

Stered® ...the world of acoustic and thermal insulation and retention solutions



PR Krajné, s.r.o. 916 16 Krajné 874 , Slovakia



DISCOVER THE WORLD OF STERED



Proven quality of materials in the automotive industry contributes to a new quality of environment.

PR Krajné, s.r.o. recycles mixed synthetic textile offcut of technical textile material from primary production of the parts for new vehicles and the separated parts from the end-of-life vehicles and recovers it to a new product STERED. The method of processing as well as the product itself are a Slovak patent. PR Krajné, s. r. o., a member of the Association of Automotive Industry of SR, significantly contributes to the balance between the development of car manufacturing and sustainable development of the environment.



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Unique Slovak Technology – Good Idea Slovakia

Stered®

TEXTIL Parts
End of Life Vehicles 25 – 35 kg per car
Technology waste
production new car 2 – 4 kg per car



Project implemented with the support of



ZVÁZ AUTOMOBILOVÉHO PRIEMYSLU SLOVENSKEJ REPUBLIKY



PRODUCTION CHART



1 kg STERED ≤ 1 kWh

STERED products can salvage properties of input materials (thermo-insulating, acoustic insulating, acoustic, anti-vibration, solidity, stability, term resistance to water and frost, water retention capacity with its gradual evaporating) that do not change even after their life cycle expiration in the original product (i. e. car).



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Use of the properties of the new material STERED for solutions requiring water retention - precipitations

The solutions use the properties of STERED, in particular its high mechanical strength, long-term resistance to water and frost, water retention capacity with its gradual evaporating, while maintaining thermal insulation properties.

Green Retention Roof (GRR) - supplier of the solution ARBOR - okrasné a ovocné škôlky, s.r.o. (decorative and fruit nurseries)

www.arbor.sk



The structure of the green retention roof with STERED brings the following benefits:

- low weight in a dry state 40-50 kg/sq m
- retention of rain water up to 65 l/sq m and its subsequent evaporation
- minimisation of costs of retention tanks construction to a buildings with GRR
- mechanical resistance to treading allows an easy access to the technological facilities located on the roof
- use of thermal insulation properties in both the dry and wet states for optimization of the thermal insulation of the roof deck
- reduction of noise emissions from the building through the roof deck
- dust reduction
- improvement of the local climate, reduction of atmosphere overheating reduces energy consumption of air-conditioning equipment
- effective combination with the mounting of alternative sources of electricity production – photovoltaics



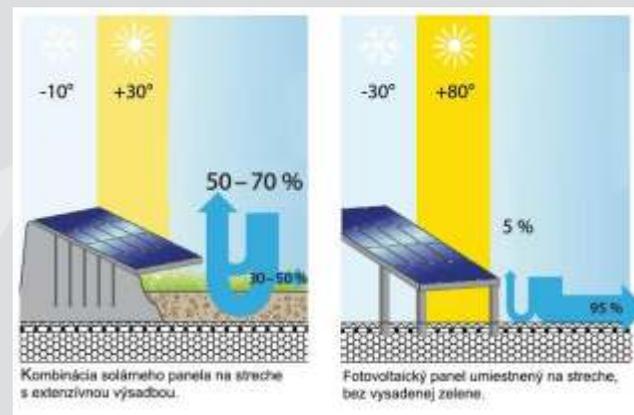


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Installation of photovoltaic panels on the green retention roof : supplier of the solution MDM Slovakia, s.r.o. www.mdmslovakia.com

- the roof is to a large extent overshadowed by the panels – lower intensity of overheating, lower roof cooling costs and better conditions for the growth of vegetation on the roof
- retention of rainwater and its subsequent evaporation increases the efficiency of photovoltaic panels (lower temperature of the panels means an increase in their efficiency)
- electric power produced by photovoltaic panels is profitably used for the power supply of air conditioning (there is a direct proportion between the intensity of sunlight, quantity of produced electricity and its consumption in the air-conditioning systems)
- from 100 sq m² of the area of a retention roof with installed photovoltaic panels approx 900 – 12 000 kWh power can be obtained per one year
- additional load due to the installation of the supporting structure and the panels depending on their inclination is 35 – 55 kg/sq m² of the roof. The costs of the reinforcement of the roof structure, necessary for this reason constitute a relatively small item compared to the potential cost savings on energy for the operation of the air-conditioning equipment



Obr. www.imao.sk



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Hard surfaces - parking lots, sidewalks – **supplier of the solution MDM Slovakia, s.r.o.** www.mdmslovakia.com





The structure of the retention surface with STERED brings the following benefits:

- retention of rainwater in the range of 25 to 45 l/sq m
- improvement of the local climate by evaporation of retained water, this feature can be used also by special supply of water from a reservoir
- retention of oil spills in the STERED board up to 20 l/sq m in combination with PEWAS Sorb, a selective absorbent, which in contact with a pollution sucks the fluid and retains it in its structure so there is no risk of secondary contamination of groundwater www.pewas.sk
- the lower heat accumulation of top surfaces compared to a concrete or asphalt surface reduces subsequent heat emissions, reduces overheating of environment
- it reduces the costs of providing of rainwater drainage as well as its quantity for purification in a petroleum substances eliminator
- slower cooling of the base layer reduces the risk of freezing of the surface in case of a freezing rain
- surface layer: recycled rubber, plastic, large concrete pavement
- use of loose aggregate in the base layers simplifies the execution of the surface by excluding wet methods





Use of the properties of the new material STERED for solutions requiring noise emission and vibrations reduction

The solutions use the properties of STERED, in particular its high sound absorption, long-term resistance in the external environment, including de-icing salt, maintaining thermal insulation properties.

NOISE FROM TRANSPORT INFRASTRUCTURE

Noise barriers - the supplier of the solution Intertech Plus, s.r.o. www.intertechplus.cz



The structure of the noise-barrier with STERED brings the following benefits:

- high sound absorption values $DL = 12$ to 20 db (A4) in the performance of sound insulation 35 to 42 db (B3)
- variability of the supporting element of the noise barrier - a sandwich panel - with the weight 35 kg/sq m - a concrete panel - with the weight 110 kg/sq m
- mounting of a fixed noise barrier on piles or a mobile barrier on supports, which also function as barriers
- use of noise barriers also as a noise absorbing fence
- variability of the surface design - placing of a logo, information and advertising data without reducing the noise absorption capacity
- noise absorbing component with STERED also acts as a vertical rainwater retention surface, slows the drainage from vertical surfaces
- the back side of the panel can be also treated with an antigrffiti coating



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NOISE FROM TRANSPORT INFRASTRUCTURE

Low noise screens and trackbed noise absorbers with the function of water retention - the supplier of the solution Prokop Rail , a.s.

www.brens.cz



The construction of the low noise screen and trackbed noise absorber with the function of water retention with STERED brings the following benefits:

- high sound absorption value, the mentioned solutions are equivalent to the classical noise barrier, where its installation is possible or suitable
- mounting of low noise screens, trackbed noise absorbers does not require any additional area outside the body
- it allows a suitable combination of low noise screens, trackbed noise absorbers, noise barrier
- at the same time the trackbed noise absorber creates a new retention area for precipitations





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NOISE FROM CONSTRUCTION WORKS, PRODUCTION OPERATIONS

Mobile anti-noise fences fitted with noise-absorbers, with an increased sound insulation value, noise screens for technological equipment, reduction of diffuse noise in production premises with an increased value of sound insulation of the external cladding - supplier of the solution

www.greenbau.sk



The structure of the noise-reducing solutions with STERED brings the following benefits:

- high noise-absorption value ($DL = 12-20$ dB) with the possibility of a combination of high sound insulation ($R_w = 27$ dB)
- low weight of the absorption component even after adjusting the increased sound insulation no more than 20 kg
- resistance to external and wet environment
- beneficial combination of noise-absorbing and thermal insulation





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VIBRATION

Anti-vibration plates - supplier of the solution Intertech Plus, s.r.o. www.intertechplus.cz



Use of the properties of the recycled rubber from tires and technical rubber, its combinations with the STERED plate brings an improvement of the necessary value of vibration damping and extension of the frequency damping band with optimized costs compared with the products made of primary materials.





SLOVENSKÁ AGENTÚRA
ŽIVOTNÉHO PROSTREDIA

Our own declarations on the environmental properties of the products www.sazp.sk

In each of the applications the focus is on the efficient use of the portion of recycled materials, which are the result of the development for the automotive industry, while maintaining the required properties of the final application. By their use they save non-renewable raw materials, energy consumption and they can be repeatedly recycled. The majority of these applications without the STERED component would not reach the new parameters, or they would not exist.

www.stered.sk

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