



**Terra**<sup>®</sup>  
XPS

# The sporting experience

## Durability

## Environment & Safety

### 365 days

Rain or no rain, sun or no sun – it makes no difference to Terra XPS<sup>®</sup>. Terra XPS<sup>®</sup> – an infill material for artificial turf – gives the same playing characteristics 365 days a year, regardless of playing intensity and location. Players are now able to experience a superb pitch at every time of the day, in all weather conditions. Terra XPS<sup>®</sup> maximizes the fun of the game per unit area. In densely populated regions it offers a solution to the lack of space available for sports facilities. Using artificial pitches filled with Terra XPS<sup>®</sup>, it is now possible to organize more matches and training events on less ground space. The special shape of Terra XPS<sup>®</sup> results in a very open structure of the infill layer, which is highly permeable to rain water. Water puddles on the pitch are thus prevented, which contributes to fast and safe play.

### Colour

Research has proved that the colour of the infill material has a significant influence on the temperature of the pitch. The light colour of Terra XPS<sup>®</sup> results in a low pitch temperature. This reduces foot perspiration and lowers the risk of skin burns or skin irritation after a sliding tackle.



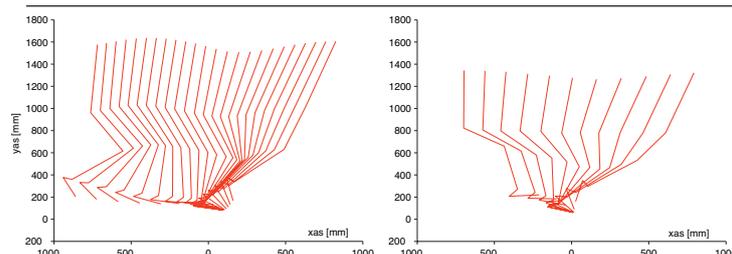
Terra XPS<sup>®</sup> in three different colours in an artificial pitch.



The open structure of Terra XPS<sup>®</sup> results in a consistently good grip

### Grip and sliding

Terra XPS<sup>®</sup> shows excellent shock absorbing behaviour. Its special shape ensures good sliding behaviour and excellent sports-shoe grip. We are involved in a research project with the University of Maastricht (Netherlands) into the relationship between biomechanics, injuries and infill materials.



Bio-mechanical movement of the leg on an artificial turf system filled with Terra XPS<sup>®</sup> at "jogging-speed" (figure left) and sprint speed (figure right)



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## Material

Thanks to the special composition of Terra XPS<sup>®</sup>, the playing characteristics of an artificial turf pitch remain stable over time. Terra XPS<sup>®</sup> is protected against outdoor elements like sunlight and water and therefore stays soft and flexible. Traditional infill materials often show significant ageing, resulting in increased hardness. As a consequence, the pitch will also get harder, which can make a sliding tackle a rather painful experience.



The typical rounded-cylinder shape of Terra XPS<sup>®</sup>

## Shape

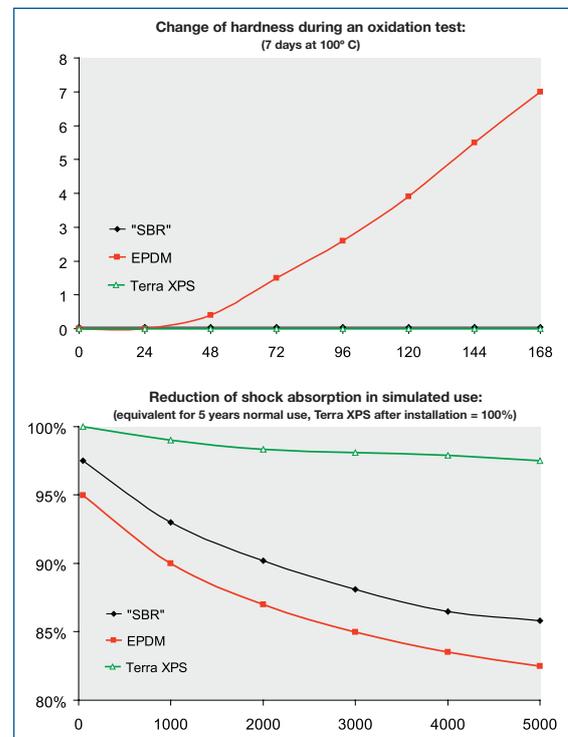
The specially designed shape of Terra XPS<sup>®</sup> and its soft elastomeric characteristics determine its success. Terra XPS<sup>®</sup> is not just a regular infill material but adds real value to the playing characteristics of an artificial pitch. The rounded-cylinder shape prevents compaction of the infill layer so that players experience a consistent grip.



Special equipment simulates intensive use for more than five years.

## Excellent resistance to wear

During use of an artificial turf pitch the infill is exposed to high forces and friction. Terra XPS<sup>®</sup> has been extensively tested by ISA Sport and Labosport. It achieved the best score on wear, even after intense UV irradiation.

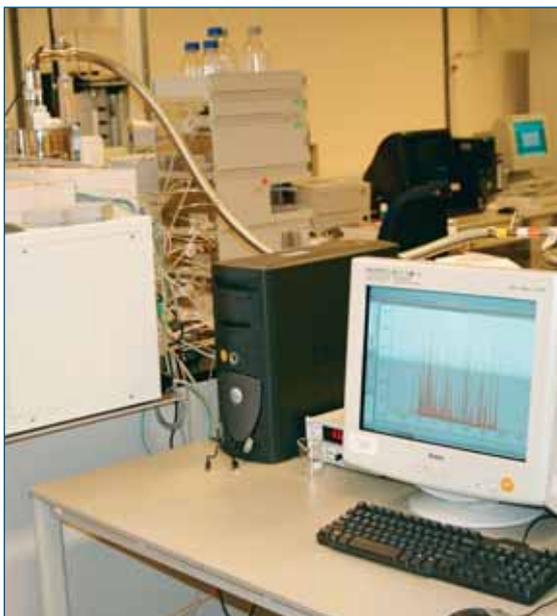




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## Safe feeling

Infill materials are in direct contact not only with players' skins but also with rainwater. It goes without saying that Terra XPS® is made of first class raw materials that have the highest health & environment scores. The fact that Terra XPS® fulfils the requirements of DIN 18035-7:2002-6\* is a starting point to guarantee absolute safety. Environment and health are crucial operational conditions for DSM and Terra Sports Technology BV.



*Emission analysis with advanced equipment at DSM.*

## Flame retardant

Flame retardance is a standard feature of Terra XPS®, but for indoor pitches Terra XPS® can be upgraded with a special flame retardant system. This special grade, Terra XPS® Indoor, passes even the most stringent fire tests on carpets.



*The minimal emissions from Terra XPS® contribute to an optimal environment for sportspeople, supporters and people living near sports grounds.*

## Odour & emissions

Emissions to air from infill materials should be as low as possible. Terra XPS® is odourless even at high temperatures, and special emission analyses with advanced equipment have shown that no hazardous components evaporate from the material. This means that Terra XPS® contributes to an optimal and safe environment for sportspeople, supporters and people living near sports grounds.

*\* The German standard DIN 18035-7:2002-6 is leading in Europe for testing the effects of artificial turf systems.*



# Terra<sup>®</sup>

## XPS

## Background

### Vision

The sporting experience is an important inspiration for the development of Terra XPS<sup>®</sup>. Natural turf, with all its excellent qualities, has been an important part of the game of football for more than 100 years. The latest-generation artificial turf systems combine the traditional good qualities of natural turf with those of artificial turf of earlier generations. Thanks to the third generation of artificial turf, muddy, unstable or dry and hard pitches will soon be things of the past. The soft and specially designed infill material Terra XPS<sup>®</sup> plays an important role in achieving the best pitch performance. With Terra XPS<sup>®</sup> the focus goes to typical outdoor pitch sports like football, rugby, American Football and cricket.

### Added Value

The development of Terra XPS<sup>®</sup> was strongly focused on contributing and securing the SPORTING EXPERIENCE, DURABILITY and ENVIRONMENT & HEALTH aspects. The key elements to consider are consistent playing characteristics, a high quality for many years, fewer injuries, clean air without a rubber smell and no risk of pollution of soil or water.

Terra XPS<sup>®</sup> has more than proven its added value in an artificial turf pitch, but this will not keep us from developing and optimising the product even further.

### Co-operation

DSM Sarlink and Terra Sports Technology have set up a strategic alliance to speed up and streamline their development activities. This unique partnership combines the best of both companies: many years of experience and knowledge in the development of infill systems for artificial turf, broad material science and high tech, consistent production technology.

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## The Team

### Terra Sports Technology BV (TST)

TST is a company specialising in research & development and marketing & sales of elastomeric synthetic materials that find their application in sports floorings and artificial turf systems. In its R&D centre, Terra Sports Technology has high-tech sports testing facilities like the Artificial Athlete and equipment for the Lisport test, the ball bounce test, rotational friction tests, etc. With this equipment TST is able to develop and evaluate its own materials and support customers in fine tuning their artificial turf systems with Terra XPS<sup>®</sup>.

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### DSM Sarlink

DSM Sarlink produces thermoplastic elastomers at production locations in the USA and Belgium. It has sales offices in North America, Europe, Singapore and Japan. Sarlink<sup>®</sup> TPEs are applied in the automotive industry, construction, consumer articles, the food industry and sport. DSM Sarlink is part of DSM, a globally operating company in life-science products, performance materials and industrial chemicals. DSM has annual sales of € 8 billion and 23,000 employees at more than 200 locations worldwide.

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