BUILDING TRUST

PRODUCT DATA SHEET

Sika MonoTop®-3220 PIC Mortar

Poly ironite ceramic cementitious structural repair and pointing mortar for hydraulic structures

DESCRIPTION

Sika MonoTop®-3220 PIC Mortar is 1-component, ready to use, poly ironite ceramic cementitious, shrinkage compensated, thixotropic repair mortar with very high resistance to hydraulic abrasion for pointing and repair works in masonry structures.

USES

The Product is used to repair all types of masonry and reinforced concrete structures and components for:
- Buildings
- Civil engineering structures
- Dams
- Marine structures
- Suitable for interior or exterior applications
- Sewage and waste water treatment plants

The product is used for:
- Restoration work (Principle 3, method 3,1 and 3,3 of EN 1504-9). Repair of spalling and damaged concrete in infrastructure and superstructure works.
- Structural strengthening (Principle 4, method 4,4 pf EN 1504-9). Increasing the bearing capacity of the concrete structure by adding mortar.
- Preserving or restoring passivity (Principle 7, method 7,1 and 7,2 of EN 1504-9) - Increasing cover with additional mortar and replacing contaminated or carbonated concrete

Please note:
- The Product may only be used by experienced professionals.

CHARACTERISTICS / ADVANTAGES

- Ready to mix with water
- Non-toxic
- UV stable
- Suitable for both concrete and masonry
- Sulphate resistant
- For hand or machine application
- Easy to apply
- Very low shrinkage behaviour
- Low permeability
- A1 fire rating
- Good abrasion resistance

PRODUCT INFORMATION

Chemical base	Poly ironite ceramic granules, portland cement, selected aggregates and additives
Packaging	25 kg bag
Shelf life	6 months from the date of production

Storage conditions	The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Protect the Product from direct sunlight.
Appearance / Colour	Grey powder

TECHNICAL INFORMATION

Compressive strength (ASTM C109)

Curing time	Compressive strength
1 day	~25 MPa
28 days	~60 MPa

Values at curing temperature +30 °C for 70 mm cube

Flexural strength (EN 196-1)

Curing time at +30 °C	Flexural strength
1 day	~4 MPa
28 days	~9 MPa

Tensile adhesion strength

≥ 1.5 MPa (28 d, +30 °C) (EN 1542)

~10 MPa (28 d, +30 °C) (ASTM C882)

SYSTEM INFORMATION

System structure

Sika MonoTop®-3220 PIC Mortar is the part of range of Sika mortars complying with the relevant parts of European Standard EN 1504 and comprising of:

Application	Product
Bonding primer	Sika MonoTop®-1010 IN
Repair mortar	Sika MonoTop®-3220 PIC Mortar

APPLICATION INFORMATION

Mixing ratio	water / powder = 0.14–0.16 or 3.5–4.0 litres of water for 25 kg powder
Fresh mortar density	~2.0 kg/L (EN ISO 2811-1)
Consumption	~1.9 kg of powder per mm thickness per m² Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.
Ambient air temperature	+5 °C min. / +35 °C max.
Substrate temperature	+5 °C min. / +35 °C max.
Pot life	~35 minutes at +30 °C

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

FURTHER DOCUMENTS

- Site Handbook 'Repair of Concrete Structures: Patch Repair and Spray Applications
- Sika Method Statement: Concrete Repair Using Sika MonoTop® System
- Recommendations provided in EN 1504-10

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

EQUIPMENT

Select the most appropriate equipment required for the project:
SUBSTRATE PREPARATION EQUIPMENT
- Mechanical hand-held tools
- High or ultra-high pressure water blasting equipment

STEEL REINFORCEMENT EQUIPMENT
- Abrasive blast cleaning equipment
- High pressure water blasting equipment

MIXING EQUIPMENT
- Clean mixing containers
- Small quantities: low speed electric single or double paddle mixer (< 500 rpm).
- Large quantities: Forced action mixer

APPLICATION EQUIPMENT
- Hand applied: Plasterers hawk, trowel
- Wet Spray: All in one mixing and spraying machine or separate spraying machine and all associated ancillary equipment to suit application volumes

FINISHING EQUIPMENT
- Trowel (PVC or wooden)
- Sponge

Also refer to Site Handbook 'Repair of Concrete Structures – Patch Repair and Spray Applications'

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete
- The substrate must be thoroughly clean, free from dust, loose material, surface contamination and material which reduce adhesion or prevent suction or wetting by repair materials.
- Remove de-laminated, weak, damaged and deteriorated concrete and where necessary, sound concrete. Remove using mechanical hand-held tools or high / ultra-high-pressure water blasting equipment.
- Make sure sufficient concrete is removed from around corroded reinforcement to allow cleaning, corrosion protection coating (where required) and compaction of the concrete repair mortar.
- Repair surface areas must be prepared to provide simple square or rectangular layouts to avoid shrinkage stress concentrations and cracking while the repair material cures. This can also avoid structural stress concentrations from thermal movement and loading during the service life.

Masonry
- Remove scale, mortar, concrete, dust and other loose and deleterious material which reduces bond.
- Use a cleaning agent and ensure the inside faces and outside overlap zone of masonry is free from algae or fungi.

MIXING

HAND APPLIED AND WET SPRAY APPLICATION
1. Pour the minimum amount of water into a suitable clean mixing container or equipment.
2. Gradually add the powder to the water while stirring slowly.
3. Mix thoroughly for at least for 3 minutes.
4. Add additional water if necessary while mixing to adjust to the required consistency to achieve a smooth consistent mix. Note: Do not add more water than the maximum specified amount.
5. Check the consistency after every mix.

APPLICATION

IMPORTANT
Protect from frost
Protect freshly applied material from freezing and frost to prevent cracking.
IMPORTANT
Application in the direct sun or strong winds
Avoid application in direct sun, strong winds or both to reduce the risk of the Product cracking.

REINFORCEMENT CORROSION PROTECTION COATING
1. Where a reinforcement coating is required, apply to the whole exposed circumference Sika MonoTop®-1010 IN or SikaTop® Armatec®-110 EpoCem®. Refer to the individual Product Data Sheets.

BONDING PRIMER
On a well prepared and roughened substrate, use Sika MonoTop®-1010 IN. Refer to the individual Product Data Sheets.

REPAIR MORTAR MANUAL APPLICATION
IMPORTANT
Substrate pre-wetting
Insufficient substrate saturation prior to application will cause the mortar to not gain it's full mechanical properties.

1. Only apply the Product to stable, prepared substrates.
2. Thoroughly pre-wet the prepared substrate for a minimum of 2 hours before application.
3. Keep the surface wet and do not allow to dry.
4. The final pre-wetted surface must achieve a dark matt appearance (saturated surface dry).

IMPORTANT
Sagging or slumping of built up layers
Allow each layer to slightly harden and remain wet before applying subsequent layers.

1. Remove excess water from within the surface pores and cavities with a clean sponge.
2. Apply one coat of primer Sika MonoTop®-1010 IN.
3. Make a scratch coat using the repair mortar.
4. Apply the scratch coat over the complete substrate surface to form a thin layer to fill surface pores or cavities.
5. IMPORTANT Do not apply as a "feather edge". Apply the repair mortar onto the scratch coat 'wet on wet' between the minimum and maximum layer thicknesses without the formation of voids.

REPAIR MORTAR SPRAYED APPLICATION - WET SPRAY
IMPORTANT
Substrate pre-wetting
Insufficient substrate saturation prior to application will cause the mortar to not gain it's full mechanical properties.

1. Only apply the Product to stable, prepared substrates.
2. Thoroughly pre-wet the prepared substrate for a minimum of 2 hours before application.
3. Keep the surface wet and do not allow to dry.
4. The final pre-wetted surface must achieve a dark matt appearance (saturated surface dry).

IMPORTANT
Sagging or slumping of built up layers
Allow each layer to slightly harden and remain wet before applying subsequent layers.

1. Remove excess water from within the surface pores and cavities with a clean sponge.
2. Apply one coat of primer Sika MonoTop®-1010 IN.
3. Place the wet mixed repair mortar into the spraying equipment.
4. Spray the repair mortar onto the pre-wetted substrate between the minimum and maximum layer thicknesses without the formation of voids.

SURFACE FINISHING
IMPORTANT
Adding water during surface finishing
Do not add water during the surface finishing as this can cause discolouration and cracking.

1. Allow mortar to surface harden.
2. Surface finish to the required surface texture using a stainless steel, steel, PVC or wooden float.

COLD WEATHER WORKING
Store bags in a warm environment and using warm water to assist with achieving strength gain and maintaining physical properties.

HOT WEATHER WORKING
Store bags in a cool environment and using cold water to assist with controlling the exothermic reaction to reduce cracking and maintaining physical properties.

CURING TREATMENT

- Protect fresh mortar immediately from premature drying using an appropriate curing method, such as curing compound, moist geotextile membrane or polyethylene sheet.
- Curing compounds must not be used when they could adversely affect subsequently applied products and systems.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product’s suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Sika India Pvt. Ltd.
620, Diamond Harbour Road
Commercial Complex II
Kolkata - 700 034
West Bengal, India

Contact:
Phone: +91 33 2447 2448
Fax: +91 33 2397 8688
info.india@in.sika.com
www.sika.in