VIRESIN®

Resin for Construction Applications – Elastomeric emulsion
Admixture for improving cement mortars

Properties

VIRESIN is a synthetic elastomer emulsion used as an admixture in cement mortars and concrete layers, significantly improving their properties:

- Improves plasticity, water retention and workability of fresh mortar in general.
- Eliminates shrinkage, averting any resulting cracking.
- Increases significantly the adhesion to substrate.
- Improves elasticity of hardened mortar.
- Increases the mechanical strengths in compression, flexure and abrasion.
- Improves resistance to chemicals and petroleum products.
- Acts as a waterproofing agent and offers resistance during freezing-defreezing cycles.

Applications

1. Bonding layer between old and new concrete or mortar.
2. Repairing mortars and thin layers. **VIRESIN** is suitable both for cement mortars and lime mortars.
3. High-strength and waterproof plasters.
4. Waterproofing cement mortars resistant to hydrostatic pressure.
5. Ground mortars resistant to abrasion.
6. Floating layer of concrete over insulations.
7. Impregnation for improving the surface of cement mortars and concrete, for avoiding dust.
8. Tile adhesive for insulating boards, tiles and various coatings.
9. Cement mortars and concrete, resistant to chemical and petroleum products.
10. Improving ceiling paints (lime based emulsions) resistance to abrasion and water absorption.
11. Protection of fresh concrete's surface from dehydration

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How to use

1. Substrate preparation
Remove all dust, loose materials, grease, oil, old coats, remains of cement grout, paint, varnish, etc. It should be thoroughly dampened, preferably 12-24 hours beforehand, avoiding any excess water. Priming with **VIRESIN**, even if diluted with water, should be avoided as it might lead to a detaching film.

2. Application
VIRESIN is added into water. The required amount of **VIRESIN** depends on the specific desired quality and technical requirements (see application examples). Addition of very small quantities of **VIRESIN** will not improve the mechanical properties of mortars: do not dilute with water using a ratio higher than 1:5.
Add the **VIRESIN** solution first into the mixer, followed by the cement and the aggregates, in order to avoid the creation of lumps.
Mixing of mortar should not last more than 2-3 minutes; otherwise tiny air bubbles will be created, reducing its final strengths.
The workability time of mortar is slightly prolonged with **VIRESIN**, and setting time increases significantly.

3. Mortar maintenance measures with VIRESIN
Although cement mortars prepared with **VIRESIN** behave much better than common mortars, you must maintain them by hydrating their surface (particularly in high temperature or windy conditions), in order to avoid quick evaporation of water and the creation of cracking.

Tool Cleaning

The tools used in mortar applications with **VIRESIN** should be cleaned with water before setting begins. After hardening, cleaning can be effected only with mechanical means.

Storing

Store **VIRESIN** for at least 12 months in sealed vessels and in places protected against frost. Stir before use.

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Application Examples

Mixing ratio by volume

1. BONDING LAYER BETWEEN OLD AND NEW CONCRETE OR MORTAR

Using a brush, apply a thick layer of mortar around 2 mm thick, on a properly prepared surface, consisting of:
1 part cement by volume
1 part sand by volume
1 part **VIRESIN** by volume

Add water as required, until the mixture becomes viscous. In practice, good workability is achieved when adding 10% of water into **VIRESIN**.

Apply the coat about 15-20 minutes before the placement of new concrete or before coating a new mortar layer. In any case, the new coat must be applied fresh on the fresh bonding coat.

VIRESIN consumption: 0,20 – 0,25 kg/m^2/mm

Applications: construction joints during concreting, bonding agent between old and new concrete or cement mortar, cement mortars for negative hydrostatic pressures, plaster on smooth concrete surfaces and hard insulation plates (polystyrene, polyurethane etc.). In the last two cases, add **VIRESIN** in the next coatings, too.

2. REPAIR MORTARS AND THIN LAYERS

1 part cement by volume
2 parts sand by volume
0,25- 0,30 **VIRESIN** by volume

Water to cement ratio (W/C) ≤ 0,40

In practice, **VIRESIN** is diluted with water using a ratio of 1:1 to 1:2 and the solution is used for hydrating the mortar.

VIRESIN consumption: 1,00-1,50 kg/m^2/mm

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Applications: Repair of concrete surfaces (cavities, support and stair corners, etc.), cement mortar repairs, tilting corrections, leveling layers, local repair of cracked plaster.

3. HIGH-STRENGTH WATERPROOFING PLASTERS

In plaster (third coat – thin), use a solution of **VIRESIN** diluted with water for the hydration of lime or lime-cement mortars, using a ratio of 1:4 or add around 3-4 kg **VIRESIN** in a ½ bag cement mixer.
VIRESIN consumption: 0.4 kg/m^2/cm

4. WATERPROOFING CEMENT MORTARS RESISTANT TO HYDROSTATIC PRESSURE

First apply a dash cement mortar consisting of:
1 part cement by volume
1 part sand by volume
0,5 part **VIRESIN** by volume

For good workability, add 15-20% water into **VIRESIN**.

VIRESIN consumption: 0,10 – 0,15 kg/m^2

Then apply 2 coats of trowelled cement mortar consisting of:
1 part cement by volume
2,5 parts sand by volume
0,25 part **VIRESIN** by volume
W/C ratio ≤ 0,5

In practice, dilute **VIRESIN** with water using a ratio of 1:2

VIRESIN consumption: 1.0 kg/m^2/cm

Applications: waterproofing of tanks and basements, even at a later stage, to the internal side.

Attention: Using **VIRESIN** will result in high plasticisation of the mortar, and therefore the cement mortar applied on vertical surfaces should be trowelled again after 'absorption'; otherwise it might 'hang' and be detached from substrate.

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5. ABRASION-RESISTANT GROUT CEMENT MORTARS

1 part cement by volume
2,5 parts sand by volume
0,25 parts **VIRESIN** by volume
W/C ratio ≤ 0,5

In practice, dilute **VIRESIN** with water using a ratio of 1:2

VIRESIN consumption: 1,0 kg/m^2/cm

Applications: industrial flooring, laboratory flooring, warehouses, garages, sanitary baseboards in food processing areas or sealing pipes between walls and floorings for waterproofing of basements and tanks .

6. FLOATING CONCRETE LAYER OVER INSULATING PLATES

1 part cement by volume
3 parts aggregates by volume
0,15 part **VIRESIN** by volume
W/C ratio ≤ 0,45

In practice, dilute **VIRESIN** with water using a ratio of 1:4.

VIRESIN consumption: 0,3 kg/m^2/cm

Applications: Floating concrete over elastic, sound and thermal insulation plates combined with under floor heating.

7. IMPROVING IMPREGNATION OF CEMENT MORTAR AND CONCRETE FLOOR SURFACES

1 part **VIRESIN** by volume
1-2 parts water by volume

The above solution impregnates the surface of fresh cement mortar or fresh concrete as soon as it is 'absorbed' and allows traffic and then it is polished for achieving good penetration of the solution.

VIRESIN consumption: 0,10 – 0,20 kg/m^2

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Applications: this method is the cheapest solution for constructing industrial flooring that resist dust and abrasion, because it can be applied directly on the floor concrete without adding another protective layer such as cement mortar, mosaic, etc.

8. TILE ADHESIVE FOR INSULATION BOARDS, TILES AND VARIOUS COATINGS

1 part cement by volume
1,5 – 2 parts sand by volume
0,35 parts **VIRESIN** by volume
Proportional amount of water

In practice, dilute **VIRESIN** with water using a 1:1 ratio

VIRESIN consumption: 0,10 – 0,20 kg/m^2/mm

Alternatively: Mixing of ready-mixed hydraulic tile adhesive with a solution consisting of
1 part **VIRESIN** by volume
2 parts water by volume

VIRESIN consumption: 0,5 – 1,0 kg/m^2

Applications: Fixing of thermal insulation plates for follow-up thermal insulation (point bonding), tile bonding (tile adhesive 3-5 mm thick covering the whole surface).

9. CEMENT MORTARS AND CONCRETE RESISTANT TO CHEMICALS AND OIL PRODUCTS

1 part cement by volume
3 parts aggregates by volume
0,35 parts **VIRESIN** by volume
Proportional amount of water

In practice, dilute **VIRESIN** with water using a 1:1 ratio.

VIRESIN consumption: 1,5 kg/m^2/cm

Applications: cement mortars in tanks and sewages, oil tanks, floors in boiler houses.

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10. IMPROVEMENT OF CEILING PAINTS (LIME EMULSIONS)

10 l (~15 kg) paint
1-2 kg **VIRESIN**

Applications: Warehouses, small production facilities, agricultural and cattle breeding facilities and in general for outdoor use of ceiling paint for cost reasons.

11. FRESH CONCRETE'S SURFACE PROTECTION FROM DEHYDRATION

1 part **VIRESIN** by volume
2 part water by volume

VIRESIN diluted with water 1:2 spay or coat over the fresh concrete's surface. Perform the application as soon as the setting begins and after by any chance remaining water has been removed.

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