



The Chemical Company

MASTERFLOW[®] 410 Plus

High strength flowable epoxy grout

Description

MASTERFLOW[®] 410 Plus is a high performance non-shrink, solvent free epoxy resin grouting material for support and precision bearing of equipment and crane rails to ensure the proper transmission of static and dynamic loads to the foundations. These properties combined with its impermeability to moisture, make it ideal for pilecap waterproofing applications. MASTERFLOW[®] 410 Plus is specified for use in bridge construction where as part of an integrated system, it acts as a levelling medium and 'seat' for Wabodec and Elastodec bearings.

Advantages

MASTERFLOW[®] 410 Plus is a three component system that includes a two-part epoxy resin and carefully blended aggregate. At elevated temperatures, MASTERFLOW[®] 410 Plus provides excellent resistance to creep, high compressive strength, modulus of elasticity and excellent resistance to cracking. This product also produces a high percentage of bearing surface, and good adhesion to steel and concrete. Critical machinery alignment is assured because of its excellent resistance to creep and high temperature compressive strength. MASTERFLOW[®] 410 Plus is chemically stable for temperatures up to 150°C.

The product is easily mixed on site to a pourable consistency. MASTERFLOW[®] 410 Plus is suitable for an application thickness range of 10mm-150mm above which steel reinforcement should be used. For thickness greater than 300mm please contact our technical department.

MASTERFLOW[®] 410 Plus is resistant to oil, synthetic lubricants, water and most chemicals, and cures quickly which means equipment can return to service much sooner.

- Versatile application thickness.
- No priming required.
- High tensile, flexural and compressive strength.
- Excellent adhesion to steel and concrete.
- Rapid installation and strength gain to ensure early commissioning of equipment.
- Excellent fatigue resistance.
- Compatibility with equipment subject to extensive thermal movement.
- High resistance to dynamic loads and chemical attack.
- Non-shrink and tolerant of damp surfaces.

Typical applications

- Anchors, rails and bolt fixing
- Crane and transporter rails.
- New and old machine base plates.
- Structural filling of holes and cavities in concrete.
- Bridge bearing seats
- Industrial equipment and machinery subject to static or dynamic forces.
- Equipment where chemical and acid spillage occurs.
- Pile cap waterproofing

MASTERFLOW[®] 410 Plus

Packaging

MASTERFLOW[®] 410 Plus is supplied in 13.5 litre units comprising components weights:

Base	2.78kg
Reactor	0.93kg
Aggregate	25kg
Total pack weight	28.71kg

Colour - dark grey

Typical properties

Properties listed are only for guidance and are not a guarantee of performance

Compressive Strength	23°C	105MPa
ASTM C 579-82, Method B, Modified 50mm cubes (14 day cure at specified test temperature)	30°C	110MPa
	40°C	115MPa
Tensile Strength - ASTM C 307-83		14MPa
Density ASTM C 905-79		2115 kg/m ³
Flashpoints (Pensky-Martens Closed Cup)		>100°C
MASTERFLOW [®] 410 Plus base		>100°C
MASTERFLOW [®] 410 Plus hardener		
Impact Strength		superior to concrete
Abrasion Resistance		superior to concrete

Chemical resistance

MASTERFLOW[®] 410 Plus resists non-oxidising mineral acids and salts, caustics, dilute oxidising acids and salts, plus some organic acids and solvents. For more specific information contact your BASF Representative.

Cure time vs. temperature

Cure time of the grout will depend upon the temperature of the base and foundation rather than the ambient air temperature. Unless the ambient air temperature has been constant for several days the base / foundation temperature

will generally be lower than air temperature. A surface thermometer and field judgement should be used to determine actual cure rates. Cured grout should have solid, almost metallic ring when struck lightly with a hammer, checking as close to the base as possible.

Pour thickness

MASTERFLOW[®] 410 Plus can be used for deep pours. When pour thickness exceeds 150mm, use of steel rebar is recommended. See Method Statement for expansion joint and reinforcement bar suggestions.

The following procedures briefly describe installation of MASTERFLOW[®] 410 Plus.

Concrete preparation and sealing

Surface preparation:

As with all epoxy resin applications the quality of surface preparation has a direct effect on the performance and durability of the system. Concrete surfaces should be sound, dimensionally stable, clean, free from laitance, paint, oil, grease, mould release agent and residual curing compound. The concrete surface must be chipped so that large aggregate is exposed to ensure removal of all laitance and weak surface material. New concrete should have a compressive strength of at least 25 MPa; greater strength is preferred. THE CONCRETE SURFACE MUST BE CLEAN AND DRY WHEN THE GROUT IS Poured. The concrete areas to be grouted should not be primed or sealed.

Mixing

Do not split packs or alter the ratio of resin components in any way. Mix with a slow speed drill and paddle. Add the contents of the reactor



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container to the base component in a suitable mixing vessel, ensuring complete transfer of both resin components.

Mix for one minute before slowly adding the aggregate and continue mixing until a flowing, pourable consistency is achieved. Do not overmix as this may entrain air.

UngROUTED exposed concrete surfaces may be sealed to prevent oil penetration.

Metal preparation and priming

Metal surfaces or components to be bedded, should be free from any rust or scaling. Base plates or rails and other metal surfaces to be grouted should be cleaned to obtain proper adhesion. This is preferably done just prior to grouting. Primer should be used **ONLY** when a long delay between cleaning and grouting will allow rusting or contamination.

Surfaces where a bond is not desired should be protected with heavy coats of wax.

Forming

MASTERFLOW[®] 410 Plus is fluid and requires forms. Forms are generally wood, the same as used for forming concrete. They should be of sufficient strength, anchored or braced to withstand pressure from the grout and must be liquid tight. Wrapping forms in polyethelene will ensure clean release.

Placing

Place immediately after mixing, into the prepared area in such a manner that it has the shortest distance to flow. For longer pours a suitable head of pressure may be required. Ensure the area to be grouted is **not** completely sealed, and any

displaced air can be expelled. Pour continuously from one end only.

Allow the grout to set prior to removal of formwork (normally after 6 hours).

Finishing and clean up

A smooth finish may be obtained by spraying or brushing the surface with Solvent No. 2 approximately 1 hour after the grout is poured. Best results can be obtained by smoothing the surface several times just prior to the hardening of the grout surface. Clean tools and mixer with SOLVENT NO. 2.

Do not apply MASTERFLOW[®] 410 Plus when the contact surfaces are less than 10°C. If the ambient temperature is less than 10°C then artificial heating may be used.

Working time

The following chart is a guide for the working time of a fresh grout mix at various ambient temperatures. The working time of a MASTERFLOW[®] 410 Plus mix begins when the hardener is added to the liquid.

50- 60 min at 32°C

90-120 min at 21°C

120-150 min at 10°C

Storage

Store under cover, out of direct sunlight, and protect from extremes of temperature. In tropical climates the product must be stored in an air conditioned environment. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult BASF's Technical Services Department.



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Safety precautions

MASTERFLOW[®] 410 Plus is formulated for industrial and professional use only and must be kept out of the reach of children. These products contain chemicals which may be COMBUSTIBLE and potentially HARMFUL to your health if not stored and used properly. Hazards can be significantly reduced by observing all precautions which are found on material safety data sheets, and product labels. Please read this literature carefully before using the product.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapour until product is fully cured or dried). Treat splashes to skin and eyes immediately. If accidentally ingested, seek medical attention. Reseal containers after use. For specific storage and disposal instructions refer to the Material Safety Data Sheet.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality and care

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

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REQUEST AND REFER TO RECOMMENDED
INSTALLATION PROCEDURES FOR **MASTERFLOW[®]**
EPOXY GROUTS PRIOR TO USE

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

As all BASF technical datasheets are updated on a regular basis it is the user's responsibility to obtain the most recent issue.

BASF Construction Chemicals UAE LLC

P.O. Box 37127, Dubai, UAE

Tel: +971 4 8090800

www.basf-cc.ae

Fax: +971 4 8851002

e-mail: marketingcc.mideast@basf.com



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