

# STRUCTURAL PROTECTION

PROTECTIVE MATS MADE FROM RECYCLED RUBBER GRANULES



**KRAITEC®**  
PROTECTING VALUES

Advantages and properties



Durability



Protection



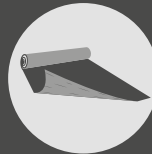
Drainage



Drainage & water discharge



Acoustic insulation



Lamination



Selection aid for structural protection mats



Flat roofs



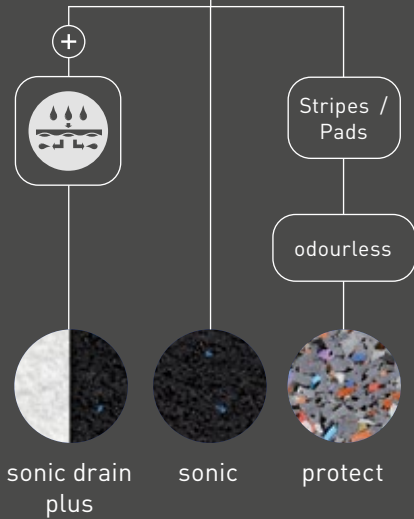
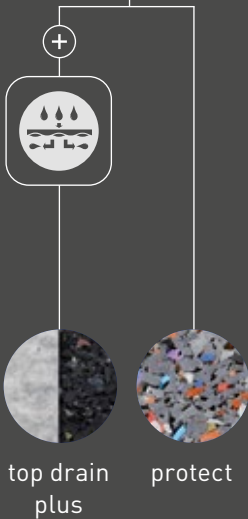
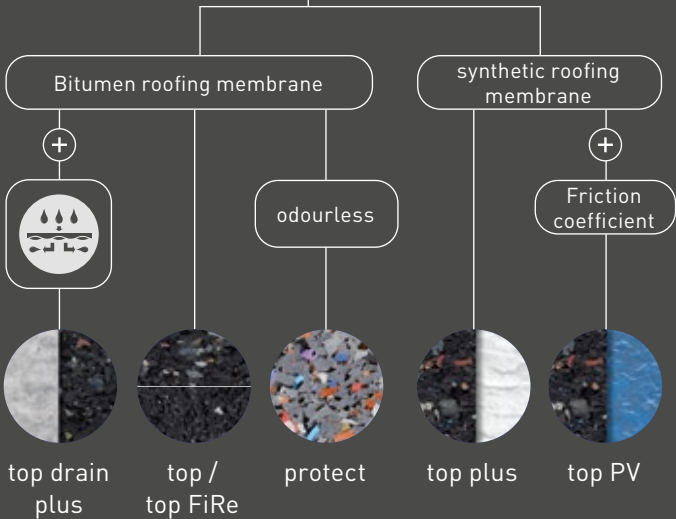
Protective mat under solar panels



Green roofs



Terraces and balconies



# KRAITEC® structural protection - application examples

## Classic flat roofs and buildings

KRAITEC® top



## Protective layer under photovoltaic systems

KRAITEC® top PV, KRAITEC® top plus



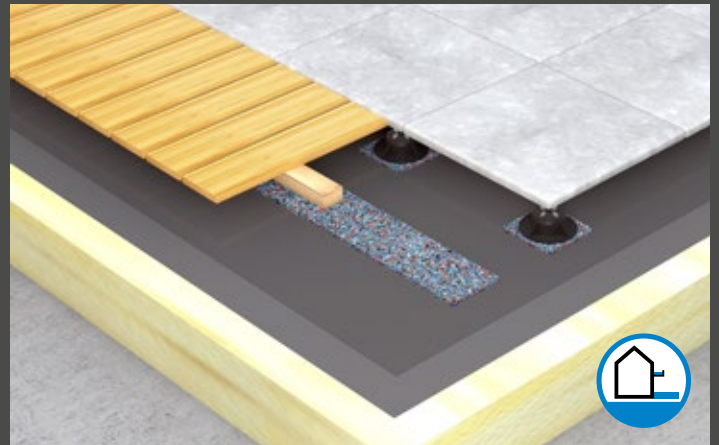
## Green roofs (high resilience)

KRAITEC® top drain plus, KRAITEC® protect



## Coverings with open joints

KRAITEC® protect



## Structural protection & impact sound insulation on terraces, roof terraces and balconies

DAMTEC® sonic oder DAMTEC® sonic drain plus (Drainage and water dischargement thanks to 3D profile)







## KRAITEC® top

VERSATILE AND EFFECTIVE PROTECTION

## KRAITEC® top FiRe

FLAME-RETARDANT – WITH  $B_{roof}(t1)$  AND  $B_{fl}-s1$



### Applications



### Properties



### Additional advantages of top FiRe



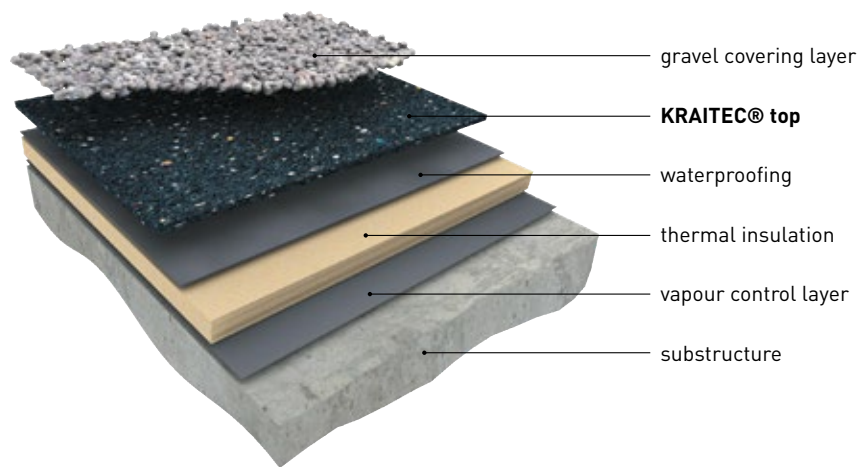
- Classified structural protection mat as „Hard Roofing“ (**Broof (t1)**)
- Fire resistance **B<sub>fl</sub>-s1**: flame-retardant according to DIN EN 13501-1

<b>Material</b>	Recycled rubber granules, polyurethane-bonded
<b>Density</b>	ca. 810 kg/m <sup>3</sup>
<b>Dimensions</b>	<b>Mats</b> 1,000 x 2,000 mm and 1,150 x 2,300 mm (± 1.5 %) <b>Rolls</b> Width 1,250 mm (± 1.5 %) (length depending on thickness)
<b>Thicknesses</b>	6, 8, 10 (± 0.6 mm) / 12, 15, 18, 20 (± 1.0 mm); additional thicknesses and sizes on request
<b>Tensile strength</b>	ca. 0.3 N/mm <sup>2</sup> (DIN EN ISO 1798)
<b>Elongation at break</b>	ca. 40% (DIN EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (B2) (DIN EN 13501-1)
<b>Compression under traffic load</b>	for 8 mm: 10 % at approx. 19 t/m <sup>2</sup> 20 % at approx. 50 t/m <sup>2</sup> (test method based on DIN EN ISO 3386-2)



## KRAITEC® top

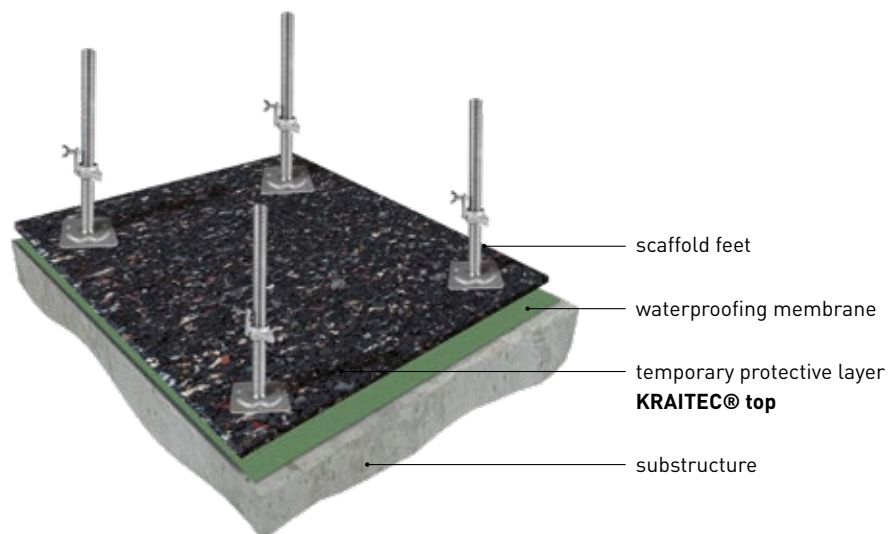
### APPLICATION EXAMPLES



#### On flat roofs

KRAITEC® top is the optimum protection mat for flat roofs supporting foot traffic or heavy objects. It is often used under gravel-topped roofs to prevent damage to the waterproofing by sharp or abrasive aggregates or by subsequent maintenance works.

\* compatibility of the waterproofing membrane has to be tested



#### Temporary protective layer

KRAITEC® top is the ideal protective layer under e.g. scaffolds, stairs and transitional construction phases for protection of mechanical influences on waterproofing membranes. The installation is fast and easy.

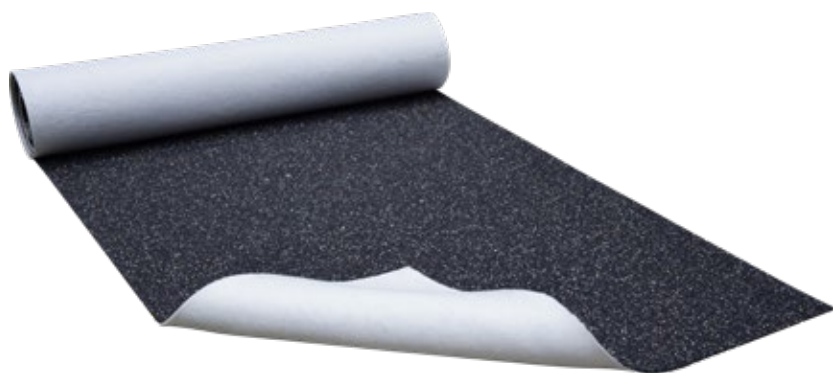
\* compatibility of the waterproofing membrane has to be tested



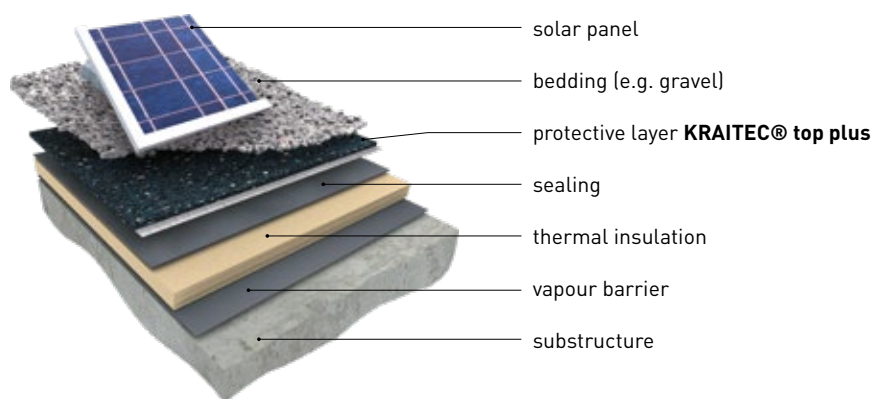


## KRAITEC® top plus

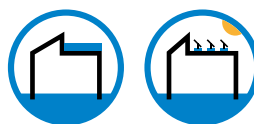
### PROTECTIVE MAT WITH FLEECE LAMINATION



**Fleece laminated on bottom side:** integrated separating layer in case of incompatibilities (e.g. plasticizer migration) with PVC roofing membranes (in consultation with the roofing membrane manufacturer)



#### Applications



#### Properties



**Material** Recycled rubber granules, polyurethane-bonded, laminated on one side with a 300 g separating fleece

**Density** ca. 810 kg/m<sup>3</sup>

**Dimensions** **Rolls** Width 1.250 mm (± 1.5 %) (length depending on thickness) Other dimensions on request

**Thicknesses** 6, 8, 10 (± 0.6 mm) / 12 mm (± 1.0 mm)

**Lower side** Fleece lamination

**Tensile strength** ca. 0.6 N/mm<sup>2</sup> (DIN EN ISO 1798)

**Elongation at break** ca. 40% (DIN EN ISO 1798)

**Fire resistance** E<sub>fl</sub> (B2) (DIN EN 13501-1)

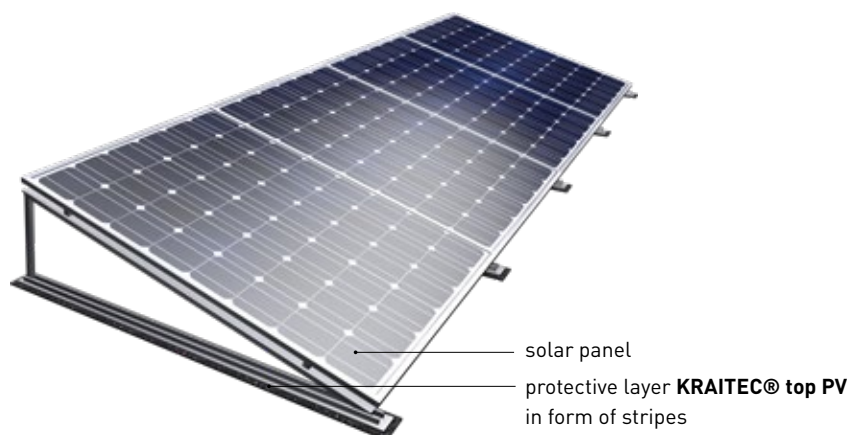


## KRAITEC® top PV

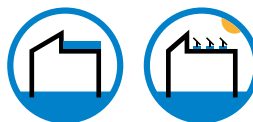
### PROTECTIVE MAT WITH COMPOSITE FILM LAMINATE



**Composite film lamination on bottom side:** integrated separating layer in case of incompatibility (e.g. plasticizer migration) with roofing membranes (in consultation with the roofing membrane manufacturer)  
**coefficient of friction  $\geq 0.6$**  (Laboratory measurement metal on PVC roofing membrane (dry/new))



#### Applications



#### Properties



<b>Material</b>	Recycled rubber granules, polyurethane-bonded, laminated on one side with a composite film
<b>Density</b>	ca. 810 kg/m <sup>3</sup>
<b>Dimensions</b>	<b>Rolls</b> Width 1.250 mm ( $\pm 1.5\%$ ) (length depending on thickness) Other dimensions on request
<b>Thicknesses</b>	6, 8, 10, 12 mm ( $\pm 0.6$ mm)
<b>Lower side</b>	foil structure (production-related overhang without laying function)
<b>Tensile strength</b>	ca. 0.8 N/mm <sup>2</sup> (DIN EN ISO 1798)
<b>Elongation at break</b>	ca. 40% (DIN EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (B2) (DIN EN 13501-1)





## KRAITEC® top drain plus

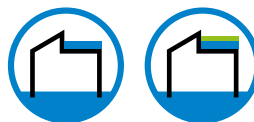
### FLEECE-LINED STRUCTURAL PROTECTION AND DRAINAGE MAT



**3D profile and fleece lamination on bottom side:** high drainage effect through and underneath the mat



#### Applications



#### Properties



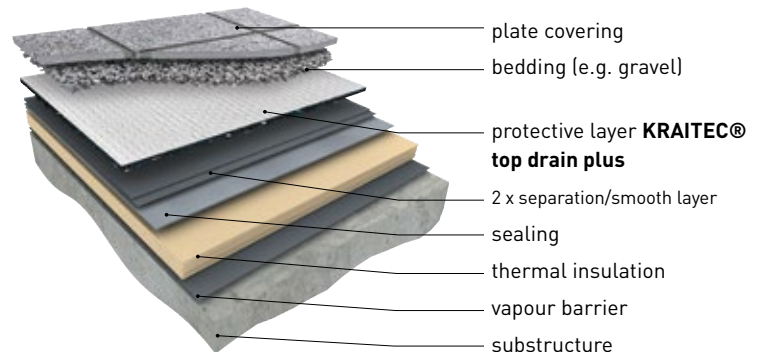
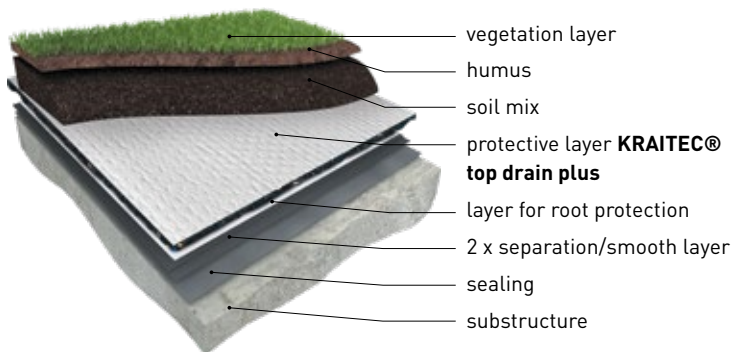
<b>Material</b>	Recycled rubber granules, polyurethane-bonded
<b>Density</b>	ca. 700-800 kg/m <sup>3</sup>
<b>Dimensions</b>	<b>Rolls</b> Width 1,200 mm (± 1.5 %) Length: 10.0 m (± 1.5 %)
<b>Thicknesses</b>	12/8 mm (± 1.0 mm)
<b>Surface</b>	fleece lamination
<b>Lower side</b>	3D profile
<b>Tensile strength</b>	ca. 0.5 N/mm <sup>2</sup> (DIN EN ISO 1798)
<b>Elongation at break</b>	ca. 40% (DIN EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (DIN EN 13501-1)
<b>Compression under traffic load</b>	approx. 4 t/m <sup>2</sup> at 10% compression approx. 13 t/m <sup>2</sup> at 20% compression approx. 34 t/m <sup>2</sup> at 30% compression (based on DIN EN ISO 3386-2)





## KRAITEC® top drain plus

### APPLICATION EXAMPLES





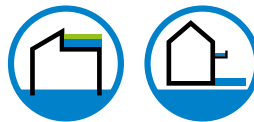


## KRAITEC® protect

### HEAVY-DUTY STRUCTURAL PROTECTION



#### Applications



#### Properties



<b>Material</b>	Odourless recycled rubber granules, polyurethane-bonded
<b>Density</b>	ca. 1,050 kg/m <sup>3</sup>
<b>Dimensions</b>	<b>Mats</b> 1,150 x 2,300 mm (± 1.5 %) <b>Rolls</b> Width 1,250 mm (± 1.5 %) (length depending on thickness)
<b>Thicknesses</b>	6, 8, 10 (± 0.6 mm) / 12 (± 1.0 mm) additional thicknesses and sizes on request
<b>Tensile strength</b>	ca. 0.8 N/mm <sup>2</sup> (DIN EN ISO 1798)
<b>Elongation at break</b>	ca. 120% (DIN EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (B2) (DIN EN 13501-1)
<b>Compression under traffic load</b> tested thickness 10 mm	10 % at approx. 35 t/m <sup>2</sup> 20 % at approx. 80 t/m <sup>2</sup> (test method based on DIN EN ISO 3386-2)



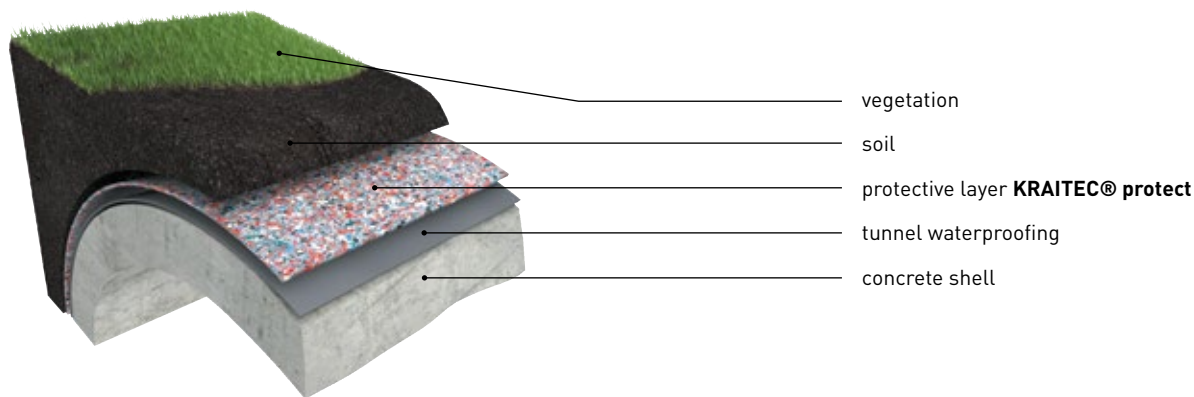


## KRAITEC® protect

### APPLICATION EXAMPLES

#### 1. In Tunnel Systems

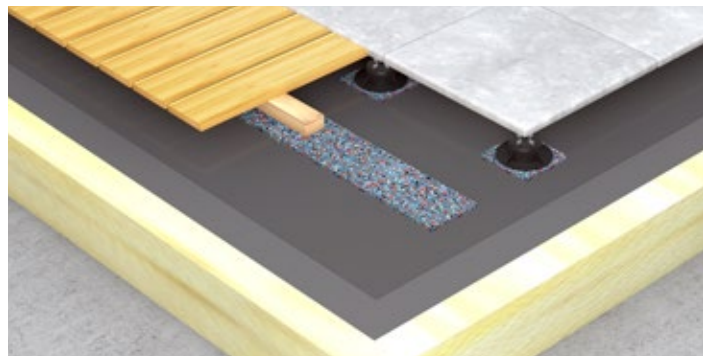
KRAITEC® protect has outstanding physical properties which make it ideal for use on waterproofing subjected to extreme compressive loads or dumping of gravel or soil. It has excellent puncture resistance and endures rough treatment of all kinds without damage. KRAITEC® protect provides outstanding protection for waterproofed surfaces in tunnels both horizontal and vertical.



#### 2. Surfaces with open joints

The highly stressable protection mat KRAITEC® protect is also applicable underneath high point and strip loads, such as pedestals, stock woods, individual constructions (e.g. air-conditioning systems).

Usage in case of open joints for instance on balconies, terraces or loggias is possible. In particular its nearly neutral smell make it to the perfect choice underneath such constructions. The application of KRAITEC® protect in form of pads and strips is explicitly recommended.





## DAMTEC® sonic

### STRUCTURAL PROTECTION MAT FOR OUTDOOR IMPACT SOUND INSULATION



**Structural protection and acoustic insulation combined:** for classical superstructures using concrete slabs in split bedding and thermal insulation by PIR, EPS or XPS (warm and inverted roof)



For additional information & technical structures please ask for our DAMTEC® sonic brochure

#### Applications



#### Properties



<b>Material</b>	Recycled rubber granules, polyurethane-bonded
<b>Density</b>	ca. 780 kg/m <sup>3</sup>
<b>Thickness</b>	8 mm (± 0.3 mm)
<b>Roll width</b>	1,250 mm (± 1.5 % mm)
<b>Roll length</b>	8.0 m (± 1.5%)
<b>Tensile strength</b>	ca. 0.3 N/mm <sup>2</sup> (EN ISO 1798)
<b>Elongation at break</b>	ca. 30% (EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (B2) (DIN EN 13501-1)
<b>Temperature resistance</b>	-30° bis 80° C
<b>Compression under traffic load</b>	10 % at approx. 17 t/m <sup>2</sup> 15 % at approx. 32 t/m <sup>2</sup> 20 % at approx. 47 t/m <sup>2</sup> (in accordance with DIN EN ISO 12958)





## DAMTEC® sonic drain plus

### FLEECE-LAMINATED STRUCTURAL PROTECTION MAT FOR SOUND INSULATION



**Structural protection and acoustic insulation combined:** with fleece lamination and 3D profile; for classical superstructures using concrete slabs in split bedding and thermal insulation by PIR, EPS or XPS (warm and inverted roof)

Test direction: MD hard/hard	Hydraulic gradient $i = 0.010$	Hydraulic gradient $i = 0.020$
2 kPa	0.143 l/(m·s)	0.228 l/(m·s)
15 kPa	0.078 l/(m·s)	0.129 l/(m·s)
50 kPa	0.008 l/(m·s)	0.018 l/(m·s)

#### Applications



#### Properties



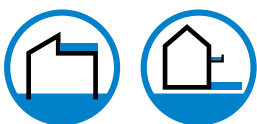
<b>Material</b>	Recycled rubber granules, polyurethane-bonded
<b>Density</b>	ca. 700-800 kg/m <sup>3</sup>
<b>Thickness</b>	15/6 mm (± 1.0 mm)
<b>Roll width</b>	1,200 mm (± 1.5 % mm)
<b>Roll length</b>	8.0 m (± 1.5%)
<b>Surface</b>	fleece lamination
<b>Tensile strength</b>	ca. 0.3 N/mm <sup>2</sup> (EN ISO 1798)
<b>Elongation at break</b>	ca. 30% (EN ISO 1798)
<b>Fire resistance</b>	E <sub>fl</sub> (DIN EN 13501-1)
<b>Temperature resistance</b>	-30° to 80° C
<b>Compression under traffic load</b>	10 % at approx. 0.95 t/m <sup>2</sup> 15 % at approx. 1.88 t/m <sup>2</sup> 20 % at approx. 3.18 t/m <sup>2</sup> (in accordance with DIN EN ISO 3386-2)



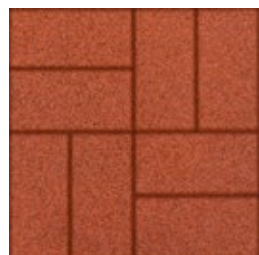
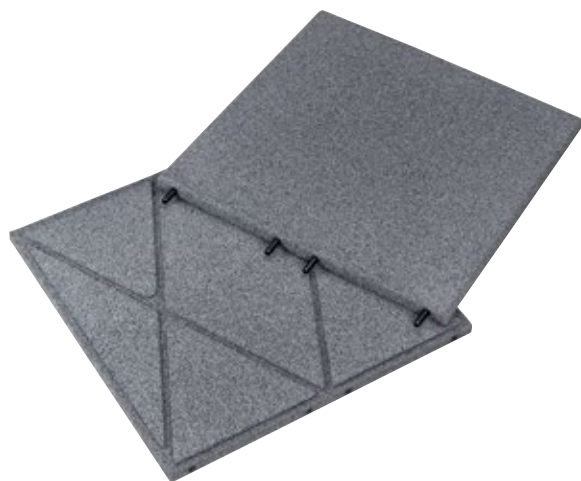
## KRAITEC® step, step cross, step color/neon

SLAB FOR WALKWAYS AND MAINTENANCE WAYS, TERRACES AND BALCONIES

### Applications



### Most important properties



**KRAITEC® step cross**  
with tile pattern on  
the upper side



**KRAITEC® step color**  
with strong EPDM  
colours



**KRAITEC® step neon**  
with bright EPDM  
colours

<b>Material</b>	Recycled rubber granules, polyurethane-bonded (Typical rubber smell possible)
<b>Thickness</b>	30 mm (± 2.0 mm), other thicknesses on request
<b>Dimensions</b>	500 x 500 mm (± 1.5 %)
<b>Area weight</b>	ca. 20.8 - 21.2 kg/m <sup>2</sup> ; depending on the type of product (ca. 5.2-5.3 kg/slab)
<b>Surface</b>	smooth with open pores, chamfered edges <b>step color/neon:</b> EPDM surface
<b>Lower side</b>	<b>step roof PVC:</b> PVC lamination with drainage grooves <b>step roof FPO:</b> FPO lamination with drainage grooves (thermally separated) <b>step plus:</b> Plastic fleece lamination
<b>Colours</b>	red, green, grey, black
<b>Fire resistance</b>	E <sub>fl</sub> (B2) (DIN EN 13501-1) B <sub>roof</sub> (t1) (DIN EN 13501-5)
<b>Temperature resistance</b>	-30° to 80° C
<b>Compression under traffic load</b>	10 % at approx. 18 t/m <sup>2</sup> 20 % at approx. 38 t/m <sup>2</sup> <b>step color/neon:</b> 10 % at approx. 24 t/m <sup>2</sup> 20 % at approx. 50 t/m <sup>2</sup> test method based on DIN EN ISO 3386-2
<b>Other</b>	4 integrated connector pins/slab
<b>Packaging</b>	180 slabs per one-way pallet 105 x 105 cm Weight: approx. 950 kg/pallet





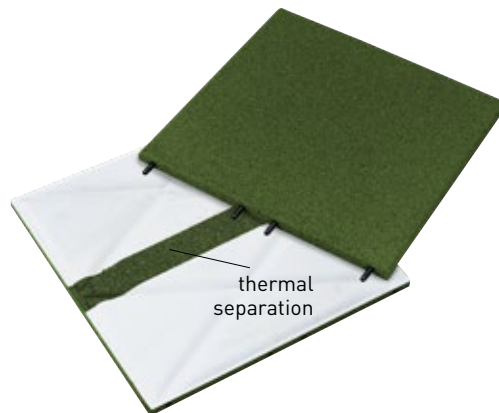
## KRAITEC® step product variants

DIFFERENT LAMINATIONS FOR DIFFERENT ROOF WATERPROOFING MEMBRANES

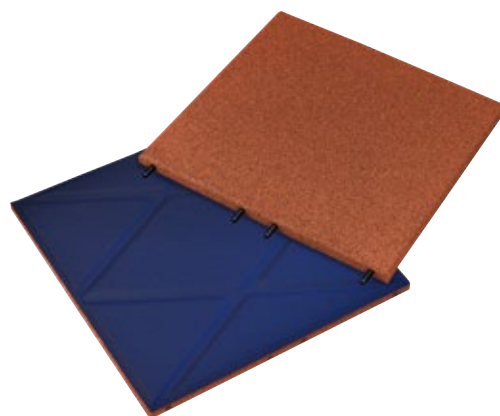
**KRAITEC® step plus**  
with fleece lamination



**KRAITEC® step roof FPO**  
with FPO lamination



**KRAITEC® step roof PVC**  
with PVC lamination



You can find detailed  
information in our  
KRAITEC® step brochure.



KRAITEC® step - maintenance way



DAMTEC® sonic © Schloss Elmau





DAMTEC® sonic drain plus - Staggered storey



KRAITEC® top drain plus - green roof



# ENVIRONMENTAL MANAGEMENT AT KRAIBURG RELASTEC

## FROM OLD TYRES TO TOP-QUALITY FINISHED PRODUCTS



### Recycling of 85.000t old tyres

Every year, we process and recycle about 85,000 tons of old tyres, closed-cell rubber and rubber production scrap.



### Fully recyclable products

All products are fully recyclable and are returned to the production process without any loss of quality.



### CO<sub>2</sub> savings

In Germany alone, 400,000 tonnes of CO<sub>2</sub> can be saved annually by using used tyre granulates instead of new rubber materials.



### Environmentally friendly production

We invest in innovative and environmentally friendly production methods and technologies. There is a PV system on our administration building.



### Control of suppliers

Our suppliers are subject to constant monitoring with regard to environmental protection.



### Environmentally friendly way of working

All employees of KRAIBURG Relastec undertake to implement sustainable practices in their daily work and to protect the environment wherever they can.



### Review of the products and further development

Our products are subject to continuous quality testing and further development, whereby environmental concerns are given priority. We are always on the lookout for even more environmentally friendly alternatives that enable us to further reduce emissions and protect resources.



### Environmental protection as a main strategic task

We are convinced that sustainable growth is only achievable, if we meet our responsibilities towards the environment. KRAIBURG Relastec has therefore adopted a very simple policy: Protecting the environment is part and parcel of what we do every day!



### Member of NEW LIFE initiative

The declared aim of NEW LIFE is to demonstrate the advantages of recycled products from End-of-Life Tires (ELT) to the media, politicians and the general public and to motivate them to act sustainably.

More information:  
[www.initiative-new-life.de/en](http://www.initiative-new-life.de/en)



### Sales service

If you require general information, offers, product samples or printed brochures: Please fill out this form to get in contact with us:

[kraiburg-relastec.com/kraitec/en/contact-form](http://kraiburg-relastec.com/kraitec/en/contact-form)



**Production Plant/  
Loading address:**  
**KRAIBURG Relastec  
GmbH & Co. KG**  
Fuchsberger Straße 4  
D-29410 Salzwedel

**Sales Office &  
Marketing:**  
**KRAIBURG Relastec  
GmbH & Co. KG**  
Kehlsteinstraße 2  
D-84529 Tittmoning

### Technical service

No matter whether by phone or on-site, our KRAITEC® technical service will give you professional advice every time during the whole planning and execution of your projects.

Fon: +49 (0) 3901 8304-63

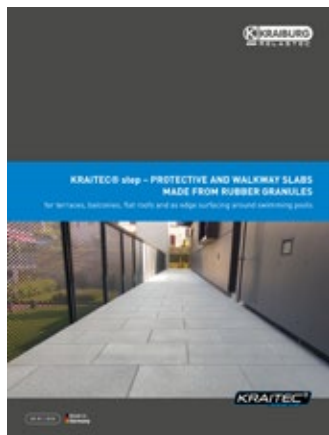
Mobile: +49 (0) 151-42 65 60 57

[technik-kraitec@kraiburg-relastec.com](mailto:technik-kraitec@kraiburg-relastec.com)



Save technical service  
as a contact

### KRAITEC® brochures



KRAITEC® step



KRAITEC® structural protection



DAMTEC® sonic



KRAITEC® references



## PROTECTIVE MATS FOR STRUCTURAL PROTECTION

made from recycled rubber granules

KRAIBURG Relastec GmbH & Co.KG  
Fuchsberger Straße 4 · D-29410 Salzwedel

### Sales Germany:

Tel. +49 (0) 8683 701 -167  
Fax +49 (0) 8683 701 -4167  
[kraitec@kraiburg-relastec.de](mailto:kraitec@kraiburg-relastec.de)

### Sales International:

Tel. +49 (0) 8683 701 -285  
Fax +49 (0) 8683 701 -4285  
[kraitec@kraiburg-relastec.com](mailto:kraitec@kraiburg-relastec.com)

[www.kraiburg-relastec.com/kraitec](http://www.kraiburg-relastec.com/kraitec)

All rights reserved, all indications without engagement, subject to modifications  
© KRAIBURG Relastec GmbH & Co. KG 2021

Your distributor:

