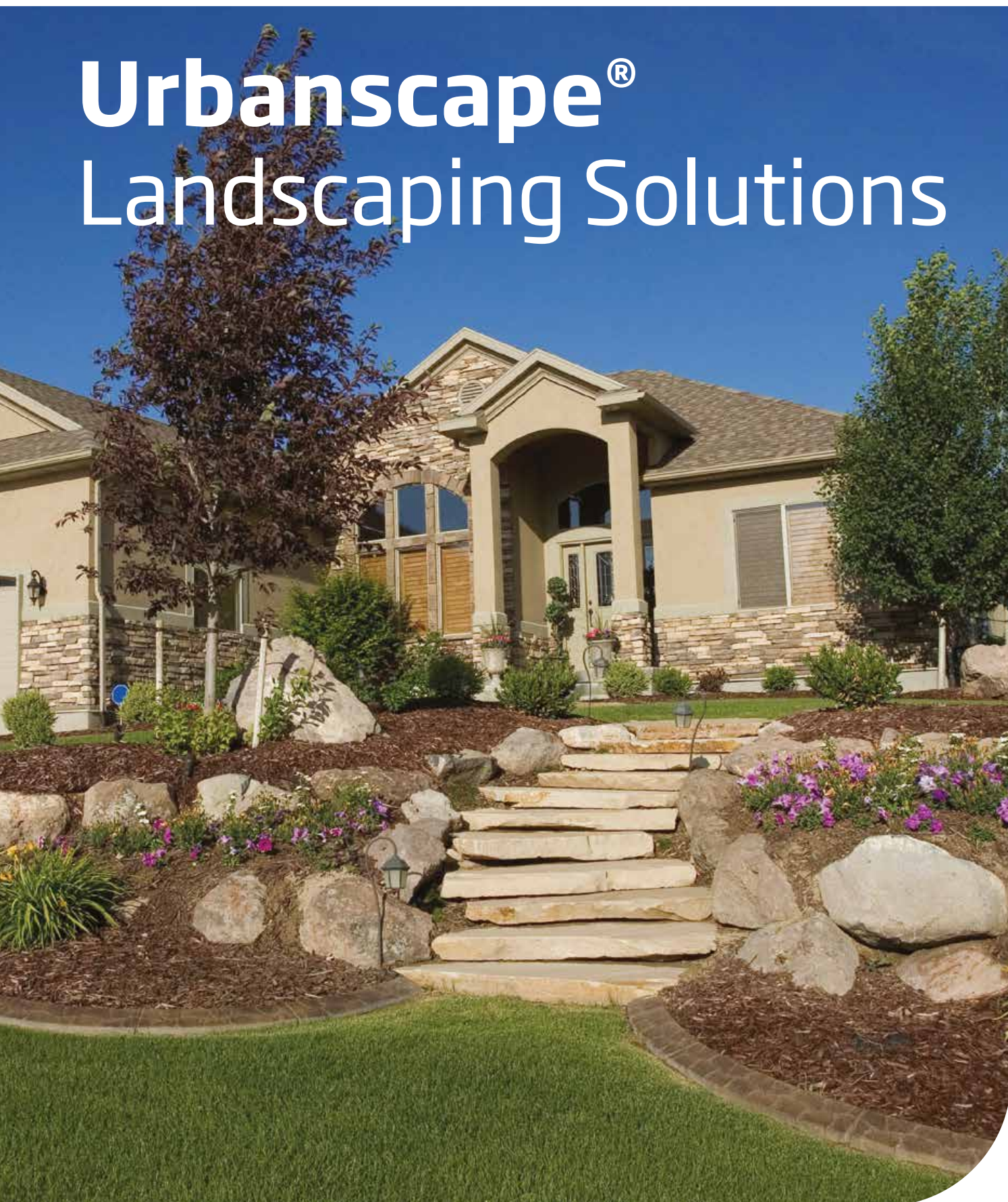
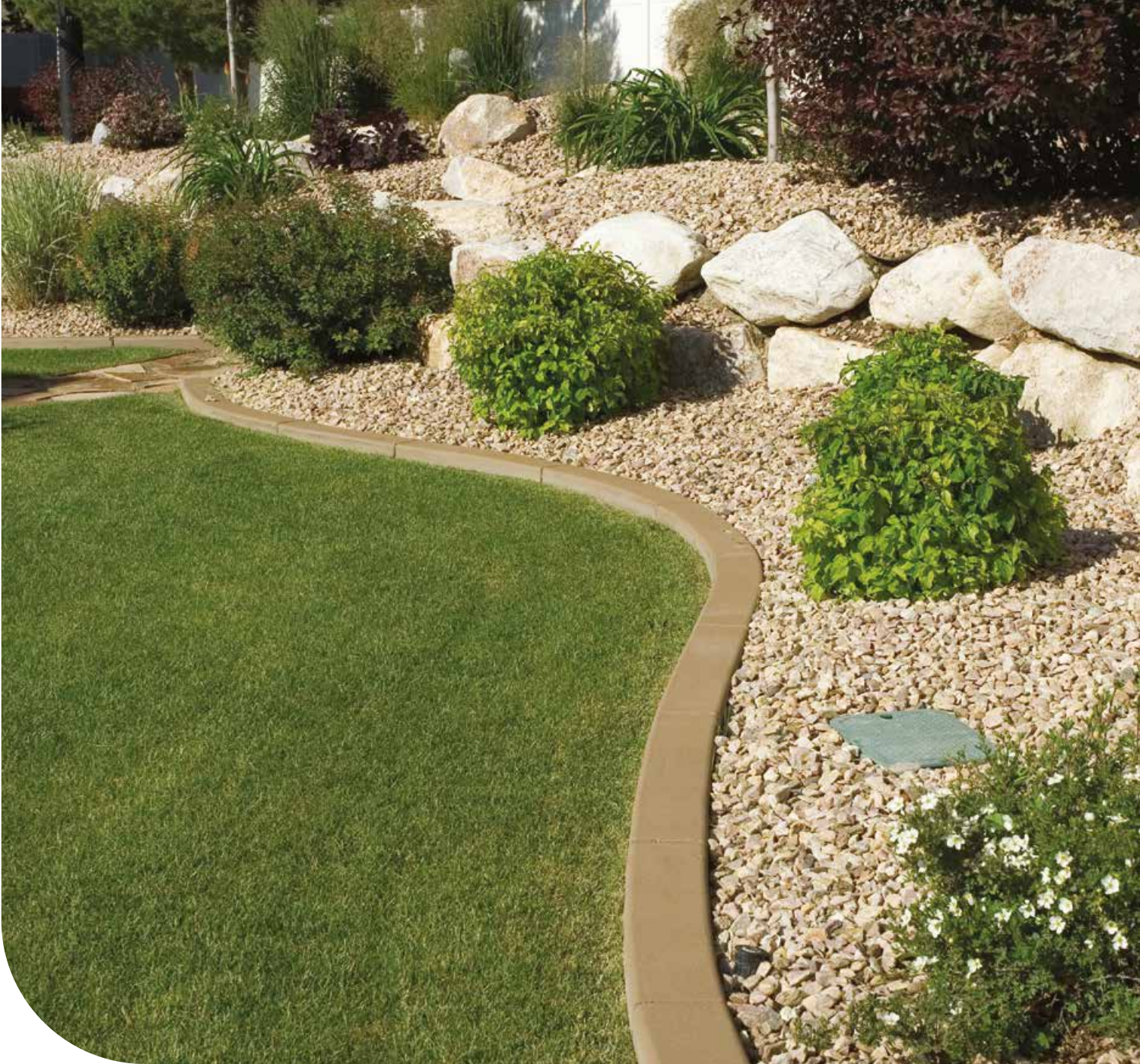


Urbanscape[®] Landscaping Solutions





Why Urbanscape[®] Landscaping Solutions?

The landscaping industry is constantly evolving to ensure:

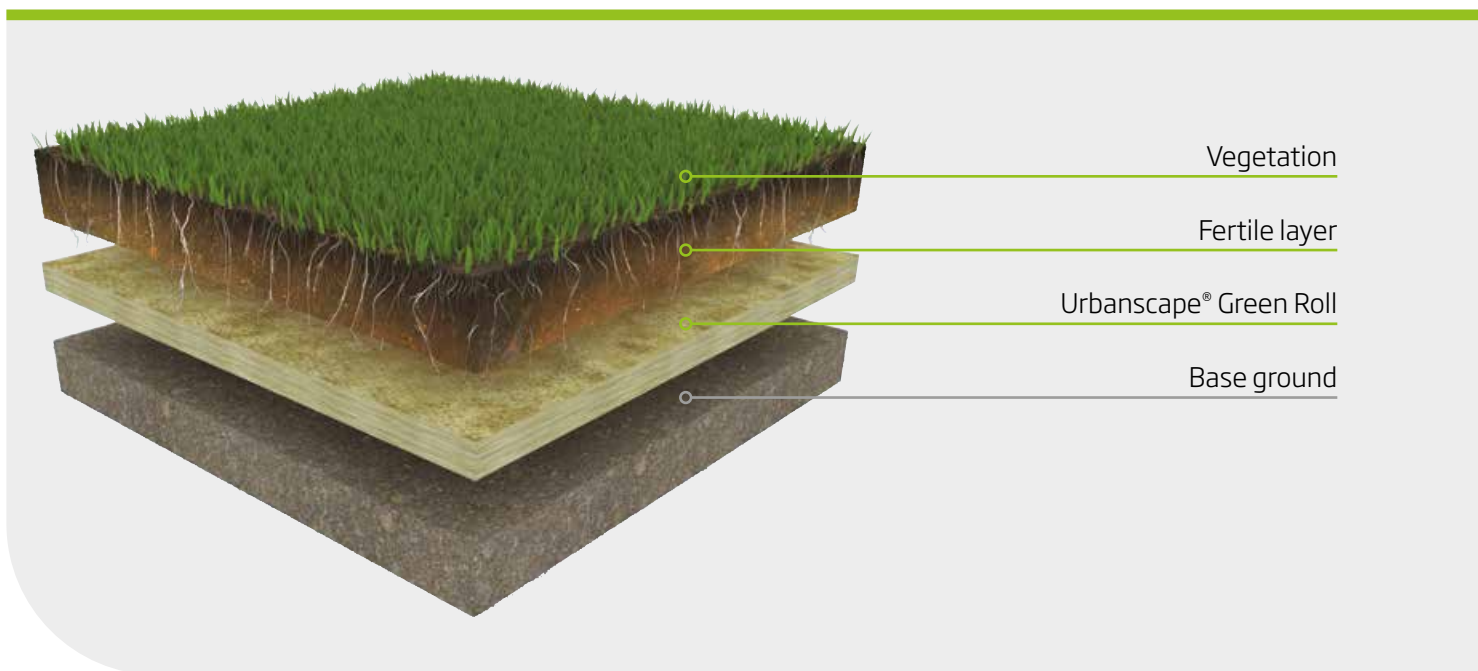
1. Good water conservation* practices and reduced evaporation
2. More vigorous plant growth and better resistance to environmental stress
3. Control over soil erosion
4. Storm water management and less storm water runoff, reducing local flooding

*Significantly reduced water consumption is just one of the primary advantages of the innovative Urbanscape[®] Landscaping System from Knauf Insulation, which is designed to meet the many challenges associated with water management.

Urbanscape® Landscaping System

Urbanscape® is an innovative and easy to install system that boasts high water retention capacity designed specifically for landscaping applications such as residential gardens, sports fields, commercial spaces, cemeteries, public parks and various complex green architectural solutions.

Urbanscape® Green Rolls are made of natural rock mineral wool fibres with superior water absorption and water retention properties. Virgin mineral fibres provide additional water storage, releasing water when required and protecting the water from percolation and reducing evaporation at higher temperatures. The system also works to promote better root distribution, which in turn encourages good plant growth and development. All this and more make Urbanscape® Green Rolls the best, most versatile solution for growing plants in the most demanding of environments.



Private/residential gardens



Public and commercial gardens and parks



Planting of trees and shrubs

What are the main benefits?



Significant water conservation

Urbanscape® Green Rolls deliver fast and long-term stable water re-absorption and water retention performance. A mere 1m² of Urbanscape® Green Roll just **2 cm** thick absorbs 17 litres of rainwater. Depending on the local climate and the weather/ season, **water savings of up to 75 % can be achieved.**



Improved root growth

The water made available in the reservoirs created by Urbanscape® Green Rolls ensures **proper plant root growth** and **well dispersed root distribution.**



Storm water management

One major advantage of Urbanscape® Green Rolls are their ability to reduce storm water runoff, which translates into **lower burdens on sewer systems.** It can lower costs by **eliminating the need for rain caching cisterns** and similar equipment commonly used to manage storm water. And high rainwater retention capability helps reduce the number of accidents caused by heavy rainfall.



Stronger plants

Thanks to the high water and fertilizer storage capacity of Urbanscape® Green Rolls, **early- and long-flowering periods can be established,** and plants are able to recover faster after extended dry periods.



Improved water air ratio



Less frequent irrigation

Urbanscape® Green Rolls ensure that the right amount of water is made available to plant roots over extended periods of time. As a result, the **need for additional irrigation systems is substantially reduced.**



Fast and easy installation

Urbanscape® Green Roll is **extremely lightweight** and easy to install.



Lower fertilizer consumption

Urbanscape® Green Rolls bind fertilizers with water to form small water reservoirs that are able to **supply more nutrients** essential for healthy plant growth.



Sustainability

Urbanscape® Green Roll is **made from various common rock mixtures** that are widely available in nature. The lightweight open structure of the product promotes extensive root distribution and vigorous plant growth.

Urbanscape® Product Range

Urbanscape® Green Roll

Urbanscape® Green Roll (HTC GR) is a lightweight landscaping product made of long rock mineral wool fibres specially needled to form a compact and dimensionally stable felt. The product is made solely of virgin rock mineral fibres. Urbanscape® Green Rolls **ensure excellent water retention and conservation** in an array of landscaping applications and is a **good addition to existing growing mediums**.



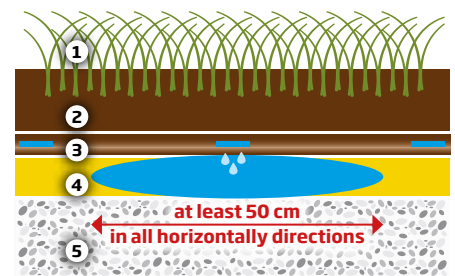
Properties

Produkt	Thickness (mm)	Water retention (l/m ²)	Weight (kg/m ²)
Green Roll	20	17	2.20
Green Roll	40	29	4.40

Other thicknesses on request

Property	Unit	Value	Standard
Nominal density*	kg/m ³	100-110 (130)***	EN 1602
Initial water absorption**	times	8.3	
Initial water absorption under 700 N/m ² pressure**	times	7.0	
Water absorption characteristics	%	72	WOK analysis
Reaction to fire		Euroclass A1	EN 13501-1
pH value		7.5	

*Valid for dry state **The ratio of the weight of water absorbed by a material, to the weight of the dry material. ***Valid for Green Roll Standard HD Certificates : CE, EUCEB, RAL, ISO 9001, ISO 14001, EN 16001, OHSAS 18001

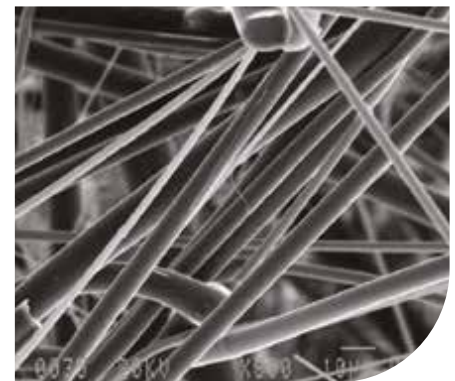


Ideal for sub-irrigation

1. Vegetation
2. Fertile layer
3. Irrigation system
4. Urbanscape® Green Roll
5. Base ground

Benefits

- 100% pure mineral growing media made of rock mixture; pure rock, no additives
- Excellent water retention capacity (can hold up to 85% volume of water)
- Significant water savings
- Long-term stability and durability
- Unique horizontal water distribution (up to 50 cm dispersion from the water source in all directions) makes it ideal for sub-irrigation
- 100% controlled production process to provide consistent properties (acquired certificates: CE, EUCEB, RAL, ISO 9001, ISO 14001, OHSAS 18001)
- A proven growing medium in the horticulture business



Long-term fibre stability

Usage / Installation

1. Simple to use

Place the Green Roll on the top of properly prepared base ground and spread a layer of fertile soil (10-20 cm) over it.

2. Usual care

Place a pre-vegetated blanket over the soil or sow seeds to the soil. Water thoroughly.

3. Less watering

The green plot should be watered regularly (using less water than usual) until the grass takes root in the Green roll. The Green Roll retains additional water so that plants have access to it as required.

Urbanscape® Green Cubes

Urbanscape® Green Cubes are a water absorbent growing medium made of virgin rock mineral wool. Green Cubes are used primarily as a **soil enhancement product**, which helps **build better soil structure** and **provides higher water retention capacity** and better aeration of the growing medium. Water contained in Urbanscape® Green Cubes is always easily available for plant uptake.

Urbanscape® Green Cubes are used for **different landscaping and home gardening applications:**

- Use alone as a growing medium in pots
- Mix with other pot media (soil, coconut fibres, peat etc.) to improve water retention capacity and aeration
- Mix into sandy or loamy garden soil to improve water absorption and water storage capacity.

Characteristics	Value	Unit	Standard
Moisture content	max. 0.05	%wt	
Fibre diameter	approx. 4.5	µm	SK_109
Cube size	20	mm	
Colour	Grey/Green		



Recommendations

- **Especially recommended for patios, terraces and home gardening.**
- Mixing regular soil with Urbanscape® Green Cubes means you can reduce watering by up to 50% and achieve higher yields. Results may vary according to the type of soil, vegetation and climate.
- We recommend mixing at least 20% of Green Cubes into the base growing medium.

Usage / Installation

- Mix with any potting growing media to improve water retention capacity and aeration. Water in the container is evenly distributed and a water buffer

- Mix into sandy or loamy garden soil to improve soil aeration, water distribution and water available for

Benefits

- Improved growing medium characteristics
- Less environmental stress on plants
- Better plant growth and roots' development
- Increased green mass of plants
- Better plant resistance

- plant uptake.
- We recommend mixing at least 20% of Green Cubes into the base growing medium.

1. Simple to use

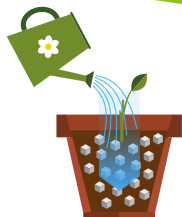


Mix Green Cubes with the substrate at a ratio of 1:5 (1/5 cubes with 4/5 substrate). The proportion of cubes can be increased when planting plants with more demanding water requirements.



Prepare the planting pit. Mix Green Cubes with the prepared soil at a ratio of 1:5 (1/5 cubes mixed with 4/5 substrate).

2. Usual care



Place the mixture in a pot. Place the plant in the ready-made mixture and water thoroughly. The cubes should be covered with soil.

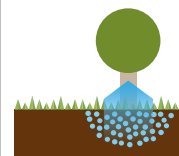


Plant the tree or bush, cover all exposed roots with the mixture and water. Cubes should be covered with soil.

3. Less watering



Green Cubes retain additional water so that the plant may access it as required.



Green Cubes retain additional water so that the shrubs and trees may access it as required.

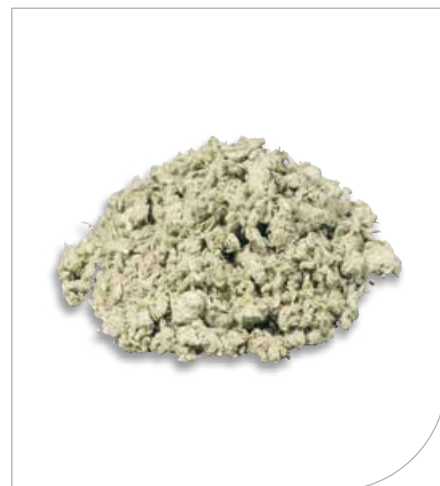
Urbscape® Green Flocks

Urbscape® Green Flocks are made of virgin rock mineral wool. Urbscape® Green Flocks are used as a growing medium for home and professional use, or to augment high quality soil for both indoor and outdoor plant production. Green flocks have superior water storage and release capabilities, **making water and nutrients easily accessible to plants**. Green flocks improve soil structure and help protect plants from environmental stress.

Urbscape® Green Flocks are used as a **high quality soil enrichment product in professional landscaping applications**.

- Mix with other container media (soil, coconut fibres, peat etc.) to improve water retention capacity and aeration
- Mix into sandy or loamy soil to improve water absorption water storage capacity and water-air ratio.

Characteristics	Value	Unit	Standard
Packaging density	200	kg/m ³	
Moisture content	max. 0.05	%wt	
Fibre diameter	approx. 4.5	µm	SK_109
Flock size	3-20	mm	
Colour	Grey/Green		



Recommendations

- **Especially recommended for outdoor professional applications**
- Mixing regular soil with Urbscape® Green Flocks means you can reduce watering by up to 50% and achieve higher yields. Results may vary according to the type of soil, vegetation and climate
- We recommend mixing at least 20% of Green Flocks into the base growing medium.

Usage / Installation

- Mix into garden soil to improve soil aeration, water and distribution and water available for plant uptake.
- We recommend mixing at least 20% of Green Flocks into the base growing medium.

Benefits

Adding Urbscape® Green Flocks to the soil yields:

- Better growing medium characteristics
- Less environmental stress on the plants
- Better plant growth and development
- Increased green mass of plants
- Improved plant resistance

1. Simple to use

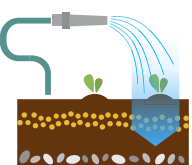


Insert Green Flocks by hand or with tools into the garden or field soil at a ratio of 1:5 (1/5 flocks mixed with 4/5 substrate).




Prepare the planting pit. Mix Green Flocks with the prepared soil at a ratio of 1:5 (1/5 flocks mixed with 4/5 substrate).

2. Usual care

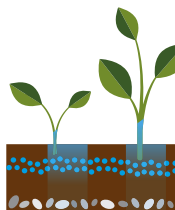


Plant or sow plants and water them. Flocks should be covered with soil.

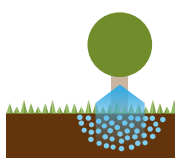


Plant the shrubs and trees, cover all exposed roots with the mixture and water. Flocks should be covered with soil.

3. Less watering



Green Flocks retain additional water, so that the plant may access it as required.



Green Flocks retain additional water so that the shrubs and trees may access it as required.

Performance Case Studies

Kuwait - Improving natural resources management

Urbanscape® Green Roll

Climate in Kuwait:

Kuwait is a small, desert country, located in the north-east corner of the Arabian Peninsula, famous for its very dry and hot climate. The flat, sandy Arabian Desert covers most of Kuwait. The summer months (April - October) are extremely hot and dry (it never rains during summer months) and while the normal day temperature is 33°C, it rises up to 51°C, i.e. 124°F, during the months of June, July and August. Winters (November to March) are cool with limited rain. Due to this weather condition in Kuwait, you will find very little vegetation in the country where only drought tolerant plants can survive without additional irrigation.

- **Vegetation used: Passpalum grass**
- **Type/area: 3 test plots**
 - Plot 1: 10 cm regular soil on top of 2 cm Urbanscape® Green Roll
 - Plot 2: 10 cm regular soil on top of 4 cm Urbanscape® Green Roll
 - Control plot: 50 cm regular soil

Visible Difference after 4 weeks



Plot 1



Plot 2



Control plot

**Water saving
up to 40% has
been achieved.**



Ornamental plant growth and development

Urbanscape® Green Cubes

1. Plant growth

Procedure

- **Ornamental plant tested:** Trailing, cascading pelargoniums (*Pelargonium peltatum*)
- **Substrate used:** professional substrate with NPK ratio of 14:10:15, pH value of 5.5. - 6.5.
- **Different scenarios, mixing fibres into substrate used:**

- Measurements for the following parameters were taken:

A number of inflorescences

B number of shoots

C above-ground mass

D dry above-ground mass

(72 hours at 80 °C)

E fresh root mass

F dry root mass

Ratio (Urbanscape® products : commercial substrate)

100% professional substrate (control)

40 % Urbanscape® Green Cubes : 60 % professional substrate

Recorded effects for Ville de Paris Red pelargonium

1. Number of shoots:
11.3% average increase

2. Number of inflorescences:
38% average increase

3. Average mass of non-dried stems:
9.6 % increase

4. Average mass of non-dried roots:
25.5% increase

5. Average mass of dried stems:
6% increase

6. Average mass of dried roots:
22% increase

2. Water retention characteristics of different substrate mixtures (soil vs. soil with Urbanscape® products added):

Substrate mixtures			
Measurement	100 % professional substrate (control)	60 % Urbanscape® Green Cubes 40 % professional substrate	40% Urbanscape® Green Cubes 60 % professional substrate
Water retention (ml)	399,5	652,5	574,5

approx. 60%
 (vs. 100 % professional substrate)

About 60% increase in water retention capacity.

Highest water retention was recorded in the case where 60% of Green Cubes was added to the substrate. In this case, we observed about **60% increase in water retention capacity** (results obtained for substrates only, without plants).

See the difference...

100 % commercial substrate vs. mixing Green Cubes into commercial substrate



Urbanscape® Applications

Landscaping Applications



Gardens



Sports fields



Slope greening/Erosion control



Railway greening



Public green leisure areas



Cemeteries



Agriculture in dry areas



Desertification

Urbanscape® Systems

Urbanscape® Systems have been developed for various applications in order to meet an array of water management requirements.



Urbanscape® Green Roof System



Urbanscape® Landscape Solution



Urbanscape® Horticulture



Urbanscape® Home & Gardening


About Knauf Insulation

Knauf Insulation is one of the leading and fastest growing manufacturers of insulation materials; our mission is to become the world leader in energy efficient systems for buildings. Building on over 40 years of expertise in energy efficiency, we are focused on providing a comprehensive range of solutions for residential and non-residential buildings and industrial customers. We are committed to providing building materials that deliver real performance to improve sustainable construction.



Living with a Green Heart is an initiative that focuses on the importance of a balanced and proactive contribution towards achieving all 17 Sustainable Development Goals of the United Nations 2030 Agenda for Sustainable Development. It presents a unique story, approach and solutions that promote human transformation from mechanical into conscious and responsible individuals, building homes from natural materials that boost well-being and a better world for ALL.

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August 2022