

A Polyurethane Resin For Rigid Structural Sealing Of Dry Crack

Guardian PU-RIGID is a two component, solvent and phthalate free, polyurethane system consisting of a resin component **Guardian PU-RIGID** and special hardener **Guardian PU-RIGID**.

This system is ideal for the structural sealing of cracks in concrete structures.

Complies to EN1504 Part 9 and EN1504 Part 5 Class (F)

Principle 1 : Protection Against Ingress (PI).

Method 1.5 – Filling Cracks.

Principle 4 : Structural Strengthening (SS).

Method 4.5 – Injecting in Cracks, Voids or Interstices.

Method 4.6 – Filling Cracks, Voids or Interstices.

USES & ADVANTAGES

Guardian PU-RIGID is applied directly into dry cracks. If water leakage has to be stopped **Guardian PU-RIGID** can be used in combination with the **Guardian PUE 100/E101**. **Guardian PUE 100/E101** will first stop the water and/or react the water away, after which the injection of **Guardian PU-RIGID** can be carried out.

Typical areas of use are :-

- The structural sealing of cracks in concrete structures such as basements, tunnels etc. In areas where dry cracks are present and a structural sealing is needed.

Advantages include:-

- Good adhesion on dry concrete.
- Low viscosity; therefore good penetration into the crack.
- Can be applied as one or two component material.
- The curing time can be adjusted relatively simply.
- The cured material is resistant to hydrolysis.

PROPERTIES

| Guardian PU-RIGID | | | |
|---------------------------|----------------------------------|------------|--------------|
| Colour : | light yellow | dark brown | |
| SG : | 1.04-1.06 | 1.22-1.24 | |
| (ASTM D1475) | | | |
| Viscosity at 25°C, mPa.s: | 70-120 | 170-270 | (ASTM D2196) |
| (at 77°F, lb/ft.s | 0.047-0.08 | 0.11-0.18) | |
| Pot life at 25°C (77°F) : | 40-60 min. | | |
| Gel time at 25°C (77°F) : | 60-80 min. | | |
| Compressive Strength: | > 50 N/mm ² at 7 days | | (ASTM C579) |

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APPLICATION

Although **Guardian PU-RIGID** is a two component system it can be used as a one component system.

Used as a One Component System.

Step 1 : Add the required amount of **Guardian PU301** to the **Guardian PU-RIGID**.

Step 2 : Mix it thoroughly until a homogeneous mixture has been obtained, about 2 minutes.

Step 3 : The mix can be pumped by means of a single component injection pump. The pot life of the system is 70-90 minutes at 25°C (77°F).

After the injection the pump should be cleaned with **Guardian PU Purge**.

Used as Two Component System

In case a faster curing must be obtained **Guardian PU-RIGID** can be applied as a two component system by means of mixing / metering equipment. Due to the low viscosity of the components a simple static mixer can be used.

In the case of a two component application it is possible to speed up the reacting time to obtain faster curing. For this purpose Guardian supplies a special catalyst, **Guardian Cat 42**, to be added to the **Guardian PU-RIGID**. The following table clearly indicates the influence of adding **Guardian Cat 42** to the **Guardian PU-RIGID** on the gel time of the mixture.

| Dosage of Guardian Cat 42 in % by weight of Guardian PU-RIGID | Material Temperature | | |
|---|----------------------|-------------|-------------|
| | 5°C (41°F) | 21°C (70°F) | 30°C (86°F) |
| | Reaction Time | | |
| 0% | ~ 62 min | ~ 60 min | ~ 50 min |
| 0.20% | ~ 28 min | ~ 27 min | ~ 12 min |
| 0.40% | ~ 22 min | ~ 20 min | ~ 10 min |
| 0.60% | ~ 12 min | ~ 11 min | ~ 6 min |
| 0.80% | ~ 11 min | ~ 8 min | ~ 5 min |
| 1.00% | ~ 10 min | ~ 6 min | ~ 3 min |

Note : The given data are laboratory parameters and may deviate depending on the object and conditions on site.

After injection the pumps and the mixing head should be cleaned with **Guardian PU Purge**.

Note : To prevent condensation on the liquids at the start of work, the temperature of the components should be atleast as high as the ambient temperature.

All opened drums of **Guardian PU-RIGID** should be capped when not in use.

MIX RATIO

Guardian PU-RIGID : Guardian PU-RIGID = 1 : 1.15 by weight or

Guardian PU-RIGID : Guardian PU-RIGID = 1.02 : 1 by volume

MECHANICAL PHYSICAL PROPERTIES OF THE END PRODUCT

| Value | According to Unit Value | |
|-----------------------|-------------------------|------------|
| Elongation at break : | 4% | ASTM D638 |
| Shore hardness : | 75-80 D | ASTM D2240 |

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PACKAGING

18.70 kg (41.22 lb) set;

Guardian PU-RIGID = 8.70 kg (19.18lb)

Guardian PU-RIGID = 10 kg (22.04 lb) in a can.

Other packing units on request.

STORAGE & SHELF LIFE

Guardian PU-RIGID are very stable when properly handled.

To avoid problems, it is very important to understand that these materials are both temperature and moisture sensitive. Therefore, materials should be stored in an area with temperatures not exceeding 35°C (95°F) or not lower than 5°C (41°F), the shelf life is approximately 12 months in unopened drums.

All part used drums should be resealed to prevent the ingress of moisture.

HEALTH & SAFETY

Ordinary hygienic principles, such as washing the compounds from the hands before eating or smoking should be observed. Hands should be washed with a water less cleaner followed by soap and water. Avoid breathing of vapours, prolonged contact with the skin, contact with open breaks in the skin, and ingestion. Use **Guardian PU-RIGID** with adequate ventilation.

TECHNICAL SERVICE

The Guardian Coating Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.

All statements and data presented herein are given in good faith and believed to be appropriate and reliable. It is given without express or implied warrant or guarantee. Potential users of Guardian's materials are urged to conduct confirmatory trials to satisfy themselves as to the suitability of the selected product for their particular end use prior to purchase.