

SIKA AT WORK

HABOM HANGAR OF TURKISH AIRLINES, ISTANBUL, TURKEY

SUSTAINABLE FLOORING SOLUTION

BUILDING TRUST



SIKA FLOORING SOLUTIONS

Sustainable Solutions measured by Life Cycle Assessment (LCA)

PROJECT DESCRIPTION

The Aviation Maintenance, Repair and Overhaul Center (HABOM) of Turkish Airlines has been built in Istanbul, Turkey, with a total area of 40,000 m². The customer, Turkish Airlines, was looking for a durable, high-performance flooring solution, therefore Sika offered a Sikafloor®-21 PurCem flooring system.

PROJECT REQUIREMENT

The customer was very interested in details regarding durability, performance, especially on benefits the system could bring in the use phase, namely cleaning and maintenance. In order to demonstrate the benefits of the specified Sika flooring system from a holistic approach, Sika Turkey opted to complement the technical information with an environmental evaluation of the system.

SIKA'S SUSTAINABLE APPROACH

To evaluate and compare the specified Sikafloor®-21 PurCem flooring system with ceramic tiles, which are typically applied in industrial areas in Turkey, a Life Cycle Assessment (LCA) was used. The LCA is cradle to grave for the total area of the flooring system, which means the LCA investigates the potential environmental impacts of the flooring system from

raw material acquisition and processing to manufacturing of the product, use phase scenario (including maintenance and refurbishment) and disposal at the end-of-life.

TECHNICAL SOLUTION:

- **Substrate:** Slab concrete
- **Flooring:** Sikafloor®-21 PurCem (4.5 mm)

Sika's Global Product Sustainability Group performed a LCA of the two following floorings solutions for a period of 20 years. During that 20 year period, the system with ceramic tiles is replaced completely (typical life time of ceramic tiles in the Turkish market is expected to be 10 years). Maintenance of the two flooring systems is also considered, including water, cleaning agents and energy for the cleaning machines.

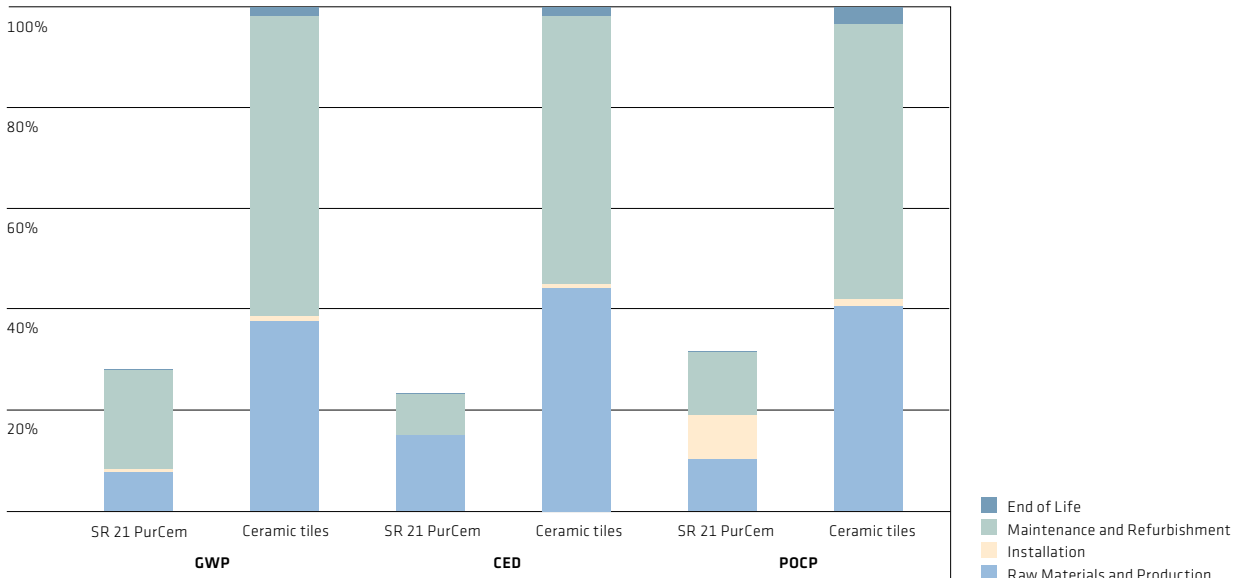
RESULTS OF ENVIRONMENTAL EVALUATION

For the project area and the 20 year period, the Sikafloor®-21 PurCem flooring system has significantly lower impacts when compared to the ceramic tiles. In terms of relevant environmental indicators such as, Carbon Footprint (GWP), Energy Footprint (CED) and Summer Smog potential (POCP), Sikafloor®-21 PurCem has significantly lower environmental impacts.



Flooring System	Adhesive [kg/m ²]		Primer [kg/m ²]		Wearing Course [kg/m ²]	
Sikafloor®-21 PurCem (4.5 mm)	None	0	Primer	2.9	Base coat	4.7
Ceramic tiles	Cement	3	None	0	Ceramic tiles	47

ENVIRONMENTAL IMPACTS FOR THE HABOM HANGAR FLOORING SYSTEM [40,000 M²] FOR A 20 YEAR LIFESPAN



Sikafloor®-21 PurCem is a solution that has not only a considerably lower environmental footprint during the production phase compared with ceramic tiles, but it is also a solution that due to its high durability improves the environmental performance of the flooring system throughout the whole lifespan.

INVESTING IN SUSTAINABLE SOLUTIONS

Sika contributes to sustainable construction by offering durable and application friendly solutions to our customers. Applying a high quality Sikafloor®-21 PurCem brings several benefits:

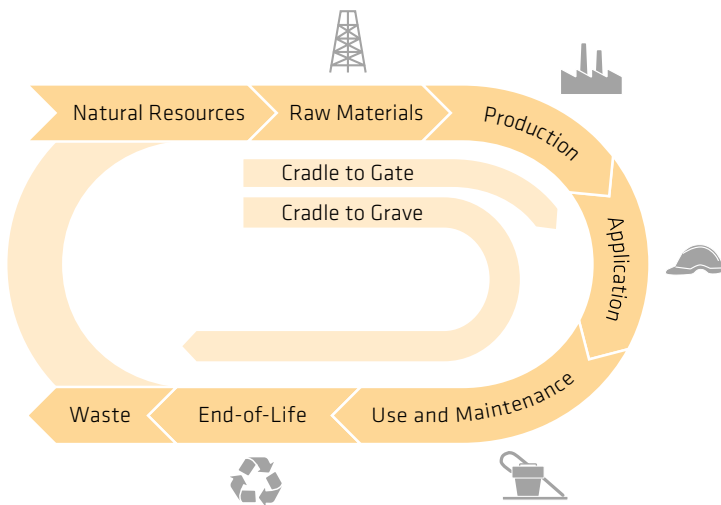
- **Proven Performance** the system has been successfully installed around the world for decades and continues to give high performance. This is a key driver for the environmental and operational aspects of the building. Specific to the aircraft hangar buildings the system accommodates to all of various stresses and exposures, including thermal variations, traffic impact, mechanical and chemical exposure.
- **Wide application range:** the system can be installed in various types of manufacturing areas including chemical plants, laboratories, workshops, food and beverage industries. The system offers high durability in areas subjected to heavy loading, abrasion and high chemical exposure. Besides, it is suitable for thermal shock areas, as it performs and maintains its physical characteristics through a wide temperature range and acidic environments.
- **Easy maintenance:** due to its seamless surface, the system provides an advantageous solution without joints that could be the source of degradation or hygiene risk. This character-

istic makes it much easier to clean than any flooring system with joints such as the case with tiled flooring system.

- **Solvent free:** the system is a solvent free solution, which improves health and safety conditions during the floor installation process. Furthermore, this feature allows application in close proximity to on-going production process areas, enabling the repair and renovation of existing floors without interrupting the plant or production lines.
- **Cost effective:** Due to the high durability of the system, operational costs during the use phase of the building can be reduced, namely material costs, labor costs and application time. The frequency of replacement is lower than alternative technologies available in the Turkish market.
- **Excellent environmental profile:** the system bears significantly less environmental impacts, namely a low Carbon and Energy Footprint compared to alternative flooring solutions.

The results demonstrate Sika's competence and expertise in sustainability, including all relevant quantitative contributions to a high performance tailor-made flooring solution. All requirements were fulfilled from a technical, economic and environmental point of view.

THE SIKA LIFE CYCLE ASSESSMENT (LCA) APPROACH



Life Cycle Assessment (LCA) is a standardized method to assess and compare the inputs, outputs and potential environmental impacts of products and services over their life cycle. LCA's are increasingly recognized as the best way to evaluate the sustainability performance of products and systems.

The LCA can greatly assist our customers in evaluating Sika's products and systems namely by providing quantitative data on their environmental profile. This enables the differentiation of products that may have similar performance, but greater variations concerning their environmental impact - where obviously the lower, the better.

Sika carries out LCA's according to the ISO 14040 series and the standard EN 15804. The impact assessment methodology used is CML 2001. The LCA results are presented for the following three relevant impact categories deemed most relevant for flooring systems:

- Global Warming Potential (GWP) [kg CO₂-eq.] ("Carbon Footprint") - is the potential contribution to climate change due to greenhouse gases emissions.
- Cumulative Energy Demand (CED) [MJ] ("Energy Footprint") - is the total amount of primary energy from renewable and non-renewable resources.
- Photochemical Ozone Creation Potential (POCP) [kg C₂H₄-eq.] ("Summer Smog") - is the formation of reactive chemical compounds, e.g., ozone from direct sunlight on certain primary air pollutants, which may be harmful to human health, ecosystems and crops.

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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