

SEWAMENT 100

Fibre-reinforced acid-inhibiting two-component cementitious mortar for repairing and protecting sewerage systems. Can be applied manually or by wet spray



WHERE TO USE

For the reparation of damaged concrete purification plants of effluent urban waters. Repairation and protection of concrete or masonry sewer trunk lines, collecting wells and water purification plants.

Some application examples

- Repairing concrete subjected to the acid corrosion of sewage.
- Corrosion-inhibiting interior lining of concrete and masonry tanks damaged by the chemical aggression of effluent urban or mixed urban/industrial waters.
- Acid-inhibiting and wear-proof lining of reinforced concrete manifolds used for the transportation of effluent waters that could contain suspended solid particles.
- Acid-inhibiting lining of sewer trunk line vaults.
- Wear-proof lining of sewer trunk line beds that have a heavy transportation of suspended materials.
- Wear-proof layer for sewerage banks.
- Manufacture or reconstruction of impervious coverings of the sewer trunk lines.
- Filling of joints which are not subjected to movement, between precast concrete sewerage elements.
- Filling cracks in concrete casts of purification tanks and collectors.

TECHNICAL CHARACTERISTICS

Sewament 100 is a fibre-reinforced two-component prepacked mortar prepared according to a formula developed in the Mapei research laboratories.

Part A: is a powder based on hydraulic binders with pozzuolanic reaction, selected graded aggregates, special additives and synthetic fibres. Part B: is a liquid based on acrylic polymers in water dispersion. Once mixed with Part B, latex, **Sewament 100** becomes a mortar of thixotropic consistency, easily workable both manually and with a spraying machine for at least 45 minutes at +23°C.

Sewament 100 can be applied in a thickness of maximum 35 mm per layer. Thicker layers must be applied in more coats. Thanks to its composition and total impermeability (DIN 1048), **Sewament 100** is resistant to the chemical aggression produced by sulphuric acid due to the bacterial oxidation of hydrogen sulphide deriving from the anaerobic fermentation of civil and industrial sewage.

The high resistance to chemical aggression, which is unusual for a cementitious mortar, has been confirmed and certified by the Department of Microbiology of the Botanic Institute of the University of Hamburg, by subjecting **Sewament 100** to aggressive conditions which were eight times higher with respect to those usually found in sewerage systems of large industrial cities.

The accelerated tests, that lasted nine months, were carried out in biological chambers that recreated the acidity conditions that followed inoculation of bacteria (*Thiobacillus thiooxidans*, *Thiobacillus neapolitanus*, *Thiobacillus novellus*, *Thiobacillus intermedius*) isolated by a very corroded sewerage plant.

Following the results obtained, **Sewament 100** is suitable for repairing damaged sewerage systems and can be applied manually or can be wet sprayed.

RECOMMENDATIONS

- Do not apply **Sewament 100** on smooth surfaces.
- Concrete surfaces must be mechanically roughened before applying the mortar.
- Do not add cement, additives or water to **Sewament 100**.
- Avoid mixing **Sewament 100** manually. If the latex is not well blended with Part A it could interfere with the final properties.
- Do not use **Sewament 100** for reparations carried out in a formwork (use **Mapegrout Hi-Flow**).

APPLICATION PROCEDURE

Preparing the substrate

Completely remove any damaged concrete and loose parts by mechanically bush-hammering, milling or hydro-scarifying until a sound, compact and strong substrate is reached.

The correct thicknesses that need to be removed must be established after on-site tests.

It is also recommended to remove any un-bonded materials applied during previous repair works.

Furthermore, the concrete substrate must be completely free of foreign substances such as oils, grease, dirt, old paint or polymeric coatings and renders. Corroded reinforcement rods must be cleaned from rust by sandblasting until grade SA 2^{1/2} is reached according to DIN 55928.

Sandblasting is not necessary if the preparation of the surface is carried out by hydro-demolition because this method ensures correct cleaning of the substrate and re-bars.

After preparation the substrates must have a roughness of at least 5 mm and at least 1.5 MPa tensile strength measured with a dynamometer.

Protect the reinforcement rods with **Mapefer**, protective two-component corrosion-inhibiting and alkalinising mortar, or with **Mapefer 1K**, one-component mortar. Follow the application procedures described on the relevant technical data sheets.

Wait until **Mapefer** or **Mapefer 1K** dries then saturate the substrate with water. Wait until the excess water evaporates completely before repairing. To facilitate the removal of excess water, use compressed air.

Preparing the Sewament 100

Mix a 25 kg bag of **Sewament 100** Part A with a 4.7 kg drum of Part B. Pour approximately $\frac{2}{3}$ Part B, latex necessary for the mixture (approximately 3 kg per 25 kg bag) into a mixer and, while mixing, slowly add the powder. Mix for several minutes. Remove any unmixed powder from the sides of the mixer and add the rest of Part B (1.7 kg per bag of mixture). Remix until a homogeneous lump-free mortar is obtained.

If very small quantities are needed, **Sewament 100** can also be prepared with a drill fitted with a stirrer.

Application with a spraying machine

Apply **Sewament 100** with a spraying machine on a roughened substrate saturated with water with a dry surface.

In the case of very uneven substrates, it is recommended to first fill most of the uneven parts and then apply one or more smooth layers of **Sewament 100** until the correct final thickness is reached. To ensure good adhesion between the layers, apply the following coat while the prior coat is still fresh.

If the thickness needs to be higher than 30 mm, it is absolutely necessary to insert a reinforcing net correctly distanced from the substrate. Finish the surface with a sponge float or a flat trowel.

Manual application

Apply **Sewament 100** on the substrate saturated beforehand with water, using a trowel or a float. Press the mortar over the substrate with the trowel and if necessary go over it again with a flat trowel.

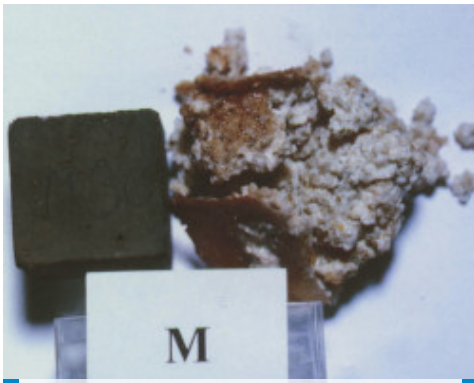
Depending on the desired texture, finish the surface with a sponge float or with an American trowel. 10-35 mm thickness in a single coat can be carried out using **Sewament 100**. Thicker layers can be carried out by applying several coats of the mortar. To ensure good adhesion between the layers, apply the following coat while the prior coat is still fresh. If the first coat has hardened, manually apply a coat of **Sewament 3 Primer**.

If the thickness needs to be above 30 mm, it is absolutely necessary to insert a reinforcing net correctly distanced from the substrate.

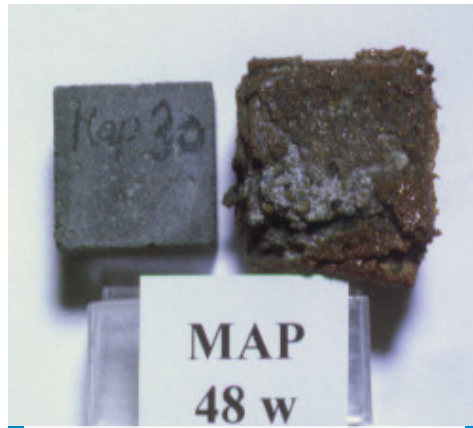
Precautions to take during and after application

No particular precaution needs to be taken at temperatures around +20°C. During summer it is recommended not to expose the product to direct sunlight, but protect it and store it in a cool place. At low temperatures it is recommended to store the product in a heated place to avoid Part B freezing.

Once applied, **Sewament 100** must be carefully cured to avoid rapid evaporation of water that causes surface cracks due to plastic shrinkage. Nebulize the **Sewament 100** surface with water once it sets and for the first 24 hours, or, alternatively, immediately apply **Mapecure E** or **Mapecure S**, water-based or solvent-based film-forming curing compounds. Film-forming curing compound products prevent the adhesion of any floor or wall covering. If a final protection will be used, it is recommended to remove the **Mapecure E** or **Mapecure S** by sandblasting or hydro-sandblasting.



M
Mortar sample after 336 days conditioned in H₂O - Sample of the reference mortar



MAP
48 w
Sewament 100

CLEANING

The still fresh grout can be removed from tools with clean water. Once hardened **Sewament 100** can be removed only by mechanical means.

CONSUMPTION

Approximately 21 kg/m² per cm of thickness.

PACKAGING

Part A: 25 kg bags.
Part B: 4.7 kg drum.

STORAGE

Stored in original sealed packaging in a cool and dry place, **Sewament 100** is stable for 12 months.

SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

Sewament 100 contains cement that, in contact with sweat or other bodily fluids, produce an irritant alkaline reaction and in contact with the eyes, it can cause serious damage to them.

Wear protective gloves and goggles. For further information refer to the safety data sheet.

FOR PROFESSIONALS.

TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	Part A	Part B
Consistency:	powder	liquid
Colour:	grey	white
Specific gravity (kg/dm ³):	1.44 ± 0.1	1.07
Maximum diameter of aggregate (mm):	2	
Dry solid content (%):	100	13

PROPERTIES OF THE FRESH MORTAR	
Colour:	grey
Mix ratio:	Part A : Part B = 5.3 : 1 4.7 kg Part B per 25 kg of Sewament 100 Part A
Consistency of mix:	plastic
Slump (%):	60-85
Specific gravity of mix (kg/dm ³):	2.1
pH of mix:	> 13
Application temperature range:	from +5°C to +35°C
Pot life: (at + 5°C): (at +23°C): (at +30°C):	60' 45' 30'
Maximum thickness per coat (mm):	35 mm
PROPERTIES OF THE HARDENED MORTAR	
Compressive strength at +23°C and 50% R.H. (MPa): – after 24 h: – after 7 days – after 28 days:	> 20 > 40 > 50
Flexural strength at +23°C and 50% R.H. (MPa): – after 24 h: – after 7 days: – after 28 days:	> 5.0 > 8.0 > 10
Compressive modulus of elasticity (MPa): – after 24 h: – after 7 days: – after 28 days:	13 000-15 000 17 000-19 000 20 000-22 000
Ready to use:	5 days
Bonding strength directly on the concrete at +23°C and 50% R.H. (MPa): – Sewament 100 was applied manually: (after 28 days): – sprayed Sewament 100 (after 28 days):	> 2.0 (substrate failure) > 2.0 (substrate failure)
Bonding strength directly on the concrete at +10°C and 90% R.H. (MPa): Sewament 100 was applied manually: – after 3 days: – after 7 days: – after 28 days:	> 1.0 > 1.5 > 2.0
Sprayed Sewament 100 – after 3 days: – after 7 days: – after 28 days:	> 1.0 > 1.5 > 2.0

WARNING

N.B. - Although the technical details and recommendations contained in this product report correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical applications: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.

452-5-2003-gb

Any reproduction of texts, photos and illustrations published here is prohibited and subject to prosecution

