



# METHOD STATEMENT

## Concrete Repair

JULY 2024 / V4 / SIKA SERVICES AG / J. LOHNER + R. STÖRIKO-PASKER

## CONTENT

<b>1</b>	<b>SCOPE</b>	<b>3</b>
<b>2</b>	<b>SYSTEM DESCRIPTION</b>	<b>3</b>
2.1	References	3
2.2	Limitations	4
<b>3</b>	<b>Products</b>	<b>4</b>
3.1	System Build-up	4
3.2	Material Storage	5
<b>4</b>	<b>Equipment</b>	<b>5</b>
4.1	Materials	5
4.2	Essential Equipment	5
4.3	Additional Equipment	5
4.4	Mixing Equipment	6
4.5	Spraying Equipment (If required)	6
<b>5</b>	<b>Health and Safety</b>	<b>10</b>
5.1	Risk Assessment	10
5.2	Personal Protection	10
5.3	First Aid	10
<b>6</b>	<b>Environment</b>	<b>10</b>
6.1	Cleaning Tools / Equipment	10
6.2	Waste Disposal	10
<b>7</b>	<b>Substrate Preparation</b>	<b>11</b>
7.1	Concrete	11
7.2	Steel Reinforcement/ Rebar	12
7.3	Pre-Wetting Substrate	14
7.4	Formwork (For large area)	14
<b>8</b>	<b>Mixing</b>	<b>15</b>
8.1	For Spraying application	15
<b>9</b>	<b>Application</b>	<b>16</b>
9.1	Before Application	16
9.2	Reinforcement Corrosion Protection	16
9.3	Bonding Primer	17
9.4	Concrete Repair / Reprofiling MORTAR	18
9.5	Finishing/ Preparing for Leveling mortar	21
9.6	Removal of Formwork	21
9.7	Smoothing / Levelling Mortars	21
9.8	Layer Thickness/ Multiple Layers	23
9.9	Curing	23
9.10	Application Limits	23
<b>10</b>	<b>Inspection, Sampling, Quality Control</b>	<b>24</b>
10.1	Substrate Quality Control - Before and After Preparation	24
10.2	Before, During and After Application	25
10.3	Performance Testing	25
<b>11</b>	<b>Yield &amp; Consumption</b>	<b>26</b>
11.1	For Spray application	26
<b>12</b>	<b>Concrete Repair Flow Chart</b>	<b>28</b>
<b>13</b>	<b>Typical Drawing Showing System Build Up</b>	<b>29</b>

### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

July 2024, V4

N° 850 3201

14	Reducing the Risk of a Blockage	30
15	LEGAL NOTE	32

## 1 SCOPE

This method statement describes the step by step procedure for repairing concrete structures using the Sika® MonoTop®, SikaEmaco® and Sika® EpoCem® range ready to use mortar products by manual and machine application.

## 2 SYSTEM DESCRIPTION

The Sika® concrete repair range is a system of products consisting of a bonding primer, reinforcement corrosion protection layer, mortar repair and levelling or smoothing mortar.

### USES

- Bonding primers for promoting adhesion of a repair mortar on concrete
- Reinforcement corrosion protection applied on steel reinforcement bars in concrete (principle 11, method 11.1)
- Repair and reinstatement of damaged or contaminated concrete on buildings, bridges, infrastructure and super structure works (principle 3, methods 3.1 and 3.3)
- Increasing bearing capacity of a concrete structure by adding mortar for strengthening (Principle 4, method 4.4)
- Preserving or restoring passivity of steel reinforcement bars in concrete (Principle 7, methods 7.1 and 7.2)
- Increasing cover to reinforcement bars with additional mortar
- Thin layer render
- For pore sealing or levelling a concrete surface prior to adding a protective coating
- Repair of minor defects

### CHARACTERISTICS/ ADVANTAGES

- Pre-mixed for quality
- 1-component products only add water
- Adjustable consistencies
- Versatile range of performances
- Low shrinkage
- Products with easy surface finishing
- Products with classified performance classes
- Systems with high resistance to water and chloride penetration
- Products which can be hand or machine applied
- Compatible system with Sikagard® concrete protection products

### 2.1 REFERENCES

This method statement has been written in accordance with the recommendations contained in European Standards EN 1504: Products and systems for the protection and repair of concrete structures, and the following relevant parts:

- EN 1504 Part 1: Definitions, requirements, quality control and evaluation of conformity
- EN 1504 Part 3: Structural and non-structural repair
- EN 1504 Part 7: Reinforcement corrosion protection
- EN 1504 Part 10: Site application of products and systems, and quality control of works

## 2.2 LIMITATIONS

- Products shall only be applied in accordance with their intended use.
- Local differences in some products may result in some slight performance variations. The most recent and relevant local Product Sheet (PDS) and Material Safety Data Sheet (MSDS) shall apply
- For specific construction / build information refer to the Architects', Engineer's or Specialist's details, drawings, specifications and risk assessments.
- All work shall be carried out as directed by a Supervising Officer or a Qualified Engineer.
- This method statement is only a guide and shall be adapted to suit local products, Standards, legislations or other requirements.

## 3 PRODUCTS

<b>Sika MonoTop®</b> <b>SikaEmaco®</b>	1-component, ready to use repair mortar, bonding primer or reinforcement corrosion protection
<b>Sika® EpoCem®</b>	3-component, ready to use bonding primer, reinforcement corrosion protection or fairing coat

### 3.1 SYSTEM BUILD-UP

A Sika® repair system comprises a range of products to suit the needs, see examples below

<b>Bonding Primer and Reinforcement Corrosion Protection</b>	
SikaEmaco® P 5000 AP	1 component for normal use
Sika MonoTop®-1010	1 component for normal use
SikaTop® Armatec®-110 EpoCem®	3 component for demanding requirements
<b>Concrete Repair Mortars (all 1 component)</b>	
Sika MonoTop®-4012	R4 high performance CC mortar with reduced carbon footprint
Sika MonoTop®-4052	R4 mortar for horizontal repair with reduced carbon footprint
SikaEmaco® S 5400	R4 high performance CC mortar with applied nanotechnology
SikaEmaco® S 488	R4 high performance CC mortar for classical application
Sika MonoTop®-4200 Multiflow	R4 PCC mortar for horizontal and vertical application
SikaEmaco® S 5440 RS	R4 Fast hardening concrete repair mortar with corrosion inhibitor **
SikaEmaco® S 5800 DUO	R3 Repair mortar and fairing coat
SikaEmaco® N 5200	R2 fast hardening repair mortar for universal use
<b>Pore Sealer and Levelling Mortar</b>	
Sika MonoTop®-3020	1 component R3 PCC mortar for normal use
SikaEmaco® N 5100 FC	1 component R2 fast hardening fairing coat / levelling mortar
Sikagard®-720 EpoCem®	Dense 3 component R3 PCC mortar with high resistance and protection

\*\* not for spray application

### 3.2 MATERIAL STORAGE



Materials shall be stored properly in undamaged original sealed packaging, in dry cooled conditions. Refer to specific information contained in the product data sheet regarding minimum and maximum storage temperatures.

## 4 EQUIPMENT

### 4.1 MATERIALS

Sufficient quantities Sika® repair materials	Refer to section 11
Sufficient clean water	For mixing 1-component, pre-wetting substrate & cleaning

### 4.2 ESSENTIAL EQUIPMENT

Hand tools	Trowels, floats, brushes for mortar application
Spraying equipment*	Refer to 4.5
Concrete removal	Traditional tools, hammer-drill or suitable mechanical equipment for removing damaged or contaminated concrete (Refer to section 7.1)
Measuring cylinder	For accurate measurement of mixing water
Mixing equipment	Refer to section 4.4
Mixing bowl	Minimum ~18 - 20 litres per 25 kg bag
Sponge or pressurised air (oil free)	Wipe/blow away excess water from substrate
Curing	Membrane or similar to protect fresh mortar
Cleaning	Brush, low pressure water
Waste disposal	For paper bags and excess material
Prewetting	Low pressure water, sponge Birchmeier pump

### 4.3 ADDITIONAL EQUIPMENT

Formwork	To profile application
Sealant	For sealing formwork
Spraying equipment	Mechanical application of mortars
Cleaning Equipment	Suitable for removing corrosion off reinforcement
Suitable profile	For levelling large surfaces

#### 4.4 MIXING EQUIPMENT



Duo Paddle Mixer with two spindle paddles  
medium quantities  
(e.g. Collomix XO-R hand held mixer)



Forced Action Pan/ Compulsory Mixer  
large quantities  
(e.g. PFT Multimix or Collomix XM 2-650)

#### 4.5 SPRAYING EQUIPMENT (IF REQUIRED)

The following spraying equipment can be used for Sika's Ready to Use mortars:

1. Hopper Gun
2. Spiral Pump and Compulsory Mixer
3. Mixing Pump (testing needs to be done first with those machines since mixing time is reduced)

Advantages:


- Constant mortar quality
- Minimal spray mist and Low environmental impact
- High capacity (~60 m delivery length, ~ 20 m delivery head, ~ 20 liter/ minute)
- Small rebound < 10%
- Low disposal costs
- Less surveillance effort

##### 4.5.1 HOPPER GUN (ONLY FOR BONDING PRIMER)

Hopper gun specifications vary; typically a general specification may be as follows.

- Requires independent air compressor (refer to manufacturer's requirements)
- Approximate air flow 2 – 3 bar
- Hopper capacity ~1litre
- Nozzle diameter between 3 times size of largest grain size

The following hopper gun(s) are recommended for use with Sika® ready to use mortar products: SMT-910 ECO

Manufacturer		Spray Machine
Manufacturer 1		Typical Hopper Gun
Name	Putzmeister GmbH	
Address	Max-Eyth-Str. 10 72631 Aichtal Germany	
Telephone	+49-7127-599-0	
Web site	<a href="http://www.putzmeister.com">www.putzmeister.com</a>	

**Table 1** – Local manufacturer of hopper guns \*



#### 4.5.2 SPIRAL PUMP AND COMPULSORY MIXER

There are different types of wet spraying machines to select from. These include:

- Mixing pump
- Rotor Machines
- Screw Pumps
- Piston Pumps
- Double Piston Pumps
- Squeeze Pump

The following two wet spraying machine(s) are examples of pumps that can be used with Sika® ready to use mortar products:

Table 1 – Local manufacturers of wet spraying machines

Manufacturer		Spray Machine
Manufacturer 1		S5
Name	Putzmeister GmbH	
Address	Max-Eyth-Str. 10 72631 Aichtal Germany	
Telephone	+49-7127-599-0	
Web site	<a href="http://www.putzmeister.com">www.putzmeister.com</a>	
Manufacturer 2		Vario-Plus
Name	Wilcowa AG	  + Additional mixer required
Address	Riedthofstrasse 172 8105 Regensdorf Switzerland	
Telephone	+49-7127-599-0	
Web site	<a href="http://www.wilcowa.ch">www.wilcowa.ch</a>	

#### 4.5.3 CONTINUOUS MIXING PUMP

Mixing pumps combine mixing and spraying in one machine. Besides air (compressor) and electricity (power current), water supply to the pump is required. Depending on the material, application and consumption different versions of mixing pumps are possible. Because mixing time is usually reduced, it is important to analyze the sprayed mortar in detail (petrofabric analysis etc.), when first using a mixing pump of a certain manufacturer. Choosing the correct mixing pumps depends on material, ceiling height, dust reduction requirements, material supply (OWC, Bigbag etc.) and pump capacity. One example of mixing pump is the inoCOMB Cabrio 2.0 from Inotec AG (Ask for the Inotec Pump - equipment planer for more information).

Table 2 – Mixing pump from inotec GmbH

Manufacturer		Spray Machine
Manufacturer 1		inoCOMB Cabrio 0.2
Name	Inotec GmbH	
Address	Daimlerstrasse 9-11 79761 Waldshut-Tiengen Schweiz	
Telephone	+49 7741/ 6805666	
Web site	<a href="http://www.inotec-gmbh.com">www.inotec-gmbh.com</a>	
		Sika PumpFix
Name	Sika AG + Inotec GmbH	
Anschrift	Tüffenwies 16 8048 Zürich Schweiz	
Telefon	+41799580981	
Website	<a href="https://che.sika.com/">https://che.sika.com/</a>	

Following repair mortars have been tested with this machine:

- Sika MonoTop®-452 N
- Sika MonoTop®-412 N
- Sika MonoTop®-412 NFG
- Sika MonoTop®-4012
- Sika MonoTop®-723 N
- SikaEmaco S 488
- SikaEmaco S 5400
- SikaEmaco S 5800 DUO

Following tests are recommended for validating new mortars

- Flow Spread (e.g. EN 12350-5 or EN 1015-3)
- Density (e.g. EN 12190)
- Shrinkage (e.g. EN 12617-4)
- Compressive Strength (e.g. EN 12190)
- Water content (Microwave)
- Slump (e.g. EN 12350-2)
- Slump flow (without hits)
- Air void content

#### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

July 2024, V4

N° 850 3201



4.5.4 NOZZLE

The type and size of nozzle varies for different mortar applications and shall be selected depending on the type of mortar to be sprayed. Refer to machine manufacturer’s recommendations.

Nozzles shall be designed for:

- 1. Maximum grain size of mortar
- 2. Admixtures e.g. liquid or fibres
- 3. Continuous control of water: powder mixing ratio (dry process)

There are different types of nozzles for different machines as illustrated in table 5.

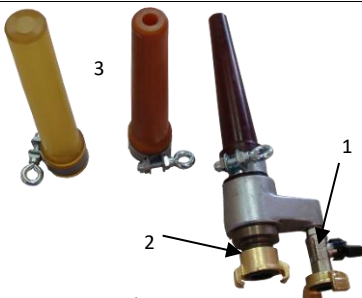
Wet Spraying (repair)	
	
1 compressed air	
2 fresh mortar	
3 Variable size nozzles (diameter: 12 mm)	
Uses	
Repair mortar	
Levelling mortar	

Table 4 – Different types of nozzles

4.5.5 AIR COMPRESSOR EQUIPMENT

Compressed air (> 2 m³/min) is used to project the mortar at high velocity onto the substrate. Refer to the machine manufacturer’s requirements.

Air from the equipment shall be clean, dry and free from oil or contamination.

The air shall remain continuous at not less than the operating pressure and volume rate specified by the machine manufacturer.

## 5 HEALTH AND SAFETY

### 5.1 RISK ASSESSMENT



The risk to health and safety from falling objects or defects in the structure shall be properly assessed.

Platforms and temporary structures shall provide a stable and safe area to work. Do not take any unnecessary risks!

### 5.2 PERSONAL PROTECTION



#### Work Safely!

Handling or processing cement products may generate dust which can cause mechanical irritation to the eyes, skin, nose and throat.

Appropriate eye protection shall be worn at all times while handling and mixing products.

Approved dust masks shall be worn to protect the nose and throat from dust.

Safety shoes, gloves and other appropriate skin protection shall be worn at all times.

Always wash hands with suitable soap after handling products and before food consumption.

FOR DETAILED INFORMATION REFER TO THE MATERIAL SAFETY DATA SHEET

### 5.3 FIRST AID



Seek immediate medical attention in the event of excessive inhalation, ingestion or eye contact causing irritation. Do not induce vomiting unless directed by medical personnel.

Flush eyes with plenty of clean water occasionally lifting upper and lower eyelids. Remove contact lenses immediately. Continue to rinse eye for 10 minutes and then seek medical attention.

Rinse contaminated skin with plenty of water. Remove contaminated clothing and continue to rinse for 10 minutes and seek medical attention.

FOR DETAILED INFORMATION REFER TO THE MATERIAL SAFETY DATA SHEET

## 6 ENVIRONMENT

### 6.1 CLEANING TOOLS / EQUIPMENT

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

### 6.2 WASTE DISPOSAL



Do not empty surplus material into drains. Avoid runoff onto soil or into waterways, drains or sewers. Dispose unwanted material responsibly through licensed waste disposal contractor in accordance with local legislation and/or regional authority requirements.

FOR DETAILED INFORMATION REFER TO THE MATERIAL SAFETY DATA SHEET

## 7 SUBSTRATE PREPARATION

### 7.1 CONCRETE

The concrete substrate shall be thoroughly clean, in a good sound condition and free from dust, loose material, surface contamination and materials which reduce bond. Delaminated, weak, damaged and deteriorated concrete shall be removed by suitable means. If necessary, some sound concrete may also be removed but not to detriment of the structural integrity and only as directed by a Supervising Officer or Qualified Engineer.

Methods of cleaning, roughening and concrete removal are summarised as follows:



■ Intended use

□ For certain intended uses

	Cleaning	Roughening	Removal
Hammer and chisel			■
Breaker (until 15 mm depth)		■	■
<b>Grit and sand blasting</b>	■	■	
<b>Water Cleaning with low pressure (max. 180 bar)</b>	■		
<b>Water Cleaning with high pressure (max. 800 bar, until 2 mm depth)</b>		■	
<b>Water Blasting with high pressure (max.1100 - 2000 bar)</b>			■
Not Suitable:			
Pneumatic devices (hydraulic breaker, pneumatic hammer etc.)		-	
Diamond grinder		-	



Appropriate tool selection will depend on the type and extent of damage as well as the substrate quality and shall be agreed with the Supervising Officer or qualified Engineer.

**Note: Hydro-demolition is a preferred fast and effective method of removing concrete which can result in no micro cracks in the concrete.**

As defined in EN 1504-10, water jet categories are as follows:

- **Low Pressure** – Up to 18 N/mm<sup>2</sup> (MPa) / 180 bar / ~2,600 PSI
  - Used for cleaning concrete and steel substrate
- **High Pressure** – from 18 to 70 N/mm<sup>2</sup> (MPa) / 700 bar / ~10,000 PSI
  - Used for cleaning steel substrate and for removal of concrete
- **Very High Pressure** – from 80 to 120 N/mm<sup>2</sup> (MPa) / 1200 bar / ~17,000 PSI
  - Used for concrete removal when low water volume is available

Where: 1N/mm<sup>2</sup> = 10 bar = 145 PSI (lbs/in<sup>2</sup>)

Concrete removal shall be kept to a minimum and shall not reduce the structural integrity of the structure. Pneumatic equipment or tools which can damage concrete due to an intense vibration shall not be used.

The extent of concrete removal shall be in accordance with the chosen principle and method contained in EN 1504-9.

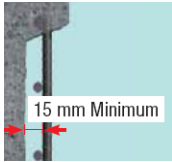
**Depth:** In the case of repair and restoration the depth of contamination shall be established and taken into account when determining the depth of concrete removal.

#### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

July 2024, V4

N° 850 3201



Removal of concrete shall continue to expose full circumference of the steel reinforcement to a minimum depth of 15 mm behind the back of the bars. Remove concrete only until the midway of the rebars, if corrosion appears only on the surface. The rebar doesn't need to be exposed if CP (Cathodic Protection 10.1 in EN 1504) or electrochemical procedures (procedure 7.3 and 7.5 in EN 1504) are to be used. Gravel pockets (honeycombing), detachments, coatings etc. need to be removed (see EN 1504-10 A.3.2.3)

**Length:** Breaking out shall continue along the reinforcement until non-corroded steel is reached as directed by the supervising officer or qualified engineer.



**Edges:** Edges around the patch repair shall be cut at an angle of  $>90^\circ$  to avoid undercutting and a maximum angle of  $135^\circ$  to reduce the possibility of de-bonding.

**Surface texture:** The surface of the concrete substrate shall be roughened to min. 2 mm or to the maximum grain size of the applied product. This reassures bonding which can be tested in accordance with EN 1766: clause 7.2 for horizontal surfaces.

If a smoothing coat is required the whole application surface shall be properly prepared. Appropriate cleaning procedures consist of low pressure water blasting, abrasive grit and sand blasting, or high pressure water blasting to remove a laitance layer.

### 7.1.1 TESTING THE PREPARED SUBSTRATE

Micro cracked or delaminated concrete including damage caused cleaning, roughening or removal techniques shall be removed or repaired if they might reduce bond or structural integrity. Micro cracks can be detected by wetting the surface and allowing it to dry. Dark lines on the dried surface indicate cracks as they retain the water.

The finished surface shall be visually inspected prior to application and can be tapped lightly using a metal hammer to detect delaminated concrete. The supervising officer or qualified engineer shall be informed immediately of any loose, cracked or damaged surfaces. In these circumstances repair materials shall not be applied without prior written consent of the supervising officer or qualified engineer.

## 7.2 STEEL REINFORCEMENT/ REBAR

The steel reinforcement shall be thoroughly clean and free from rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion. Tie wire and nails shall also be removed. Suitable preparation methods for steel reinforcement are high pressure water cleaning, grit or sand blasting. A steel brush is not a suitable method to remove corrosion products from the rebar.



*Figure 1. Substrate preparation by concrete removal with high water pressure and placing of formwork (right)*



The whole circumference of the bar shall be uniformly cleaned, except where structural considerations prevent this. Cleaning shall not damage in anyway the structural integrity of the steel. Immediately notify the supervising officer or qualified engineer if there is a possibility of damaging the steel by cleaning.



- Exposed bars contaminated with chloride or other deleterious material shall be cleaned by low pressure water jet (18 - 70 MPa/ 800 bar/ ~8700 PSI) and checked afterwards to ensure the contamination has been totally removed.
- If a reinforcement corrosion protection layer in the form of an active coating (method 11.1 as defined in the European Standards EN 1504-9) is to be applied, then the steel reinforcement shall be cleaned to Sa 2 defined by ISO 8501-1.
- Cleaned bars shall be protected against further contamination prior to application of a reinforcement corrosion protection layer.



Loss of steel-area on reinforcement due to corrosion, or due to any other damage, shall immediately be brought to the attention of the supervising officer or qualified engineer prior to any further work. Any further action such as replacing reinforcement bars shall only be carried in accordance with the direct instruction of the supervising officer or qualified engineer. The scope of this method statement does not include replacement of steel reinforcement bars.

### 7.3 PRE-WETTING SUBSTRATE



Depending on the water absorbency of the concrete substrate, the surface shall be prewetted and saturated with clean low pressure water or a wet sponge 1 or 3 days in advance. Minimum 2 hours before application a constant prewetting is required, ensuring that all pores and pits are adequately wet. The surface shall not be allowed to dry before application. Otherwise the necessary water the concrete repair mortar needs for hydration could be extracted and the mortar dries out.



Just before application, remove excess water prior to application e.g. using a clean sponge for small areas or air pressure for large areas. Ensure there is no standing water on the surface. The surface shall achieve a dark matt appearance without glistening and surface pores and pits shall not contain water (saturated surface dry). Use pressurised air (oil free) to blow away excess water in difficult to reach areas.

For application in early morning prewet the substrate one day in advance until the capillaries are fully saturated continue the next day (< 2h). A sprinkler system that runs during the night is another option.



*Figure 2 Prewetting with sponge*

### 7.4 FORMWORK (FOR LARGE AREA)



Formwork can be used to regulate the thickness of the application or to re-profile the required shape of the concrete surface. The formwork shall be capable of withstanding the load imposed by the applied mortar.

Formwork shall be clean and fixed in place as soon as possible after the substrate has been prepared. If required, a Sika® Separol® release agent shall be applied to the formwork before placing into position. Do not contaminate the substrate with the release agent and reduce bond of the material from spillage or run-off.

Working areas shall be well illuminated. Adjoining areas shall be adequately protected against overspray.



## 8 MIXING

Do not use water beyond the stated maximum and minimum limits. In determining the mixing ratio the wind strength, humidity, ambient and substrate temperature and required consistency shall be taken into consideration. Only clean and clear water can be used. Don't use regained or treated water. Use the mixing equipment described in section 4.4. Mixing shall always be carried out in accordance with the recommendations contained in the latest product data sheet (PDS). Depending on the mixing equipment, the mixing time may vary.

### 8.1 FOR SPRAYING APPLICATION

#### ➤ SPIRAL PUMP AND COMPULSORY MIXER

The material is premixed by hand or compulsory mixer before it is added in the spiral pump. Use a suitable sized mixer according to demand and application rate of the spray machine. On large applications a pan mixer can be used to mix greater quantities more efficiently. During the application there shall be no interruption in the mortar supply. The pot life of the mortar shall not exceed the time required to apply the mortar on the substrate. Pot life shall be determined by tests on job site according to the ambient temperature and climate conditions.



#### ➤ MIXING PUMP

A mixing pump combines the pumping and the mixing process. Special consideration has to be taken regarding the right water pressure, constant material supply, material temperature, climate conditions etc. Even though the mixing time usually is reduced, when used correctly, a mixing pump can lead to a high quality of the applied mortar.



Figure 3. Inotec mixing pump with dust free material supply in one way containers (OWC)

## 9 APPLICATION

The product and system shall be appropriate for the type of substrate, structure and exposure conditions which are required.

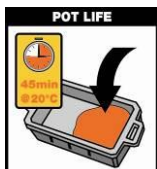
### 9.1 BEFORE APPLICATION



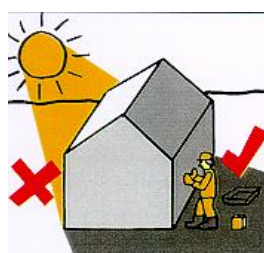
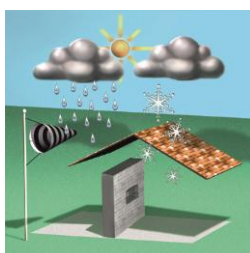
Working space shall be clean and tidy with no obstructions.

Record the substrate, ambient temperature and relative humidity. Check pot life information on the bag or in the product data sheet and allow for climatic conditions e.g. high / low temperatures & humidity. Make sure material is not expired.

External applications shall be adequately protected. Do not apply mortar repair in direct sun, windy, humid or rainy conditions or if there is a risk of frost within 24 hours in unprotected areas.



Calculate the required volume for the application and then using the equation in section 11 of this method statement, calculate the yield of the product. Make sure there is enough material on job site to carry out the work.



### 9.2 REINFORCEMENT CORROSION PROTECTION



Where a reinforcement corrosion protection is required, apply material to the whole circumference of the steel reinforcement bar in two layers. Wait until the first layer has dried before applying the second layer. Use a mirror to inspect behind the back of the bars to ensure full coverage. Take care not to splash or apply material on a dry (not pre-wetted) concrete substrate behind the bars. Refer to the relevant product data sheet for more information. When applying a reinforcement corrosion protection layer ensure the whole circumference of the bar is covered.



Figure 4. Applied corrosion protection SikaTop® Armatec®-110 EpoCem® on steel rebars

### 9.3 BONDING PRIMER



The substrate surface shall be pre-wetted in accordance with section 7.3.

Bonding primers can be applied by hand pressing the material firmly into the surface using a brush or using a hopper gun (see next section) for larger areas.



The following repair mortar shall be applied wet on wet to a bonding primer. Ensure the substrate surface is fully covered behind the reinforcement bars. For large applications use only a bonding primer with long open time e.g. SikaTop® Armatec-110 EpoCem® - refer to product data sheet.

When applying a bonding primer ensure all voids and pits are filled and areas behind reinforcement bars are covered.

#### 9.3.1 HOPPER GUN PROCESS



The pre-mixed quantity of mortar is fed into the hopper. The mortar is conveyed onto a substrate with help of compressed air. Usually a small valve on the air connector is used to regulate the air flow rate. Too little air and the material will “splutter” and not spray adequately. Too much air will produce turbulence in the sprayed material, causing separation of the grains and result in an increase in rebound.

The spray distance from the substrate is dependent on air pressure, nozzle opening size and type of hopper gun. Refer to the machine manufacturer’s instructions before use. As a general rule, set the nozzle opening to two or three times larger than the maximum mortar grain size. Hold the nozzle at 90 degrees and approximately ~100mm to 300mm away from the substrate. It is advisable to test spray an area before starting the main application.





Figure 5. Application of bonding primer Sika MonoTop®-1010 with Hopper gun

#### 9.4 CONCRETE REPAIR / REPROFILING MORTAR

Sika® Repair mortars are well suited for hand and machine application. In general, spray application leads to a denser packed mortar, and therefore usually a higher quality.



Figure 6. Hand applied mortar



Figure 7 Machine applied mortar. More densely packed.

#### 9.4.1 HAND APPLIED REPAIR MORTARS



On a well prepared substrate, the repair mortar shall be pressed firmly or thrown in to the repair area. Ensure all the substrate pores and pits are filled.

Check pot life and adjust as necessary the water to powder ratio to suit temperature and application conditions.



When the repair depth exceeds the maximum layer thickness of the repair material, then layers may be built up on top of one another to increase the overall construction depth. The first layer shall be hardened and exothermic reaction of the material completed. The 1<sup>st</sup> layer shall be at ambient temperature before applying the second layer.



Do not smooth the first layer before applying a second layer. The first layer shall have sufficient roughness to provide a mechanical key for subsequent mortar layers.



Ensure the repair mortar covers the whole circumference of the reinforcement bars and there are no voids left behind the back of the bars.

Finish the surface with a wooden or PVC float. Do not over work the finished surface as this will produce a cement rich surface texture, which may cause the formation of random (crazing) cracking in the surface.



Figure 8. Hand application of repair mortar Sika MonoTop®-4012

#### 9.4.2 SPRAY APPLIED REPAIR MORTARS

Spray application is usually used for high volume application, where it can lead to a much shorter application time and constant quality. Repair mortars may be applied using the wet spray technique. Before using any spray equipment for the first time, always read the manufacturers information before starting.

##### 9.4.2.1 PRE-WET THE MACHINE

Once the machine is set up, the pump, hose and pipe shall be lubricated to prevent suction using SikaPump®-Start-1, a slurry mortar mix or cement. The slurry mix shall not contain too much water to cause sedimentation. Do not spray the lubricating slurry or pre-wetting mixes on the application area.

#### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

July 2024, V4

N° 850 3201

#### 9.4.2.2 SET UP MORTAR CONSISTENCY

Test the mortar consistency on a test area (e.g. a big pot) and perform a slump test. The nozzle shall be directed away from the application area at all times until the mix is correctly adjusted. Allow some repair mortar waste until the material reaches the recommended consistency. When using a mixing pump, take special consideration for the right water pressure.

A high viscous mortar mix can cause the application to slump on the surface. A dry low viscous mortar may not be conveyed by the pump, and it can cause a stoppage. Continue to spray away from the application area until all the lubricating slurry has been emptied from the hose or pipe. Once all the lubricating slurry has been used the main application can begin.

The nozzle operator adjusts the amount of high pressure air required to produce a homogenous mass of mortar on the application substrate. Too much high pressure air will result in an increase of rebound and wasted mortar. Too little air will not provide sufficient compaction of the mortar on the application surface.

#### 9.4.2.3 SPRAYING OPERATION



##### CONTINUING SPRAY APPLICATION

Always maintain a non-interrupted flow of mortar through the pump machine, do not stop-start. If the flow of the spray becomes intermittent, the nozzle shall be directed away from the substrate until the spray becomes constant again. Adjust as necessary the water to powder ratio to suit temperature and application conditions.

##### SPRAYING DISTANCE AND ANGLE

The nozzle shall be held at the correct distance (approx. 20 – 50 cm, the exact distance depends on air pressure, nozzle opening size and type of spraying equipment) and at 90 degrees to the surface. Layers of sprayed mortar shall be built up on the concrete substrate making several passes with the nozzle (circular motion). A free top edge on a thick layer application shall be finished at 45 degrees to the surface. Always use good working practices and nozzle manipulation to apply each layer.

##### SPRAYING MOTION

For vertical, or near vertical applications, spraying shall commence from the bottom up. On curved overhead surfaces mortar shall be applied from the shoulder to the crown. No sprayed mortar shall be applied onto surfaces containing rebound. All rebound material shall be removed from the working area and not re-used.

##### SPRAY AROUND REBARS

When spraying behind steel reinforcement bars the nozzle shall be held closer to the substrate surface at an angle to prevent rebound entrapment behind the bars. The applicator shall ensure the bars are fully encapsulated with no voids left between the bar and substrate.

##### DEFECTS

Pockets, sags or other defects in the sprayed mortar shall be cut out using appropriate method, carefully removed and re-sprayed. It is recommended the area of re-spray shall not be less than 30 x 30 cm.

##### CONDITIONS

Protect the hose or pipe from direct sunlight. If necessary lay a moist material over the top of the hose as protection, and do not allow drying.

#### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

July 2024, V4

N° 850 3201





Figure 9. Spray application of Sika MonoTop®-4012

### 9.5 FINISHING/ PREPAIRING FOR LEVELING MORTAR

If no levelling coat is to be applied on top of the repair mortar refer to section 9.7.1 “Finishing”, otherwise prepare the repair mortar surface with a wooden or PVC float. Do not over work the finished surface as this will produce a cement rich surface texture, which may cause the formation of random (crazing) cracking in the surface. The surface must be rough enough for the following cementitious coat to “claw” itself into the repair mortar ( - the roughness has to be at least the diameter of the maximum grain size of the cementitious coat).

### 9.6 REMOVAL OF FORMWORK

The formwork shall not be removed until sufficient strength has been achieved. This time depends on the material characteristics and climate conditions. As guidance the formwork around a normal setting mortar at 21°C / 55% relative humidity conditions may be removed approximately 12 to 24 hours after application.

Formwork shall only be removed with the agreement of the supervising officer or qualified engineer.

### 9.7 SMOOTHING / LEVELLING MORTARS



Smoothing mortars can be applied by hand, by hopper gun or by mechanical spray equipment for large areas.

A smoothing coat shall be applied over the whole prepared concrete surface (including repair and non-repaired areas). Any laitance layer on the surface shall be removed (section 7.1) and surface pre-wet in accordance with section 7.3.



Wait until the repair material has properly hardened before applying a smoothing coat.

Use a toothed trowel to apply the mortar by hand in a vertical direction onto the surface. Hold the trowel at an acute angle to the surface and use different size toothed trowels to regulate the application thickness. Do not to disturb the mortar bond on the concrete substrate

Toothed Trowel Size	Approximate Application Thickness	
	30°	45°
10 mm	~ 5.0 mm	~ 7.0 mm
5 mm	~ 2.5 mm	~ 3.5 mm
2 mm	~ 1.0 mm	~ 1.5 mm



**Table 1** Approximate application thickness guide



When 1st layer is hard, apply the second layer between the vertical lines. The hardness can be tested by the ease at which a finger nail can be inserted into the mortar. The waiting time between the layers depends on the experience of the applicator.

An alternative is to apply double the thickness with toothed trowels and smooth the surface right away.

Finish surface with damp sponge, wooden or plastic (PVC) float after material has set. Do not apply additional water on or over work the finished surface as this will cause discoloration and random (crazing) cracking.



*Figure 10. Application of Sika MonoTop-3020 by spray and hand application*

### 9.7.1 FINISHING

Finish the surface of with a damp sponge, a wooden or a plastic float after the material has set. Do not add apply additional water on the surface as this will cause discoloration and cracking (see Figure 11 below).



Figure 11. Finishing the levelling mortar Sika MonoTop®-3020 with a sponge

## 9.8 LAYER THICKNESS/ MULTIPLE LAYERS

Do not exceed the specified maximum layer thickness of the repair mortar. When the repair depth exceeds the maximum layer thickness of the repair material, then layers may be built up on top of one another to increase the overall construction depth. The first layer shall be hardened and be at the ambient temperature before applying the second layer (ca. 24 h). Do not smooth the first layer before applying a second layer. The first layer shall be cleaned before applying subsequent mortar layers to remove dirt and loose material. Use adequate water pressure (150 – 200 bar Roloc nozzle) or compressed air. The first layer shall not be damaged.

## 9.9 CURING



Cure with proper curing methods for 3 days or spray with appropriate curing compound (once any surface water has evaporated) or appropriate curing method. Curing methods include jute and water, plastic sheets or other suitable membranes.

The application shall be protected from wind, rain, frost and direct sunlight. The curing period is dependent on climate conditions. In warm temperatures with low humidity the application shall be protected from premature drying.

## 9.10 APPLICATION LIMITS

- Avoid application in direct sun and/or strong winds
- Do not add water over the maximum recommended dosage
- Always check the material's pot life and adjust for climate conditions
- Temperature of the repair mortar and substrate shall not differ significantly
- Where the structure is subject to dynamic loading, it is recommended for overhead applications to use repair systems specially tested for this situation (e.g. Sika MonoTop® 4012)

## 10 INSPECTION, SAMPLING, QUALITY CONTROL

As part of “Good Practice” the contractor shall provide a QC report containing the following recommended data. For more detailed information refer to EN 1504-10 Annex A, or any other local standards or legislation which may apply.

### 10.1 SUBSTRATE QUALITY CONTROL - BEFORE AND AFTER PREPARATION

The following checks should be carried out before and after preparation.

Characteristic	References	Frequency	Parameters
Cleanliness of Concrete	Visual	After preparation & immediately before application	No contamination, loose particles or defects
Cleanliness of Steel Bars	DIN EN ISO 8501-1	After preparation & immediately before application	No rust, scale or contamination. [Grade Sa 2 or SA 2 ½ for methods 11.1 or 11.2]
Delaminating Concrete	Hammer Sounding	After preparation	No delaminating concrete
Roughness	Visual or EN 1766 on horizontal surfaces	After preparation	Minimum roughness 2 mm (repair area) No laitance layer (smoothing mortars)
Surface Tensile Strength of the Substrate	EN 1542	After preparation works	> 1.0 N/mm <sup>2</sup> for structural repair

**Table 2** QC summary before and after preparation

## 10.2 BEFORE, DURING AND AFTER APPLICATION

The following checks should be carried out before during and after the application.

Characteristic	References	Frequency	Parameters
Packaging	Visual	Every bag	No damage
Dry product aspect	Visual	2 bags per 10	Loose, no lumps and not compacted
Mixed material	Visual	Every mix	Homogeneous, no lumps no un-mixed dry powder
Precipitation	Record	During application	Keep records and provide protection
Wind Strength	Record	daily	Less than 8 m/sec or provide protection
Batch Number	Visual	All bags	Keep records
Ambient Temperature	Record	Twice a day	Keep records
Substrate Temperature	Record	Twice a day	Keep records
Material Temperature	Record	Twice a day	Keep records
Water Ratio	Record	All bags	Keep records
Humidity	Record	Twice a day	Keep records

**Table 3** QC summary before during and after application

## 10.3 PERFORMANCE TESTING

The following can be used on job site to check the adequacy of the application.

Characteristic	References	Frequency	Parameters
Compressive Strength on 40x40x160 prisms	EN 12190	3 prisms per batch	Within PDS limits
Cracking	Visual	28 days after application	No cracking on application
Presence of Voids/ Delaminating	EN 12504-1 Hammer sounding or *ultrasonic testing	After application	No delaminating concrete
Adhesion Bond *(pull off) (non-laboratory performance)	EN 1542 (acc. to EN 1504-10 Table A.2)	Min 3 on a test area	1.2 – 1.5 N/mm <sup>2</sup> (Structural use) 0.7 N/mm <sup>2</sup> (non-structural use)

\* Optional testing

**Table 4** QC summary of performance testing



## 11 YIELD & CONSUMPTION

The number of bags required for the work shall be determined by the Contractor. It is the responsibility of the Contractor to have sufficient quantity of mortar on job site to complete the application.

The yield of a product can be determined from the following equation (assuming no wastage).

Equation: 
$$\text{yield (litres)} = \frac{\text{weight of powder (kg)} + \text{weight of water (kg)}}{\text{density of mixture (kg/l)}}$$

Given: weight of water 1 litre = ~1 kg

### Example:

Calculate consumption of a bag weighing 25 kg mixed with 3.6 litres of water, when the density of the fresh material is 2.1 kg/l.

1 bag of 25 kg yields: 
$$\frac{(25 + 3.6)}{2.1} = \sim 13.6 \text{ litres of mortar}$$

Therefore, the number of bags required for 1m<sup>3</sup> of mortar will be:

N° of bags required per 1m<sup>3</sup> = (1/yield) x 1000  
$$(1/13.6) \times 1000 = \sim 74 \text{ bags}$$

Consumption of a product can be calculated as follows:

Calculate how many kg of powder is required to cover a 10 mm thick application over an area 1 m<sup>2</sup> (assuming no wastage)

Weight of mixed mortar (kg) = volume (m<sup>3</sup>) x density (kg/m<sup>3</sup>)  
= (1 x 0.01) x 2100  
= 21 kg (total)

Less weight of water;

If was consumption is 3.6 l / 25 kg 
$$3.6 / 25 \times 100 = 14.5\%$$

If water to powder mixing ratio = 14.5% then;

Required weight of powder = 21 / ((100+14.5)/100)  
= ~ 18.3 kg powder

Water (l)/ (bag (kg) weight of bag (kg)) x 100

### 11.1 FOR SPRAY APPLICATION

The Contractor shall consider when determining the quantity of mortar any adjustments depending on the chosen spray technique. Examples of possible adjustment to the consumption calculation are illustrated in the table below.



Description	Effect on Consumption <sup>(1)</sup>	Example	Adjustment to Consumption Calculation
Substrate Preparation	-ve	Roughened surface	Example: A roughened surface of 2mm requires approximately ~2 kg/m <sup>2</sup> powder
Reinforcement Bars	+ve	Volume of bars reduces application volume	Example 16 diameter bars at 150mm centres in both directions = ~ 6 kg/m <sup>2</sup> less powder
Mortar in Equipment	-ve	Mortar in hose Mortar in pump	Example of hose volume <sup>(3)</sup> Ø50mm x 30m long ~118 kg powder Ø30 mm x 10m long ~14 kg powder
Application	-ve	<sup>(2)</sup> Rebound and Compaction	Example Hopper gun (negligible) Wet spray ~15% (total)
Over Spray	-ve	Sprayed mortar above the minimum required	Example An additional 5mm requires ~10 kg/m <sup>2</sup> powder <sup>(4)</sup>

(1) Negative (-ve) requires more mortar / Positive (+ve) requires less mortar

(2) The total percentage of rebound and compaction is dependent on a number of factors and shall be determined by trials and relevant experience of the Contractor.

(3) Does not consider mortar in pump machine

(4) Does not take into consideration any other effect e.g. rebound, compaction etc.

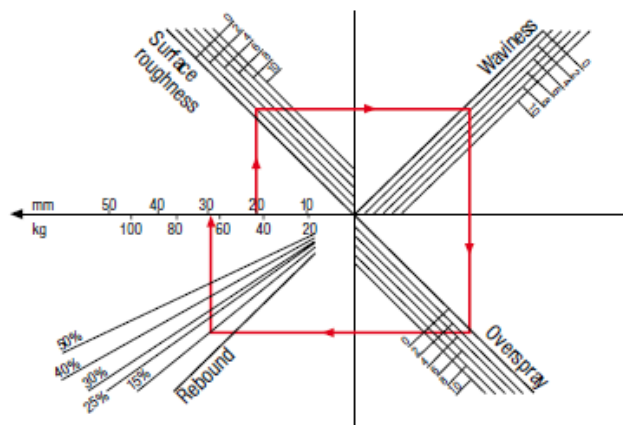
**Table 8** – Example of consumption adjustments

The material consumption graph gives an indication of how much additional material is likely to be required due to surface roughness, waviness, overspray and rebound.

Dry spraying causes a much higher rebound loss, but the pre-wetting and hose cleaning waste from wet spraying can be avoided.

Example: With an intended layer thickness of  $t = 20$  mm, surface roughness of 2 mm, waviness of 2 mm and an overspray of about 1 mm gives a material requirement of around 64 kg/m<sup>2</sup>, assuming rebound of 15 %. With a rebound of 25 % the requirement would be 70 kg/m<sup>2</sup>.

A sensible percentage shall be based on trials or relevant experience for each project.

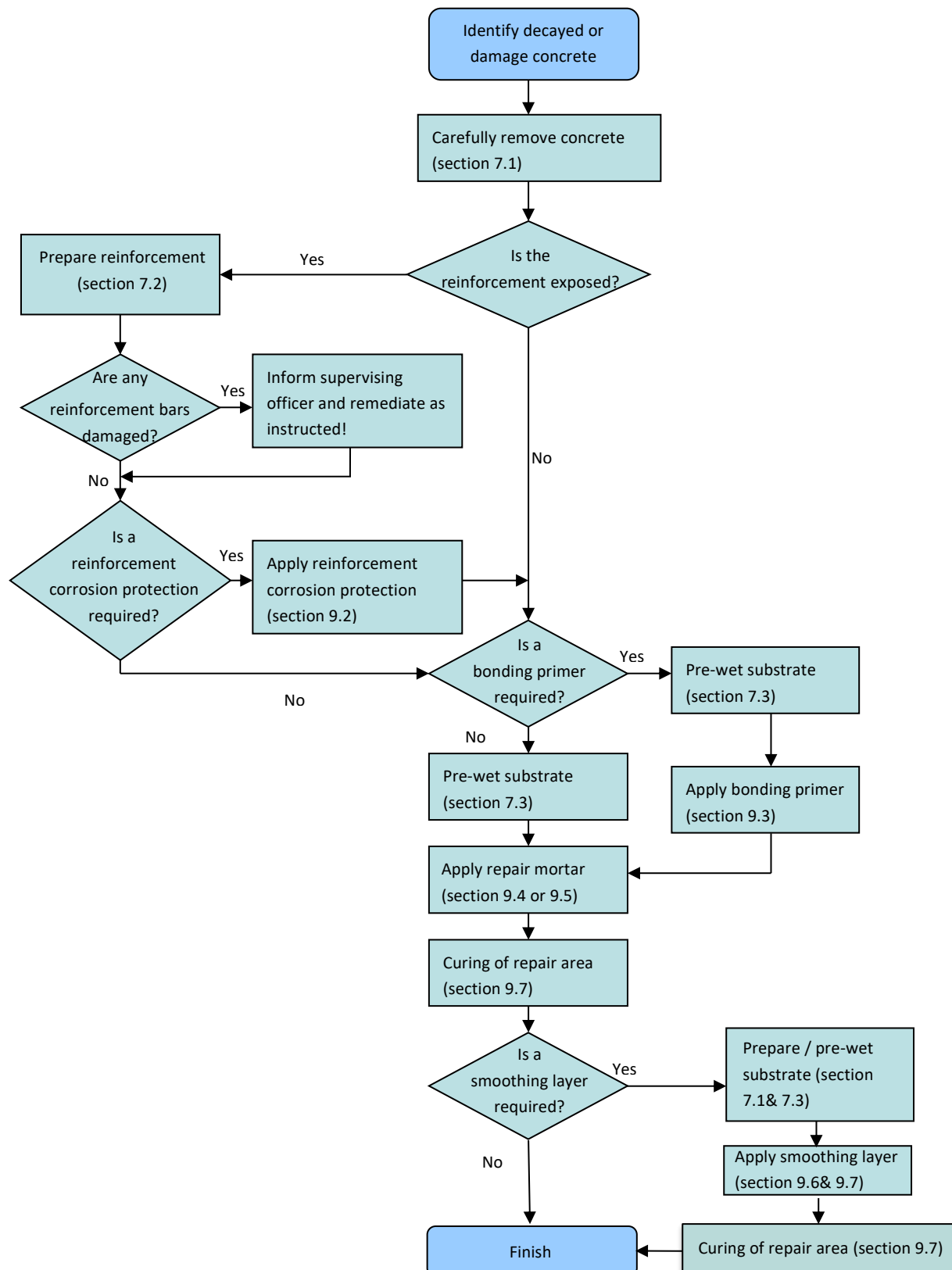


**Note:** The percentage of rebound is dependent on a number of factors including the skill and experience of the operative, the pump pressure, nozzle type and the distance and angle of the nozzle from the substrate (5-20 % wet spray).

Rebound quantities are higher for overhead work than on vertical surfaces. Wastage quantities will also include the cut back from material finishing.

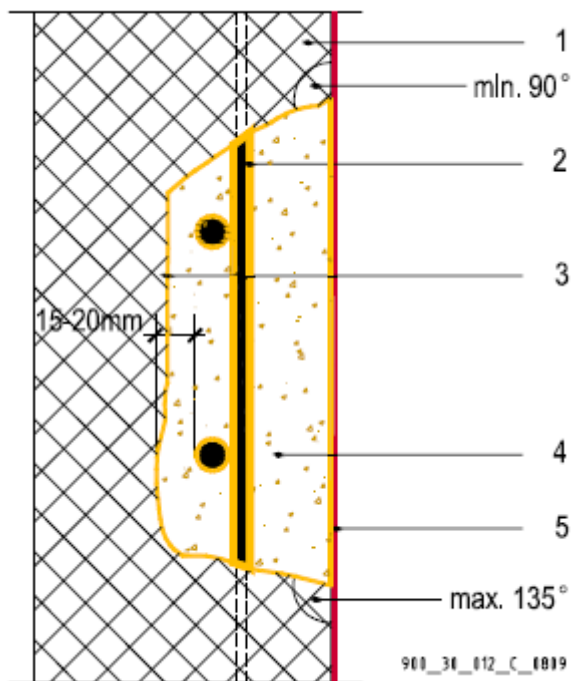
## 12 CONCRETE REPAIR FLOW CHART

The following is a guide of how to carry out a concrete repair. This is not intended as a definitive guide to repair concrete and shall at all times be read in conjunction with all Architect's, Engineer's or specialist specifications together with EN 1504-10, local standards and all relevant product data sheets.



### 13 TYPICAL DRAWING SHOWING SYSTEM BUILD UP

This detail is for illustration purposes only and shall not be used as a construction drawing.



1. Host Concrete structure
2. Reinforcement Corrosion Protection Layer
3. Bonding Primer
4. Repair Mortar
5. Smoothing / Levelling Mortar (optional)

## 14 REDUCING THE RISK OF A BLOCKAGE

The table below illustrates possible causes and suggestions for minimising the risks.

Item	Possible Cause of Blockage	Minimising Risk Action
Pump Machine	<ul style="list-style-type: none"> <li>▪ Maintenance</li> <li>▪ Rust and corrosion</li> <li>▪ Un-clean</li> <li>▪ Incorrect assembly</li> </ul>	<ul style="list-style-type: none"> <li>▪ Service regularly (refer to instructions)</li> <li>▪ Inspect all parts for wear and/or damage</li> <li>▪ Remove all hardened material</li> <li>▪ Assemble in accordance with instructions</li> </ul>
Hose /Pipe and Nozzle	<ul style="list-style-type: none"> <li>▪ No compaction</li> <li>▪ Damaged hoses</li> <li>▪ Kinks and bends</li> <li>▪ Blocked hose</li> <li>▪ Extreme temperatures</li> <li>▪ Suction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Correct nozzle selection</li> <li>▪ Keep two hoses/pipes and nozzles</li> <li>▪ Lay to straight or gentle curves</li> <li>▪ Thoroughly clean hose and nozzle</li> <li>▪ Protect from extreme high/low temperatures</li> <li>▪ Thoroughly pre-wet hose</li> <li>▪ Do not use fast accelerated mortars</li> <li>▪ Use a short length hose (where possible)</li> <li>▪ Use hose with uniform diameter</li> </ul>
Pre-Wetting Hose / Pipe	<ul style="list-style-type: none"> <li>▪ Grains stuck in pump</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sedimentation in slurry</li> <li>▪ Worm too small for maximum grain size</li> </ul>
Pre-Mixed Mortar	<ul style="list-style-type: none"> <li>▪ Large grain size</li> <li>▪ Mortar too dry</li> <li>▪ Lumpy mortar</li> <li>▪ Sedimentation</li> <li>▪ Defective powder</li> <li>▪ Admixtures/fibres</li> <li>▪ Different characteristics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Read spray equipment instructions</li> <li>▪ Read relevant product data sheet</li> <li>▪ Mix mortar 3 minutes until homogeneous</li> <li>▪ Store materials correctly</li> <li>▪ Use Sika compatible admixtures</li> <li>▪ Use consistent mixing ratio</li> </ul>
Climatic Conditions	<ul style="list-style-type: none"> <li>▪ Extreme temperatures</li> <li>▪ Hardening fast</li> <li>▪ Mortar is too viscous</li> </ul>	<ul style="list-style-type: none"> <li>▪ Read mixing instructions in PDS</li> <li>▪ Work at night</li> <li>▪ Check mortar setting time</li> <li>▪ Protect from direct sunlight</li> <li>▪ Protect from rain</li> </ul>
Packaging	<ul style="list-style-type: none"> <li>▪ Contaminating the mix</li> </ul>	<ul style="list-style-type: none"> <li>▪ Take care when opening bags</li> <li>▪ Prevent packaging entering mixing</li> </ul>
Pauses and Breaks	<ul style="list-style-type: none"> <li>▪ Hardening of mortar in machine and pipe</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plan breaks before starting</li> <li>▪ Never leave mixed mortar un-attended</li> <li>▪ Discuss daily spray objectives</li> <li>▪ Keep a continuous flow of material when spraying</li> <li>▪ No stop-starts on application area</li> </ul>
Job Site Contamination	<ul style="list-style-type: none"> <li>▪ Foreign particles</li> <li>▪ Changing products</li> <li>▪ Different mortar characteristics</li> </ul>	<ul style="list-style-type: none"> <li>▪ Protect mixer &amp; pump hopper</li> <li>▪ Clean thoroughly when swapping mortars</li> <li>▪ Do not oil parts in contact with mortar (refer to manufacturer's instructions)</li> </ul>

**Table 7 – Examples of preventing blockages**

## CHECK LIST FOR SPRAY APPLICATIONS (FOR GUIDANCE BUT NOT LIMITED TO ITEMS ON THIS LIST)

**IMPORTANT NOTE** The Contractor is responsible for preparation of the work s,; to ensure the proper functioning and quality of the spray equipment and application .

Job Reference	Telephone N°	Job Reference
Name	Position	Date
<b>HEALTH AND SAFETY</b>		
Risk assessment?	Yes	COMMENT
Personnel protective equipment / first aid?	No	HOSE / PIPE
Cleaning / waste disposal?	Yes	Compatibility e.g. diameter, length?
		Undamaged?
		Lubricating slurry?
<b>GENERAL PLANNING</b>		
Logistics e.g. transport, access etc?	Yes	COMMENT
Contractor' s method statement?	No	NOZZLE
Mortar selection / product data sheet(s)?	Yes	Type?
Application size/ volumes?		Compatibility?
Resources?		Clean?
		Water pressure?
<b>APPLICATION PLANNING</b>		
Working area e.g. clean, illuminated, protected etc?	Yes	COMMENT
Prepared substrate/ reinforcement bars?	No	MIXING (WET SPRAY PROCESS)
Pre-wetting substrate?	Yes	Machine type?
Formwork?		Location?
		Protection e.g. sun, rain etc?
<b>SPRAY MACHINE</b>		
Manufacturer / type?	Yes	COMMENT
Compatibility e.g. mortars, equipment etc?	No	MISCELLANEOUS
Capacity?	Yes	Approvals e.g. Engineer, authority etc?
Clean?		Water supply e.g. pre-wetting, cleaning, mixing?
Working instructions?		Material e.g. storage?
Power?		Tools e.g. equipment, stoppages etc?
Accessories?		Surface finishing?
		Equipment spares e.g. hose, pipe, nozzle etc?
		Curing?

Notes:

Notes:

METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars

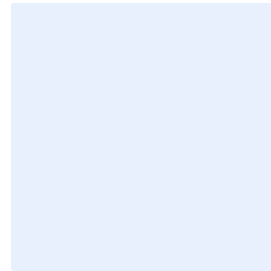
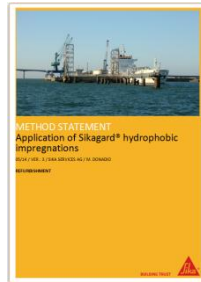
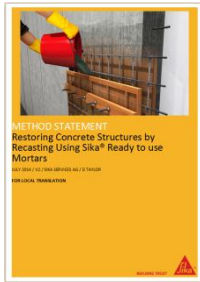
July 2024, V4

N° 850 3201

## 15 LEGAL NOTE

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 products 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.

### FOR MORE INFORMATION:



#### SIKA SERVICES AG

Target Market  
REFURBISHMENT  
Tueffenwies 16  
8048 Zürich  
Switzerland  
[www.sika.com](http://www.sika.com)

#### Version given by

J. Lohner  
Phone: +41 79 91 99 7 11  
[lohner.johannes@ch.sika.com](mailto:lohner.johannes@ch.sika.com)  
R. Störiko-Pasker  
Phone : +49 821 5901357  
[stoeriko-pasker.reinhard@de.sika.com](mailto:stoeriko-pasker.reinhard@de.sika.com)

#### METHOD STATEMENT

Repairing Concrete Using Sika Ready to use Mortars  
July 2024, V4  
N° 850 3201