



**Water permeable and
noise reducing
construction materials
To the highest 100%
German standards**




In almost all sectors, innovations and further developments are replacing conventional processes and materials.

In the construction sector, however, environmentally harmful basic building materials have been used unchanged for over 60 years.

Terra System GmbH, with its outstanding properties in every relevant respect, is a forward-looking alternative in path, square and road construction.



We have the alternative and solution

- Central patent-protected production technology
- Production of our adhesive in Germany 
- Central application area
- **ENVIRONMENTALLY FRIENDLY - INNOVATIVE - SUSTAINABLE** Granulate is permanently bonded with
- organic adhesives in two layers
- For environmental reasons, the civil engineering industry is looking for a replacement for bitumen or binders made from heavy oil
- This approach inevitably leads the industry to the patented Terrasystemconcept

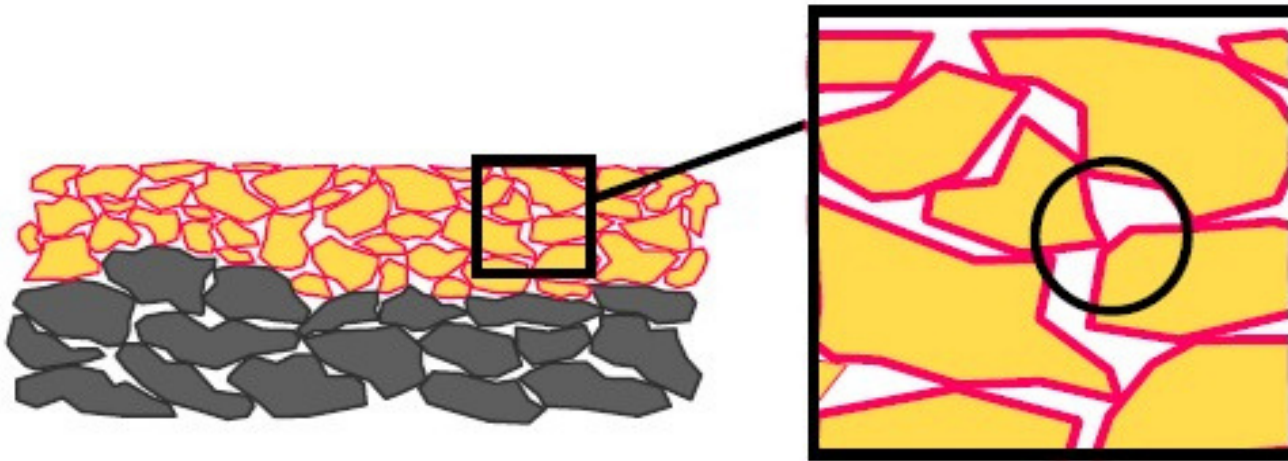


Why Terrasystem ?

- Permeable to water
- No sealing of the surfaces Surface *drainage costs are eliminated!*
- Permanently elastic
- Dimensionally stable
- Noise-absorbing
- Environmentally friendly
- Resilient
- Temperature-resistant (at -50 to +80 degrees Celsius)
- Durable
- Easy to clean
- Low maintenance
- Seamless look
- Non-slip
- Splash proof
- Material-saving
- Colour variable
- Use of natural grains

The System

Our bonding system encases each individual stone grain and bonds the loose stones to form a stable, water-permeable and noise-absorbing bond.



The granulate is only bonded at the contact points. This creates water-permeable "open" cavities (proportion: approx. 40%). Simple standard cleaning of the road -as with asphalt roads -prevents clogging of the pores.

Whisper asphalt, for example, as a used oil

mixture made from "leftovers" from the heavy oil industry, practically clogs from its components due to heat and pressure, but our system remains water-permeable due to its open pores.

Areas of application

In addition to road, path and square construction, Terrasystemproducts can be used in other areas:

- Tree discs
- Stairs (non slip)
- Indoor and outdoor swimming pools and private pools (non-slip in damp environments)
- Terraces and balconies
- Sanitary facilities (public WC facilities in cities)
- Coastal protection and sand stabilization
- Canal covers
- Green spaces and golf courses
- Water play parks
- Ballast stabilisation in track systems
- Car washes and car washes

Installation method (patented layer structure)



Our system consists of only two layers: 10-25

1. cm thick substructure = base course 2-4 cm

2. top layer => max. 29 cm total thickness

- The sub-base of coarse aggregate (8/11 mm up to 22/33 mm as required) is evenly mixed with binder, spread, smoothed and then compacted to a stable structure. The surface course is applied to the hardened base course; the granulate for this is also mixed with binding agents, incorporated into the substructure in a viscous consistency and also smoothed and compacted with a smooth wheel roller.
- Processing is carried out using standard road construction mixers and pavers.
- With a 25 cm base layer and 4 cm surface layer, the surface is suitable for heavy goods traffic and can be fully loaded after 24 hours, resulting in savings through efficient paving.

The drainage capacity of the system

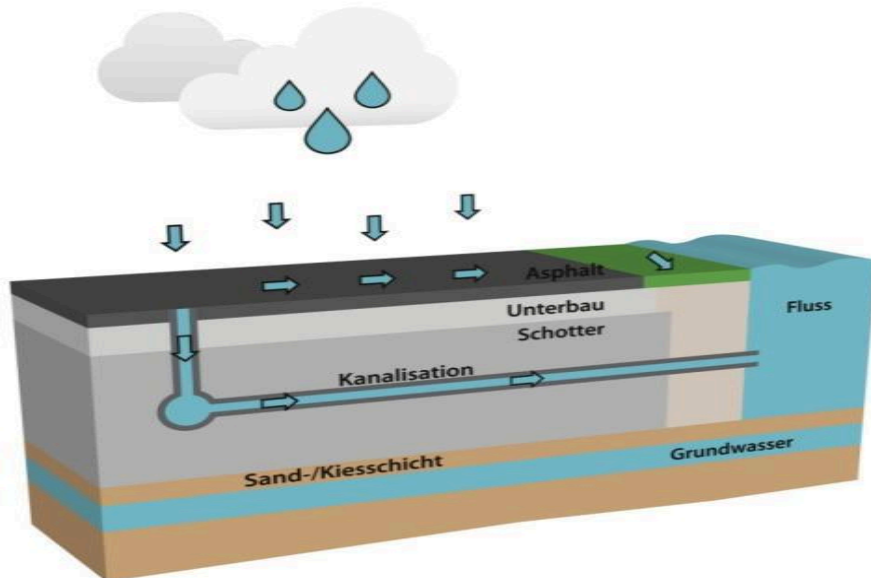
Climate-relevant factor from not sealing

- The use of our system in road construction leads to an even drainage of precipitation through the road
- In many areas, a sewer network can be dispensed with (saving costs and time)
- Flooding elsewhere due to the concentration of rainwater in sewers and natural bodies of water can be avoided

Der Vergleich

Conventional flooring systems

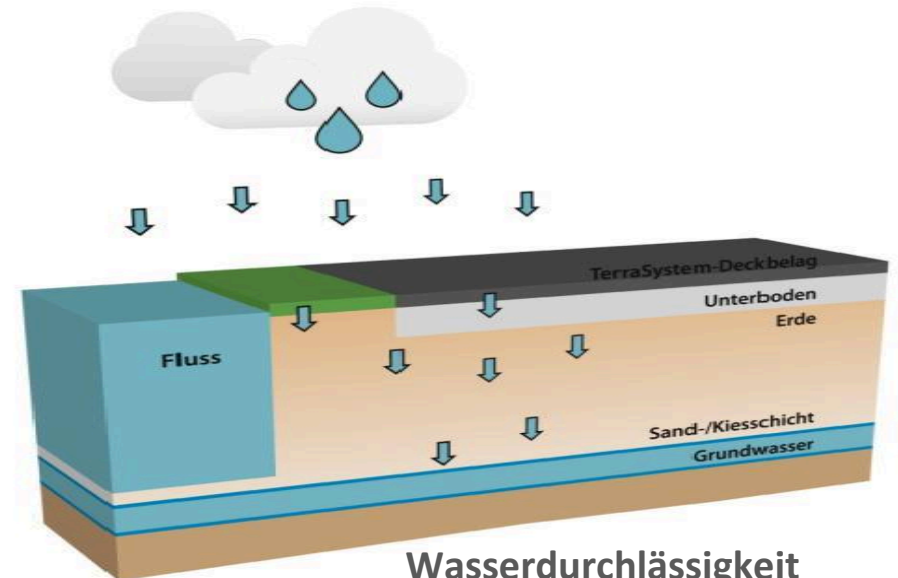
High water, flooding, falling groundwater levels, caused by massive interference with the natural course of our waters and the sealing of the soil.



Terrasystem drainage layer

"Our soil breathes"

We combine all the demands of modern life on a floor covering with the natural properties of an unconsolidated surface.



Wasserdurchlässigkeit
10.000 l/s pro ha bzw. 1l/s pro m²

Die Produkteigenschaften

1. Costs -Favourable in installation and maintenance

Low planning and installation costs / no drainage gradient In addition to the elimination of expensive channel systems, the otherwise complex consideration of a precisely maintained gradient for drainage can be dispensed with.

Frost resistance a cavity content of 40% and jointless processing avoids frost cracking -max. expansion tolerance -(frost resistance report Marth 27 April 2004)

Resistance to surface damage/ rutting

compared to conventional road surfaces, the Terrasystem construction material reacts with higher strength in heavy goods traffic & is permanently elastic and dimensionally stable under the influence of heat

2. Safety

- No aquaplaning
- No splash water (spray)
- Slip resistance
- Avoidance of ruts due to dimensionally stable & permanently elastic substrate
- Reduced ice slipperiness
- Precisely fitting application, seamless repairs
- Prevention of frost damage and potholes
- Very low flammability

3. Environmentally friendly

- No leaching (oil, tar) compared to asphalt
- Noise reduction due to outstanding sound absorption properties
- No chemical frost control, less salt spreading

Test reports and expertises

Our adhesive has a fire certificate issued by BrandhausHöchst and is categorised as Bfl-s1 (flame retardant) in accordance with DIN EN 13501-1

Certificate number: 2005-1858-K1



Our adhesive has a test certificate issued by the Marth engineering and expert office, for frost and de-icing salt resistance.

Test report no.: 8307



Further test reports and expert opinions

There is a test report for our adhesive, issued by the Hygiene Institute of the Ruhr area, which certifies its suitability for groundwater hygiene.

Test report no.: C-143616-06-BS



Hygiene-Institut-Gelsenkirchen



Chair of Construction of Land Transport Roads, Prof. Leykauf, TU Munich Research Report 2362 dated 05.06.2007" With the tests carried out here, characteristic values were determined with which the load-bearing capacity of the construction under heavy lorry traffic (high wheel loads), as well as under industrial trucks, e.g. forklift trucks (high contact stresses when turning), can be assumed to be many times higher than with asphalt."

Summary of properties

- Water-permeable, no aquaplaning and reduction of splash water, hardly any ice formation (less winter gritting)
- Temperature-resistant (at -50 to +80 degrees Celsius) The surface is more temperature-resistant than asphalt, does not become soft and does not deform
- More tensile strength than concrete (min. 13.2 N/mm² for base course; min. 12.3 N/mm² for surface course) No rutting in the long term
- No frost damage, as there is sufficient cavity for water to expand
- Environmentally friendly, as no leaching of harmful substances
- No requirements for dismantling or demolition, because water hazard class 0 (landfill or can be installed in water protection areas without any problems)

! Asphalt must be expensively and 100% recycled or disposed of at high cost !

Cost saving and durability

1. Reduction or elimination of sewerage systems

2. Elimination of sealing levies to the municipalities

3. Easy to clean and inexpensive to repair

1. High stability

2. Acid and alkali resistance

3. No rutting in the long term

We would like to thank you



www.terrasystem.de