyethylene for protection of adjacent areas.

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Mixing and Installation Equipment:

- High intensity, temporary lighting with extension cord
- Variable speed drill mixer with jiffy type blade or equivalent
- Trowels
- Injection packer
- Injection equipment/pump cleaning system
- Cleaning solvent - lacquer thinner, MIBK or MEK

Section 2 – Preparation and Treatment

2.1 Pre-Installation

The following checklist is recommended prior to starting the installation:

- 2.1.1 Review in detail the current, published MasterBrace 1333 Technical Datasheet.
- 2.1.2 Inventory all materials ordered from BASF (Malaysia) Sdn Bhd, and find:

	<u>10L pack</u>
MasterBrace 1333 Comp A Resin	5.70L
MasterBrace 1333 Comp B Hardener	4.30L

- 2.1.3 Store all components at temperatures between 16 to 27°C before mixing. Keep them dry.
- 2.1.4 Surface area of concrete structure to be bonded should be chipped and cleaned to remove laitance. Any metal surface to be bonded should be sandblasted and kept dry.
- 2.1.5 Check that all necessary equipment is on the job site and that adequate electrical power is available for all power tools.
- 2.1.6 Select, set-up and clearly designate an appropriate mixing area at least 50 feet (15 meters) from sparks, welding and other forms of possible contamination.
- 2.1.7 Brief all installation personnel on application procedures and SAFETY requirements.

Review Material Safety Data Sheets (MSDS) and have available at job site.

Heavily contaminated surfaces that have excessive caking of oil, grease, grime, asphalt, earth, mortar or other materials may be encountered. Such conditions will prevent detergents from performing correctly. Caked deposits should be removed prior to any application of detergent. Thick-caked deposits (oil, grease, etc.) are best removed by scraping or chipping the area before detergent treatment. Animal fats and vegetable oils should be removed by scrubbing with a strong soap solution prior to further treatment.

The laitance and curing compound that may present on freshly placed concrete surfaces and sometime older surfaces must be removed to ensure a satisfactory bond.

The use of wet grit blasting or high pressure water jetting (approx 150 bars) or such other effective methods are recommended to remove cement laitance, loose particles, moss, fungus growth, barnacles and other contaminants from the surface.

Note: Upon completion of all surface treatment and repair, the concrete should be thoroughly vacuumed

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to remove all dust and dirt from the substrate area. A successfully prepared concrete substrate will be sound, clean and be free from all contaminants.

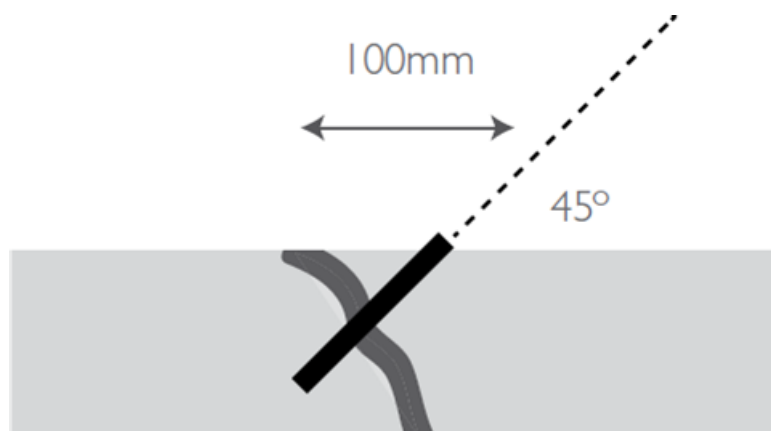
Section 3 – Installation

3.1 Identifying and prepare the crack

- 3.1.1 This step helps to identify the characteristics of the crack to be injected.
- 3.1.2 Use a wire brush to physically remove mineral deposits and dirt.
- 3.1.3 Water can be used to help clean the area.
- 3.1.4 If severe deposits exist, a chemical cleaner can be used, but MUST be neutralized prior to continuing.
- 3.1.5 If it is a wide crack or high water flows are encountered, it will be necessary to seal the surface of the crack with a surface sealing material; (example: MasterBrace 1438).
- 3.1.6 The surface sealing can be done before or after drilling the injection holes

3.2 Mark Port Spacing

- 3.2.1 Calculate port distance from crack
- 3.2.2 Drilled holes should intersect the crack or joint at its mid-point. To intersect a crack at its mid-point, drill at a 45 degree angle at a distance of one half the thickness of the wall. For example with a 12 inch thick wall, drill holes 6 inches from crack.
- 3.2.3 Drilled holes can be done at the crack at 300mm interval.
- 3.2.4 Once the holes are drilled, clean the crack to remove of such contaminants as oil, grease or fine particles of concrete as these may affect the bonding. Vacuuming is recommended.
- 3.2.5 All the drilled holes can be sealed with mechanical screw in injection packer. Make sure the injection packer is tighten to prevent from pull-off when pressure gets higher. Having installed the packer, attach the appropriate injector connector to fit the pumping system you are using.



- 3.2.6 Apply MasterBrace 1438 from end to end of the crack line by using trowel or spatula. Wait for MasterBrace 1438 to dry in about 6hrs to prevent the injection material from oozing during pressure injection.

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3.3 Mixing

- 3.3.1 Mechanical mixing is necessary. A slow speed (600rpm) drill with a grout stirrer is recommended.
- 3.3.2 The base resin and hardener shall be thoroughly mixed.
- 3.3.3 To avoid wastages mix only sufficient material that can be used within the pot life of the material. (Refer to Technical Data Sheet)

3.4 Injection procedure

- 3.4.1 Install the injection tube to the injection packer.
- 3.4.2 Once ready, start pumping the epoxy grout to the injection nipples until the pressure goes up. Pumping may take up to 5 minutes to fill-in depending on the extent and depth of the crack.
- 3.4.3 While pumping the epoxy resin into the cracks, the pump will not show any increase in pressure. Only when the cracks are filled up will the pressure start to rise. If the cracks are small, the pressure can rise very fast in some instances hence it is quite difficult to control.
- 3.4.4 Stop injection when the packer no longer accepts the material or you have reached the specified pressure.
- 3.4.5 Transfer the injection hose to the next packer and repeat injection process.

3.5 Cleaning

Hand tools and power equipment can be cleaned first with paper towels or rags. Then wipe out the leftover using solvent such as acetone or MIBK before the resin system hardens.

Material that is over 24 hours old will require mechanical method for removal from mixer, power-equipment and hand tools.

3.4 Safety

This product should be used only by qualified personnel for recommended applications in accordance with current, published installation guidelines. Please review current MSDS sheets for detailed information prior to placing any material and/or for specific product information.

Section 4 – Responsibility and Variable

The technical information and application advice given in this BASF (Malaysia) Sdn Bhd publication is a general proposal for the application of MasterBrace 1333 based on present state of our best scientific and practical knowledge. As the information is of a general nature no assumption can be made as to a product suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

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STATEMENT OF RESPONSIBILITY	The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.
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