



METHOD STATEMENT

Sikadur® -42

DATE, : 06/2016

VERSION NO.01

SIKA EGYPT

ENG. ASHRAF ELZINY

TECHNICAL DEPARTMENT

Scope: Epoxy Resin Castable Grout (Solvent free, three component and pourable grout)

Preliminary Works and surface preparation

- 1.1 Clean out surfaces, using small wire brushes or compressed air to remove all loose and friable materials, as well as mud and other impurities.
- 1.2 All concrete surfaces must be clean, free from standing water and all loosely adhering particles. Concrete and mortar must be full cured at least 3 - 6 weeks old, depending on climate.
- 1.3 Substrate must be dry or mat damp and free from any standing water.
- 1.4 For good bonding sand, water blast, grind or scabble substrates.

Steel:

Must be cleaned and prepared thoroughly to an acceptable quality standard equivalent to SA 2.5 i.e. by blastcleaning and vacuum. Avoid dew point conditions.

All anchor pockets or sleeves must be free of water. Apply the grout as immediately as possible after preparation and cleaning to prevent re-oxidizing / rust formation on the surfaces.



2. Limitations

2.1 According to the Product Data Sheet, certain limitations are given:

- Layer Thickness (minimum and maximum)
Minimum layer thickness is 12 mm.
Maximum layer thickness is 40 – 50 mm.

- Substrate temperature
- Ambient temperature
- Material temperature
- Substrate moisture content
- Dew point conditions
- The last lift/layer must be kept at <50mm
- Component C must be kept dry

2.2 Pre-Project Preparation

The most important preparation steps for installation of Sikadur®-42 Epoxy Grout are:

- Accurate calculation of the amount of Epoxy Grout needed
- Check temperatures during the grouting procedure.
- Check the potlife of Sikadur®-42 at the temperatures and compare it with the volume and geometry of the grouting area. Is it possible to use this quantity within this potlife? Also select the appropriate packaging sizes
- Check the geometry of the grouting area and confirm max. layer thickness of the relevant Sikadur®-42 type in the Product Data Sheet (PDS). Grouting in several layers or lifts may be necessary.
- Make a programme for the whole procedure. Check the staff available and trained to mix the material fast enough to maintain a continuous work and grout flow for this work. The most critical bottleneck during grouting is frequently a lack of human resources (for a continuous work flow which is essential for a successful grouting)
- Select mixing tools and equipment with sufficient capacity. Confirm power type and availability for the mixing equipment
- Calculate the time required for preparing and mixing the epoxy grout and include this in the programme. In many cases, at least two working teams are necessary to supply the feed hopper and to maintain the work flow. Do not reduce the mixing time, even when in a hurry
- Check the substrate in advance. Ensure that the substrate is in good condition and that all cement laitance, oil, dust, dirt and any other foreign material is removed. It must also be dry and free from any standing water

- Check the cleanliness and preparation of the base plate and any metal surfaces.
- Ensure that all necessary tools and equipment are available on site (mixers, trowels etc.)
- Check and Prepare the formwork with release agent to prevent bonding with the grout and all other areas where bonding with the grout is not necessary. Any release agent, wax etc. is strictly forbidden from contact or spillage in all other areas, this must also be checked
- Check there is adequate sealing (e.g. Sikaflex®-11 FC+) of the formwork to prevent leakage
- Ensure adequate protection of adjacent equipment and finished floor areas etc around the grouting area

3. Execution

MIXING AND APPLICATION

- 3.1 Mix the resin material Sikadur 42 according the instruction to use (see data-sheet) recommended mechanical mixing with electrical stirrer (300-500 rpm) and using the correct sika mixing paddle and apply only while the material is in its Pot life time (approx. 40 minutes at 30° C).



Important Notes:

Always mix only that quantity of Sikadur®-42 grouts that can be use within its potlife.

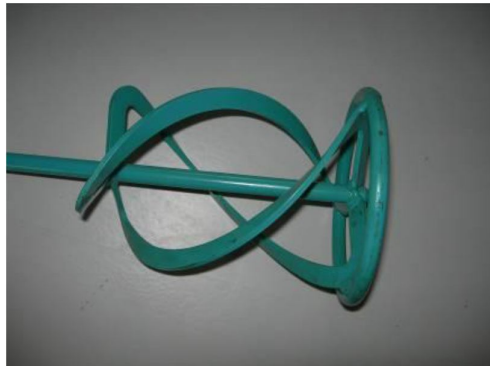
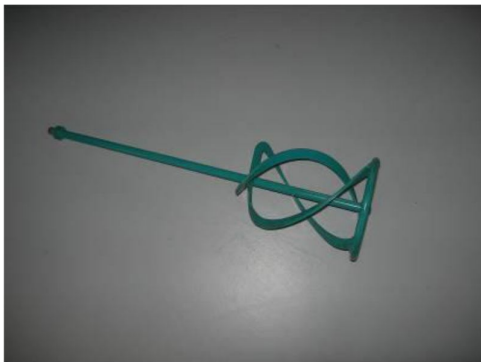
Never reduce the mixing time.

3.2 Mixing Tools:

For optimum mixing results use a mixing paddle similar to the ones shown below:



With this design of mixing paddle, you can obtain the best results
to mix Resin and Hardener (A+B Component)



With this design of mixing paddle, you can obtain the best results
To mix (A+B) and C-Component (Fillers)

4. Application / Installation

Checklist:

- In every case, the last lift must be kept to a maximum 50 mm
- For specific bolt grouting applications please refer to Sika Technical Services
- Colder and hotter ambient substrate or material temperatures will influence the curing and flow characteristics of Sikadur®-42
- Do not subject epoxy grouts to sudden temperature changes especially during early curing stages
- Contact Sika Technical Services for advice on control joint spacing for large base plate grouting projects
- Do not vibrate the Epoxy Grout during placing
- Wherever possible unrestrained “shoulders” are to be avoided. These have a tendency to crack and/or de-bond
- When applied to mat damp concrete, brush the grout well into the substrate first.

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Working at high temperatures:

It is recommended when working with Sikadur®-42 at temperatures above 35°C, that the following guidelines should be observed:

- Prior to use store the unmixed materials in a cool, preferably temperature controlled environment, avoiding exposure to direct sunlight or other heat sources.
- Refer to the data sheet of the specific product and closely follow the instructions in the section “storage conditions”.
- Keep all equipment cool, arranging shade and protection where necessary. It is especially important to keep cool all surfaces that will come into direct contact with the material.
- Try to avoid application during the hottest times of the day.
- Provide sufficient material, plant and labour to ensure that the application is a continuous process and that the grout does not stop moving during flow application process.

Important Note:

When both the materials and/or the substrates are too hot, the potlife will decrease dramatically!

Working at low temperatures:

It is recommended when working with Sikadur®-42 at temperatures below 15°C, that the following guidelines should be observed:

- Prior to use store unmixed materials in a warm environment, preferably temperature controlled and avoiding exposure to frost or temperatures below +5°C.
- Cold temperatures will decrease the flow properties of the grout.
- Refer to the data sheet of the product and closely follow the instructions in the section “storage conditions”.
- Avoid condensation! Ambient temperature during application must be at least 3°C above dew point.
- Grouting of Anchors: Heat up the steel (20-35°C) to activate the Epoxy grout.

Note:

When both the materials and/or the substrates are too cold, the potlife will increase, the flow will also be restricted and curing will be delayed!

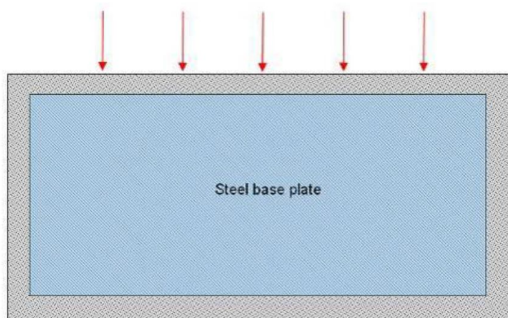
Application Method

- 4.1 When grouting under bearing plates, ensure there is sufficient pressure to maintain movement of the grout.
- 4.2 The use of expansion joints is recommended on large pours to minimize the potential for cracking in the epoxy grout (maximum 1.00 m to 1.20 m spacing in each direction).
- 4.3 For large volumes, apply in more than one layer, ensuring that the previous layers have hardened and cooled.
- 4.4 Average consumption 1 m² approx. 2 kg (1 mm thickness).
- 4.5 In summer time, application should be in the low temperature periods very early in the morning or late in the afternoon.

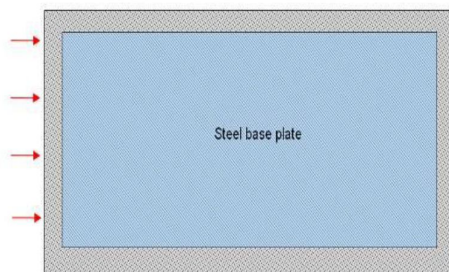
Placing:

It is essential that the grout mixing capacity, material supply and labour availability is sufficient to enable the grouting operation to be carried out smoothly and continuously.

Grouting from the shortest side:

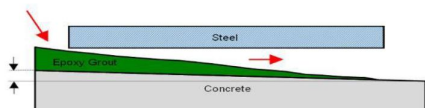


Grouting from the shortest distance across the base plate

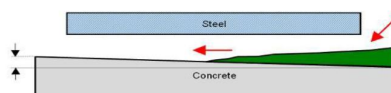


Do not grout from the long distance across the base plate

Grouting down / with any slope or decline:



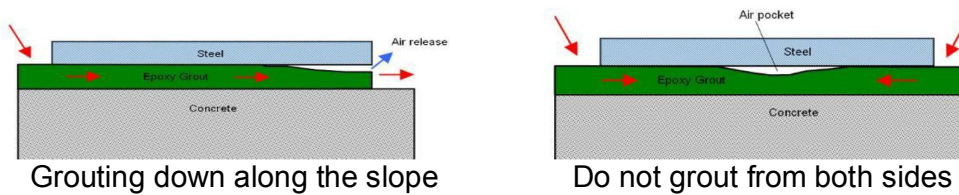
Grouting down along the slope



Do not grout against/up the slope

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Grout from one side only:

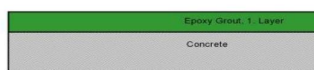


Placing grout in several layers:

Chemically Bonded (without mechanical adhesion)

Epoxy on epoxy achieves a chemical bond with cross linking that is very strong. To achieve this high bond strength between the layers, the following layer should be applied as soon as possible, but the prior layer has to be allowed to cool down completely first.

- Grouting of the first layer
- Applying the second layer as soon as possible after the first layer, but waiting until the first layer has completely cooled down to the ambient temperature
- Applying the third layer, after the second layer has again cooled down. Etc.



1. Layer



2. Layer



3. Layer

- Keep the surface *absolutely clean (free from dust, water etc.) until the next layer of grout is applied*
- The last lift/layer must be kept to a maximum thickness of 50 mm

The Placing of large volumes:

Problem:

The flow of the material should never stop and the hydrostatic pressure should always be maintained. If the grouting area is too large for this in a single operation, the following procedure could be a solution:

Solution:

- Divide the area and make several lanes (e.g. approx 1m width) using wooden slats with foam block (open celled) or a sealant tape (with enough thickness) on the top and bottom of the slats (so they can be removed after grouting)
- Apply release agent on the wooden slats to remove the slats afterwards easily. After the removing of the slats be aware, that no release agent is on the shoulder of the epoxy grout before applying the second step.
- Divide the whole area into these sections as appropriate
- Fill the only the 'odd' and not the 'even' sections numbers first
- The 'even' numbers (the next sections between) can be grouted as soon as the grout in the 'odd' sections has cured and the slats have been removed.



Surface:

After a certain minutes after the placing of the grout:

When there are a few air bubbles on the surface air entrainment, break the bubbles with a fine brush (within the open time, before final curing of the material).

Note: Avoiding air entrainment and allowing entrapped air to escape is very important to prevent any bubbles forming and reducing the bond strength under the base plate

**Protection:**

On completion of the grouting operation, all of the exposed and unexposed areas of grout should be protected from direct sunlight and heat gain by providing shade over the whole area. Also protect the grouted area from rain, dust etc.

Formwork:

If the formwork was well prepared with release agent as recommended earlier, it should now be easy to remove.

For any further clarification don't hesitate to contact Sika Egypt Technical Department.

Technical Department

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 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 proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request.

Sika Egypt
TECHNICAL DEPARTMENT

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