SIKA AT WORK
INDUSTRIAL FLOORING SOLUTIONS IN LATIN AMERICA
CASE STUDIES 2012
VOLKSWAGEN ARGENTINA

PROJECT DESCRIPTION
The Volkswagen group is one of the leading automotive groups in the world. The group is composed of twelve brands: Volkswagen, Audi, Seat, Škoda, Porsche, Ducati, MAN SE, Bentley, Bugatti, Lamborghini, Volkswagen commercial vehicles and Scania AB. The group operates in 99 production plants in eighteen European countries and in nine other countries in America, Asia and Africa.

Volkswagen started its Argentinian operations in the mid 1980s and by 1994 the company took a decisive and bold step: to build a New Industrial Center equipped with the most advanced technological means. Volkswagen Argentina has thus the possibility of open up decisively to Mercosur and the world, as vehicles with the most demanding quality standards in the world could now be produced. These values include, additionally to the export of vehicles produced in the Pacheco Industrial Center (Buenos Aires province, where the Amarok pick-up truck and the new Suran are produced), the shipment of gearboxes produced in the province of Córdoba to different countries such as Germany, Spain, Brazil and Mexico among others.

PROJECT REQUIREMENTS
In different stages throughout these years, the Volkswagen floors have been requiring solutions according to the challenges and needs which were raised, whether in new projects (such as the then new Amarok pick-up truck assembly line, with over 7,000 m² of the Sikafloor® N PurCem® range in aisles, and Sikafloor®-82 EpoCem® + Sikafloor®-263 SL in the production bays; or the new production plant for gearboxes MQ200 – MQ250 in Córdoba where over 5,000 m² of Sikafloor®-325 were placed, or the new paint mixing chamber where solvent based raw materials are handled, which required having conductive coatings to eliminate the fire and/or explosion hazard caused by the possible static electricity discharge which could occur, and where the Sikafloor®-390 A5 system was used.

SIKA SOLUTIONS
Working jointly with the Volkswagen Planning, Engineer-
ing or Maintenance personnel, solutions according to each of their needs have been specified for over 30,000 m² of floors installed in these years.

Various systems have been laid in both Industrial Centers and in specific areas of those centers, for which reason the solutions have been varied, but all of them under the demanding conditions of intensive use for this type of industry.

PRODUCTS USED:

<table>
<thead>
<tr>
<th>ProducTS Used</th>
<th>SikaFloor®-82 EpoCem®</th>
<th>SikaFloor®-390 AS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SikaFloor®-161</td>
<td>SikaFloor®-363 AR</td>
</tr>
<tr>
<td></td>
<td>SikaFloor®-263SL</td>
<td>Sika Primer</td>
</tr>
<tr>
<td></td>
<td>SikaFloor®-21N PurCem®</td>
<td>Sikaflex®-Pro 3 WF</td>
</tr>
<tr>
<td></td>
<td>SikaFloor®-325</td>
<td>Sikaguard® Acryl</td>
</tr>
<tr>
<td></td>
<td>SikaFloor®-220 W</td>
<td>Sikadur® 32 Gel</td>
</tr>
<tr>
<td></td>
<td>SikaGrout®-212</td>
<td></td>
</tr>
</tbody>
</table>

PARTICIPANTS
Client: Volkswagen Argentina
Area: Over 30,000 m² installed
CARDIOZENTRUM (CARDIAC CENTER), BOLIVIA

PROJECT DESCRIPTION
The Cardiozentrum cardiac center has its premises in the city of La Paz, in the Obrajes area. Their infrastructure resulted too small for the patient demand this institution has, and additionally, the owners need greater space to install new machinery destined to health care in the cardiac specialty. Consequently, they expanded their premises building a 6 story block building to provide better care for their patients.

PROJECT REQUIREMENTS
The cardiac center, being a health care and preservation institution has as its main requirements that the finishes of their installations are durable, impermeable, without joints where dust can accumulate, and made of a material of fast and easy cleaning. The surfaces to be coated are 420 m² of floors and 1,300 m² of walls and ceilings.

SIKA SOLUTIONS
For finishes, the products used were Sikafloor®-161 as epoxy primer, Sikafloor®-263 SL in RAL 9001 as smooth, anti-slip epoxy screed in 1.2 mm thick with the addition of Sikadur®-504 Filler into the screed. For the coating of walls, the product used was Sikafloor®-2430 CL in RAL 9016.
PRODUCTS USED

Sikafloor®-161
Sikafloor®-263 SL RAL 9001
Filler Sikadur®-504
Sikafloor®-2430 CL RAL 9016

PARTICIPANTS
Customer: PFM Bolivia
Contractor: Luis Saire
Area: Floors 420 m² and walls 1,300 m²
Zf sistemas de direção LTDA., betim-mg, brazil

Project Description
The ZF Group has 119 units in 25 countries and over 57,000 employees worldwide, earning the confidence of the automotive industry as a whole, and becoming one of the main partners and one of the 15 largest global suppliers of the industry. In these 90 years of history, ZF has developed new products and technologies which revolutionize the market as which are present all over the world, always keeping the progress of the automotive industry in mind, which is increasing its demand for innovations. The recognition of this brilliant track record allows them to win large customers in every segment of the company, reaching some of the most important, passenger vehicles, buses and clutches, trucks, marine, aerial and such as agriculture. ZF sistemas de direção built a plant in Betim, Belo Horizonte to produce power steering systems, and the ZF Group in Germany, based on their experience with Sikafloor® specified the self-leveling epoxy screed in 3 mm in light grey color (RAL 7035) for the 6,400 m².

Project Requirements
- Self-leveling epoxy – 3 mm
- Good mechanical and chemical resistance
- Good abrasion resistance
- Good aesthetic finish
- Easy cleaning
- Low maintenance

Sika Solutions
The solution proposed by the contractor CAD Engenharia was to prepare the concrete floor mechanically using a gentle scarifier (CSP 4) to remove the cement laitance and the liquid hardener from the surface and obtain a textured surface. The main challenge was to prepare the concrete surface avoiding

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the appearance of the steel fibers on the surface. Field tests were carried out to evaluate the degree of surface scarification, the consumption of the epoxy primer Sikafloor®-161 and the aesthetic finish of Sikafloor®-264 RAL 7035 in 3 mm as self-leveling epoxy screed. The results of the preliminary tests showed the need to apply two layers of the epoxy primer on the scarified concrete surface, the first coat of Sikafloor®-161 (0.5 kg/m²) and the second coat of Sikafloor®-264 (0.5 kg/m²) and the final layer of 3mm thick of Sikafloor®-264 + Sikadur®-504 quartz sand (1:1) by weight, consuming 6 kg/m². The movement joints had the polyurethane sealant Sikaflex® Pro 3 WF applied.

**PRODUCTS USED**

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikafloor®-161</td>
<td>1,095 kg</td>
</tr>
<tr>
<td>Sikafloor®-264</td>
<td>18,255 kg</td>
</tr>
<tr>
<td>Sikadur®-504</td>
<td>19,175 kg</td>
</tr>
<tr>
<td>Sikaflex® Pro 3 – 5</td>
<td>84 kg</td>
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</table>

**PARTICIPANTS**

**Customer:** ZF Sistemas de Direção Ltda.  
**Contractor:** CAD Engenharia  
**Area:** 6,400 m²
INDUSTRIAS HACEB, FLOOR LEVELLING, COLOMBIA

PROJECT DESCRIPTION
Industrias Haceb, founded in 1940, is a company devoted to the production of commercial and domestic heating and refrigerating equipment. Its main office is in Copacabana, Antioquia and from there it supplies the local market, where it is the leader in the white line appliances, and more than 11 countries in Central and Latin America.

In 2008 the construction of a new refrigerator plant was started, with the latest technology, emphasizing innovation, environmental care, productivity and energy savings, which allowed its consolidation in the local segment and its projection abroad.

PROJECT REQUIREMENTS
In the extension and construction of the new plant in Copacabana, many flooring areas did not receive any type of finish, as they are part of an area reserved for future expansions. Due to the annual growth of the company, these areas were put into service earlier than expected, without the proper preparation and conditioning of the concrete floor. This produced operating difficulties, because as the floor was not leveled, it caused the fall of finished products, difficulties in the movement of raw materials, damages to the vehicles used and high amount of dust generation. These reasons made it necessary for them to find a solution with the following characteristics:

- Floor leveling
- Low thickness
- High bond strength
- Low weight
- High mechanical resistance
- Decrease in the dust generation
- Maintenance free
- Fast commissioning
**SIKA SOLUTIONS**
Based on the experience of leveling over 10'000 m² in the brewery industry, approximately 4,000 m² were addressed in the production and storage areas in Haceb. The proposed solution included the preparation of the surface by means of a high pressure water jet to eliminate the surface laitance, priming with Sikafloor®-156 CO, and the application of Sikafloor®-Level 25, a polymer modified cementitious self levelling screed designed for leveling areas requiring high performance in small thickness, with high mechanical resistance. The average thickness applied was 6 mm. The result: a high performance floor, finished in a short time, which allow to keep the available height in the plant, improving the productivity with allowed the complete elimination of the falling of products and dust generation.

**PRODUCTS USED**

<table>
<thead>
<tr>
<th>Product</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikafloor®-156</td>
<td>1,200 kg</td>
</tr>
<tr>
<td>Sikadur®-510</td>
<td>6,000 kg</td>
</tr>
<tr>
<td>Sikafloor®-Level 25</td>
<td>64'800 kg</td>
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**PARTICIPANTS**
Customer: Haceb
Engineering office of Industrials Haceb in design and construction: Eng. Alex Romero and Juan Carlos Ortiz
TAX WAREHOUSE FOR SUPHARMA MENARINI PHARMACEUTICALS – AMATITLÁN, GUATEMALA

PROJECT DESCRIPTION
Menarini is a pharmaceutical company of Italian origin, which has its pharmaceutical storage warehouse in the municipality of Amatitlán, some 30 km. from Guatemala City. For health and safety requirements and the nature of the products stored in the warehouse it was required that there be no joints on the surface where the boxes and pallets would rest. By eliminating the joints, the possibility of plagues, moisture, dirt accumulation and fungi is eliminated.

PROJECT REQUIREMENTS
The warehouse for storage of pharmaceuticals need:

- Repair of chipped joint edges
- Aseptic, long lasting and easy to clean floor coating
- Coating resistant to traffic
- Elimination of joints
SIKA SOLUTIONS
Repair of the chipped joint edges with Sikadur®-22 Lo Mod Sikafloor®-156 (120 kg) mixed with sand was applied to seal the joints. The epoxy system Sikafloor®-207 (420 kg) with Sikafloor®-EpoxyColor pigment in light grey color, was applied in the production areas to achieve a light colored surface in 600,00.

PRODUCTS USED

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Sikafloor®-156</td>
<td>270 kg</td>
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<tr>
<td>Sikafloor®-207</td>
<td>328 kg</td>
</tr>
<tr>
<td>Sikadur®-22 Lo Mod</td>
<td>18 kg</td>
</tr>
<tr>
<td>Sikafloor®-EpoxyColor light gray</td>
<td>25.65 kg</td>
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<tr>
<td>Sikadur®-Arena Fina</td>
<td>360 kg</td>
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</table>

PARTICIPANTS
Contractor: Lic. Oscar Portillo
Specialist contractor: Codirsa
Sika advisor: Eng. Carlos Rojas
PROJECT DESCRIPTION
WOCO is a company specializing in the production of injection plastic parts for the automotive industry, with world headquarters in Bad Soden-Salmünster, Germany. At present, they have a production plant in the Parque Industrial Bernardo Quintana in the city of Querétaro. It is Woco’s mission statement to serve their customers worldwide with standardized processes which also strictly observe the local regulations and standards.

PROJECT REQUIREMENTS
The customer requires high cleanliness standards, making it necessary to apply systems which prevent the accumulation of dust and which also have good resistance against heavy traffic (fork lifts and hard wheeled carts, etc.). Additionally, in some areas, a system which also works as a moisture barrier on green concrete, to receive the epoxy finish, is also necessary. The customer requires clean rooms and flooring systems which prevent dust accumulation due to static charge, as well as a protective concrete coating for the warehouse areas.
SIKA SOLUTIONS
Various systems were proposed, based on high quality and performance, 100% solids epoxy resins, with different characteristics depending on the areas, with the intention of providing the following benefits: easy cleaning, abrasion resistance, electrostatic conductivity and heavy traffic, reduction of dust accumulation on the surfaces and a homogeneous surface.

Product characteristics: Sikafloor®-262 AS, is a self-leveling conductive system with great durability and glossy finish. The system composed of Sikafloor®-207 + Sikafloor®-EpoxyColor and a wearing coat of Sikafloor®-Uretano Premium, is a high abrasion and chemical resistance system.

PRODUCTS USED:

<table>
<thead>
<tr>
<th>Product</th>
<th>Area</th>
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</thead>
<tbody>
<tr>
<td>Sikafloor®-220W</td>
<td>1,300 m²</td>
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<tr>
<td>Sikafloor®-262 AS</td>
<td>1,300 m²</td>
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<tr>
<td>Sikafloor®-207</td>
<td>3,500 m²</td>
</tr>
<tr>
<td>Sikafloor®-EpoxyColor</td>
<td>3,500 m²</td>
</tr>
<tr>
<td>Sikafloor®-Uretano Premium</td>
<td>3,350 m²</td>
</tr>
<tr>
<td>Sikafloor® 81 EpoCem®</td>
<td>100 m²</td>
</tr>
</tbody>
</table>

PARTICIPANTS
Sika advisor: Carlos Iván Silva
Contractor: Comercializadora Industrial Riojas
Customer: Woco Tech de México S.A. de C.V.
Area applied: 4,650 m²


PROJECT DESCRIPTION
In Panama, there are various supermarket chains which, additionally to their activity of supplying foodstuffs and household items, also have their own agro-industrial plants, distribution centers, bakeries, butcherries and the like.

The leading supermarket chains nationally are, at present, in an expansion process. Their expansion plans contemplate the building of new outlets, refurbishment and upgrade of the existing outlets, as well as the expansion and construction of their food processing plants, towards achieving the highest quality and hygienic standards in fulfillment of the ISO norms. In the last two years, approximately 3,100 m² of cold stores, blast freezers and food processing areas have been built, refurbished and upgraded, and all of them applied by the company Servicios y Ventas Barranco.

It is expected that in the next two years approximately 12,000 m² of floors in similar areas will be done.

PROJECT REQUIREMENTS
- Protection of the new and existing concrete surface, against chemical, physical and mechanical aggression caused by the production processes
- Screed resistant to low temperatures -30°C and high temperatures up to +70°C
- Durable, anti-slip and hygienic screed
- Fulfilling the health and safety standards
- Covings and gullies or drains with hygienic and chemical resistant properties
- Solvent free products, quick commissioning and easy maintenance

SIKA SOLUTIONS
The solution proposed is to place Sikafloor®-PurCem® system as follows:
- Sikafloor®-20N PurCem® in thicknesses of 6 – 9 mm depending on the conditions of the specific area where it would be placed
- Sikafloor®-29N PurCem® in covings and drains
- Sikafloor®-31N PurCem® as seal coat

The complete system was applied in light grey.
PRODUCTS USED

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikafloor®-20N PurCem®</td>
<td>41,065.92 kg</td>
</tr>
<tr>
<td>Sikafloor®-29N PurCem®</td>
<td>2,424.96 kg</td>
</tr>
<tr>
<td>Sikafloor®-31N PurCem®</td>
<td>3,880 kg</td>
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</table>

PARTICIPANTS

Contractor: Impermeabilizaciones Barranco Panamá
Customer: Industria cárnica Panamá
Applied area: 4,500 m² approximately
PILI, S.A., URUGUAY

PROJECT DESCRIPTION
PILI is a renowned company in the dairy industry, founded in 1962 in the city of Paysandú, in the western coast of Uruguay. The production of the company is oriented both for internal market as well as for export.

Since its beginnings it has a plant located in a central area of the city, and the majority of the milk it receives in it, is destined for the production of cheese and butter.

The growth of the dairy market, the impossibility to expand the original plant, their own requirements and the national and international standards for this type of industry, motivated the decision to build a new plant in Pueblo Esperanza (Paysandú department) destined to the production of powdered milk. This project includes the execution of 2,000 m² of floors, divided between production areas (wet processes) and service areas such as laboratories and changing rooms.

PROJECT REQUIREMENTS
- Mechanical
- Resistance against wear caused by forklift and cart traffic
- Resistance to impact of falling tools
- Chemical
- Resistance to lactic acid
- Thermal
- Resistance to hot water and steam at temperatures of approximately 90ºC
- Aesthetic, Hygienic and Safety
- Anti-slip surface when wet or with fatty residue due to the wet industrial processes
- Sealed surfaces without pores or pin-holes where germs could develop
- Easy to clean hygienic finish
- Standards
- National standards
- International standards
SIKA SOLUTIONS

To satisfy the requirements and depending on the use of the various areas, different systems based on PurCem® technology of polyurethane modified cement mortars and polyurethane based finishing coats were proposed, which allow the achievement of:

- Aesthetical finishes
- Easy cleanability
- Required thicknesses
- Mechanical, chemical and thermal resistances which have the international approval of:
  - Department of Canadian Food Specifications
  - British Standard Specifications (BSS)

Prior to the application of the finishing coatings, a reinforced concrete slab was laid as the base for the overcoating systems and a vapor barrier, formed by a polyethylene film 200 microns thick.

PRODUCTS USED

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Area Covered</th>
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<tbody>
<tr>
<td>Sikafloor®-19N PurCem® (antisip)</td>
<td>1,200 m²</td>
</tr>
<tr>
<td>Sikafloor®-21N PurCem® (self-leveling)</td>
<td>145 m²</td>
</tr>
<tr>
<td>Sikafloor®-10AR PurCem®</td>
<td>600 m²</td>
</tr>
<tr>
<td>Sikafloor®-29N PurCem®</td>
<td>600 m²</td>
</tr>
<tr>
<td>Sikafloor®-31N PurCem®</td>
<td>800 m²</td>
</tr>
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PARTICIPANTS

Responsible technician: Eng. José Zorrilla
(Constructora Santa María)

Contractor: A & B Construcciones.
LÁBORATORIOS VARGAS, CARACAS, VENEZUELA

PROJECT DESCRIPTION
Laboratorios Vargas is a Venezuelan pharmaceutical company based in Caracas. It belongs to the Vargas Group which owns other pharmaceutical companies and also cosmetics, sporting goods and tourism companies.

Their origins date back to 1838 with the inauguration of the Botica Central, owned by the pharmacist Wilhem Sturup. In 1890, Sturup’s grandson and also pharmacist, Guillermo Valentiner becomes partner of the Botica Central, transforming it into a pharmaceutical distributor called Droguería Nacional. Since 1928 it began to represent some transnational companies for the sale of its products, but during the Second World War, the government of Eleazar López Contreras put a limit to the companies belonging to Germans in Venezuela, and thus the company had to close its operations. In 1946 it is newly established under the name of Vargas S.A., in honor of the Doctor and president of Venezuela José María Vargas.

In 1955 the present Laboratorios Vargas is founded, in charge the production of pharmaceuticals. Currently, it produces some 100 own products, and reaches 950 products if the ones from non Venezuelan companies are included.

PROJECT REQUIREMENTS
- Areas devoted to handling of medicines
- Protection of floors in dry areas and of high hygiene
- Service temperature: 20°C
- Placement into service 7 days
- Re-painting of all the production and laboratory areas
- Smooth finish
- Chemical resistance to the production process from the laboratory
SIKA SOLUTIONS
According to the customer’s needs to maintain high hygienic levels and quality standards, an annual maintenance (re-paint) schedule has been arranged, which has been going on for the past three years with a product consumption for 13,000 m² approximately.

The proposal consisted of a substrate preparation, followed by sealing the whole substrate with the application of an epoxy screed with Sikafloor®-261 filled with Colma 200 sand. Subsequently the Sikafloor®-261 is used for this floor. Joints were sealed with Sikaflex® Construction. At present we are working with the customer for the maintenance coat for December 2012.

PRODUCTS USED:

<table>
<thead>
<tr>
<th>Product</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikafloor®-261 CO Grey RAL 7035</td>
<td>855</td>
</tr>
<tr>
<td>Sikaflex® Construction</td>
<td>1,200</td>
</tr>
</tbody>
</table>

PARTICIPANTS
Company: Laboratorios Vargas
Customer: Laboratorios Vargas
Sika Advisor: Yurkelis Polanco
Specialist contractor: Ponceleón, Mantenimiento y asociados, CA
Area: 13,000 m²
INDUSTRIAL FLOORING SOLUTIONS IN LATIN AMERICA

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.

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