

Technology and Concepts for the Maintenance and Upgrading of Industrial Facilities



**Ground Water
Protection**

**Secondary
Containment**

Concrete Protection

Joint Sealing

Structural Strengthening

Concrete Repair

Steel Corrosion Protection

**Bonding, Grouting, Fixing
and Anchoring**

Industrial Flooring



Identifying the root causes of damage to provide technically correct solutions for repair and maintenance work

For Industrial Flooring, Bund and Containment Linings:-
Inspection and analysis of substrates and coatings
Bond strength
Defect analysis
Conductivity of antistatic floors
Petrographic analysis
-Proposals for flooring & coating



For Concrete Repair Work:-
Check of substrate conditions on site
Bond strength
Determination of contamination values
Core analyses
- Proposals for repair & protection



For Building Façades Protection:-
Bond strength
Water penetration
Carbonation depth
Determination of mechanical properties
Analysis of physical and chemical characteristics
- Proposals for repair & protection



For Upgrading of Facilities:-
Determination of physical characteristics
Substrate core analysis
Structural assessment calculations
Bond strength
- Proposals for overlaying/strengthening



Maintenance of steel and galvanized steel structures



Problems

Corrosion of all types of steel and galvanized steel structures due to:

- ▲ External Weathering
- ▲ Exposure to waste water
- ▲ Splash zone exposure
- ▲ Condensation exposure
- ▲ Inadequate original coating
- ▲ Mechanical damage to the existing coating
- ▲ Embrittled conventional coatings

Requirements for the maintenance painting system

- ▲ **High corrosion protection**
- ▲ **Good adhesion on existing coating**
- ▲ **Good adhesion directly onto steel and galvanized steel surfaces**
- ▲ **Suitable for use on areas of manual surface preparation**
- ▲ **Easy application**
- ▲ **Minimum number of coats required**

The Sika solution

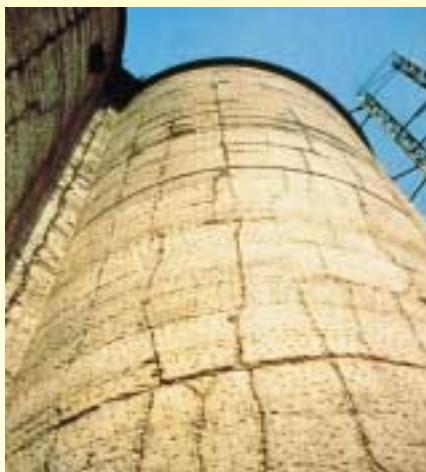
- ▲ Rust removal, substrate preparation Remove grease and oil where necessary
Manual rust removal with wire brush
- ▲ Steel/galvanized steel surface 1–2 coats of **Sika® Icosit® HB-6630**

Professional assessment and testing of the condition of the existing coatings is a prerequisite to durable maintenance painting.

Security with  Systems

For more information on Sika visit www.barbourproductsearch.info

Repair and protection of exposed concrete façades



Problems

- ▲ Carbonation
- ▲ Rust staining
- ▲ De-icing salt or marine chloride
- ▲ Spalling concrete over corroded reinforcement
- ▲ Failed joints
- ▲ Flaking existing coatings
- ▲ Deteriorated and eroded concrete surfaces

Requirements for durable concrete repair and protection

- ▲ Homogeneous replacement of damaged concrete
- ▲ Effective prevention of carbonation
- ▲ Effective prevention of water and chloride penetration
- ▲ Increase in freeze/thaw resistance
- ▲ Maintain each-way water vapour diffusion
- ▲ Ensure adequate movement joint design
- ▲ Provide a wide colour range for design

The Sika solution

- ▲ Rust staining
- ▲ Flaking existing coatings
- ▲ Spalling concrete over corroded reinforcement
- ▲ Deteriorated and eroded concrete surfaces
- ▲ Failed joints

Sikagard® water-repellent impregnations
Sikagard® protective coatings
SikaTop® and **Sika MonoTop**® repair and levelling mortars
SikaCem® and **Sikacrete**® machine applied mortars
Sikaflex® joint sealants

Always ensure that diagnosis is made by a suitably qualified engineer - particularly where there may be structural implications.

Secondary containment of pollutants for ground water protection



Problems

- ▲ Legal liabilities and government legislation
- ▲ Ground water protection zones
- ▲ Aggressive chemicals in storage
- ▲ Effluent containment before and during treatment

Requirements for ground water protection systems

- ▲ **Chemical resistance to the substance stored**
- ▲ **High mechanical strength of the lining**
- ▲ **Crack bridging of the lining in accordance with legislation (i.e German TTV)**
- ▲ **Pore-free system with uniform layer thickness**
- ▲ **Independent testing**



The Sika solutions

- ▲ Substrate Levelling and Moisture Barrier
- ▲ Protective Coatings

Sikafloor® and Sikagard® Epocem

System 1: **Sikagard®-63 N**
System 2: **Sikagard®-255**
Sika Ground Water Protection
Systems 1 to 5

Always ensure thorough survey and diagnosis of the problem before defining the solution

Coating damp and «green» concrete substrates – quickly and reliably



Problems

- ▲ Waiting time on new concrete substrates
- ▲ Concrete substrates on grade or without dpm
- ▲ Wet environments
- ▲ Minimum downtime requirements

Criteria for selection of reliable systems for refurbishment of damp and/or new industrial floors

- ▲ **Moisture tolerant systems**
- ▲ **Definable waiting times before overcoating (not weeks but days)**
- ▲ **No moisture related defects such as debonding, osmosis and blistering**
- ▲ **Concrete repair and protection systems**

Sika systems as solutions for minimal downtime

- | | |
|---|---|
| ▲ Bonding bridge and reinforcement protection | SikaTop®-Armatec 110 EpoCem |
| ▲ Self-levelling mortars with temporary moisture barrier properties | Sikafloor® EpoCem Mortars |
| ▲ Pore filler, protective wall coating with temporary moisture barrier properties | Sikagard®-720 EpoCem
for vertical use |

Always ensure thorough survey and diagnosis of the problem before defining the solution.

Repair, reprofiling and protection of the structural framework



Problems

- ▲ Cracks and spalling concrete
- ▲ Aggressive environment and atmosphere
- ▲ De-icing salt exposure
- ▲ Splash zones for waste water and salt water
- ▲ Mechanical damage
- ▲ Large volume repairs

Requirements for durable concrete repair and protection

- ▲ High performance materials for the anticipated exposure
- ▲ Fast machine application methods
- ▲ Proven protection systems
- ▲ Aesthetic improvement
- ▲ Protect against latent damage



The Sika solutions for quality in concrete repair and protection

- ▲ Corrosion protection, bonding bridge, moisture barrier
- ▲ Machine applied mortars
- ▲ Reprofilling mortars
- ▲ Sealing mortars
- ▲ Corrosion inhibitor
- ▲ Water repellent impregnations

- ▲ Anti Carbonation coatings
- ▲ Dynamically crack-bridging coating

SikaTop®-Armatec 110 EpoCem

SikaCem® Guniting Systems

Sika MonoTop®-612

SikaTop® and EpoCem® Mortars

Sika® Ferrogard® 903

Sikagard®-700 S

Sikagard®-710 W

Sikagard® 670W/680S

Sikagard®-550 W

In the repair and protection of the building framework it is important to ensure diagnosis by a suitably qualified engineer—particularly where there may be structural implications

Lasting joint repair and sealing



Problems

- ▲ Weathered, deteriorated sealants
- ▲ Cracked, embrittled sealant
- ▲ Debonded sealant
- ▲ Torn out, damaged sealant

Requirements for durable joint sealing

- ▲ High weathering resistance
- ▲ Tolerance of climatic changes during application and service
- ▲ Good colour stability (uv)
- ▲ Plasto-elastic stress relieving properties
- ▲ Technically correct joint dimensions
- ▲ High movement capability
- ▲ Ease of application

The Sika solutions for durable jointing

- ▲ Edge and arris repair
- ▲ External joints in concrete and exposed brick-work, i.e. building movement, expansion, isolation and separation joints
- ▲ Leaking, worn joints, i.e. water retaining or containment areas

Sikadur® epoxy mortars
Sikaflex® range of joint sealants

Sikadur-Combiflex®-System

Always ensure structural assessment of the requirements of joint sealing systems.

For more information on Sika visit www.barbourproductsearch.info

Durable repair systems for industrial flooring to maintain performance, safety, hygiene and comfort



Problems

- ▲ Wear, scouring and gouging
- ▲ Blistering and spalling
- ▲ Increasing legislation for safety and/or hygiene
- ▲ Security for continuous operation
- ▲ Colour delineation of different work or traffic areas
- ▲ Uneven leaking joints

Criteria for the selection of an industrial flooring system

- ▲ Type and intensity of mechanical stress
- ▲ Type and duration of chemical load
- ▲ Type and duration of thermal exposure
- ▲ Internal/external use
- ▲ Type of substrate and structure
- ▲ Type of safety and slip resistant characteristics
- ▲ Colour and aesthetic design
- ▲ Maintenance and cleaning requirements



Sika systems as solutions for minimal downtime

▲ Floor Specification

Sikafloor systems:
High load bearing
Electrically conductive/antistatic
Chemically resistant
Slip resistant
Comfortable
Underfoot design options

▲ Joint Details

Rigid or crack-bridging
Sikaflex® and Sikadur-Combiflex®
Joint sealing systems

Always ensure thorough survey and diagnosis of the problem and requirements before defining the solution.

Security with  Systems

For more information on Sika visit www.barbourproductsearch.info

Structural strengthening for increased loading or change of use



Problems

Structural strengthening for:-

- ▲ Change of use
- ▲ Increases in load
- ▲ Installation of heavier machinery
- ▲ Removal of floor sections to make new openings
- ▲ Corrosion of steel reinforcement due to aggressive chemicals
- ▲ Fire and explosion damage
- ▲ Safety of historic timber structures

Criteria for selection of the best strengthening method

- ▲ **Minimum reduction in effective height of structure**
- ▲ **No interference with the existing load-bearing structure**
- ▲ **Short construction and downtimes**
- ▲ **Cost effectiveness**



The Sika solutions for strengthening of reinforced concrete and timber structures

- ▲ Reprofiling of concrete
- ▲ Strengthening system consisting of:
 - Epoxy adhesives
 - Plates and Fabrics

Sikadur® Epoxy Mortars
Sika® CarboDur System

Sikadur®-30 Adhesive
Sika® Carbodur® Plates and SikaWrap® Fabrics

In structural strengthening works it is particularly important to involve an experienced structural engineer familiar with external reinforcement techniques and composite design.

Security with  Systems

For more information on Sika visit www.barbourproductsearch.info

Bedding and grouting of machinery, base plates, stanchions, crane and rail tracks



Problems

- ▲ Vibration dampening
- ▲ Accurate forming and levelling
- ▲ **Bedding** of bearings, machine baseplates and stanchions
- ▲ **Grouting** of anchors and fixings
- ▲ **Filling** of voids, cavities and recesses in the concrete
- ▲ **Structurally connecting:** splice bars, anchors and brackets

Requirements for grout selection

- ▲ **Static and Dynamic Load**
- ▲ **Rate of strength development**
- ▲ **Early and ultimate strength**
- ▲ **Shock and vibration resistance**
- ▲ **Temperature resistance**
- ▲ **Flow characteristics**
- ▲ **Minimum air entrainment**
- ▲ **Maximum bearing surface (minimum voids)**

The Sika solutions for high performance grouting

- ▲ Conventional casting and bedding (rigid)

SikaGrout® 200 series (standard) and **300 series** (high performance)
Cementitious non-shrink grouts

- ▲ For chemical resistance and rapid strength development

Sikadur®-42 Epoxy Grout
Solvent-free pourable epoxy grouting mortar

- ▲ For elastic bedding and grouting, with vibration dampening and acoustic insulation

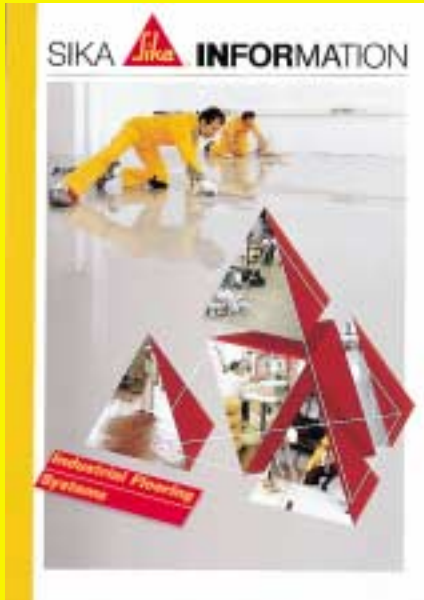
Sika Icosit KC 330/340 Range
Solvent-free polyurethane based specialist applied elastic grouting systems
(For the appropriate selection please contact Sika Technical Dept.)

In many cases structural and especially dynamic loading requirements are overlooked in base plate and other grouting projects – it is essential for a detailed structural assessment and specification to achieve durability. This should include the requirement for static and dynamic loading, bond area, allowable void content, application conditions, and maximum allowable shrinkage.

For more information on Sika visit www.barbourproductsearch.info

Technology and Concepts for the Maintenance and Upgrading of Industrial Facilities

Technical Information



Sika Information:
Industrial Flooring and Ground Water
Protection Systems



Sika Information:
Sika in Water and Waste Water
Treatment

Specific System Documentation



Sika® Carbodur®
Structural
Strengthening Systems



SikaWrap® Fabric
Strengthening Systems



Sika® Concrete
Repair and Protection
systems



Sika® Machine
Applied Mortars



Sika® FerroGard® 903
Corrosion Inhibitor

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CONSTRUCTION

www.sika.co.uk



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