

UNIPRO

SECTION J

UNI-RUBBER

RUBBER

Crumb Rubber

www.unipro-ikk.com

The crumb rubber has an output of 4 grades, and can be made into any shape or colour depending on its use and application.

1. 5 – 10 Mesh Size (4 – 2 mm)
2. 10 – 14 Mesh Size (2 – 1.4 mm)
3. 14 – 30 Mesh Size (1.4 – 0.5 mm)
4. Minus 30 Mesh Size (0.5 mm)

UNIPRO uses different sizes of crumb rubber to produce a variety of environmentally friendly value added products.



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USE / APPLICATIONS

This crumb rubber is used mainly in running tracks, grass-surfaced playing areas, stadium playing areas, miniature golf courses and in artificial turf infill.

OTHER BENEFITS OF THIS PRODUCT ARE

- Safer playing surface
- Reduces mud spots
- Prevents bare spots
- Extends lawn growing season
- Reduces soil compaction
- Metal free
- Environmentally friendly

BENEFITS

Adding crumb rubber to sports surfaces provides two main benefits: Increased safety and performance enhancement. When applied to running tracks, the rubber modified surface absorbs most of the impact thus preventing strain on the body.

CHEMICAL AND PHYSICAL PROPERTIES OF BEE'AH'S CRUMB RUBBER

Appearance and Odor:	Black granules
Specific Gravity:	0.03 +/- 1.14
Auto-Ignition Temperature:	°700F
Flashpoint (COC):	°475F
Stability:	Stable
Solubility in Water:	Nil
Wt. % Volatile:	< %1 primarily water
Hazardous Polymerization : (PVC) Poly Vinyl Chloride	None



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Tests conducted on crumb rubber products prove an improved ergonomic support system on personal safety and health, with decreased injuries and enhanced risk management.

Product	Recycled product	Wheelchair Accessible	Maintenance needed	Choking hazard	Cost effective	Long term cost	Installation cost	Manuf. Warranty
Bee'ah Safety Surfacing	Yes	Yes	Very Low	No	High	Very low	Low	5 years*
Pea Gravel	No	No	High	Yes	Medium	Medium	Low	No
Wood Fiber	No	No	High	Yes	Low	High	Low	Yes
Poured in Place	Maybe	Yes	Medium	Yes	Low	High	High	Yes
Rubber Mats	Maybe	Yes	Low	No	Low	High	High	Yes
Sand	No	No	High	No	Low	Medium	Low	No
Shredded Rubber	Yes	No	High	Yes	Low	High	Low	Conditional
Wood Chips	No	No	High	Yes	low	High	Low	No

With these most comparative ratings, UNIPRO's products and designs provide a cushioned and resilient support system that ensures superior durability and physical comfort.

THE ADVANTAGES OF CRUMB RUBBER

- **Good for the environment:** Made of 100% recycled rubber from used vehicle tyres. It is estimated that in the emirate of Sharjah 1.4 million tyres are thrown out in a single year, thus UNIPRO recycles all types of tyres, from motorcycles through to tractor tyres. The main purpose for recycling used tyres is to alleviate the landfill from its large volumes and space.
- **Exceeds normal product standards:** Due to its resilience and durability as a material, crumb rubber is used in various flooring applications such as jogging tracks, athletic fields and golf courses. The drive behind using this material in athletic arenas is the fact that it has many benefits for athletes, namely increased safety and enhanced performance.



RUBBER

Coloured Rubber Mulch

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UNIPRO produces recycled rubber mulch in a variety of colours for use in landscaping around shrubs, walkways etc. as well as a landscape paver system for manufacturing complete pavers for walkways, garden patios, and driveways. Also available as a chip, providing highly realistic and longer lasting alternative to organic bark or woodchip, and can be laid loose or bonded.

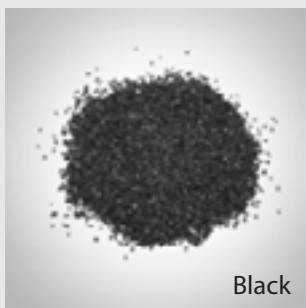
EQUINE APPLICATIONS

Mixed with sand Rubber mulch gives horse arenas optimum traction and shock absorption, hence reduces strain on horses.

BENEFITS

- Strong, secure and dust free
- Minimizes injuries
- Reduces dirt and dust in outdoor and indoor arenas
- Reduces maintenance
- Environmentally friendly

AVAILABLE RUBBER MULCH COLOURS



RUBBER

Coloured Rubber Mulch

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LANDSCAPING APPLICATIONS

Can be used for decorative purposes in private gardens, parks and playgrounds.

BENEFITS

- Ideal alternative to decorative gravel.
- Can be used for indoor or outdoor applications.
- Ensures and retains moisture for live plants, and protects erosion of the soil.
- Reduces fungus growth.
- Will not rot or blow away. No need for annual replacement.
- Does not absorb water, does not attract animals and insects.
- Dries quickly yet retains soil moisture during dry weather.
- Resists compaction in high wear areas.



RUBBER

Coloured Rubber Mulch

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UNIPRO has acquired a colored rubber mulch production system, this system takes the 2 inch shreds and reduces them to a mulch size of 10 mm to 32 mm. There are five main operations in the recycled rubber mulch system; these are:

- Granulation: The shreds are processed through a large granulator that reduces them in size and at the same time removes most of the steel contained in the rubber shreds.
- Steel Rubber Removal: The granules that come out of the large granulator are processed through two over-belt magnets that remove any rubber that still contains steel.
- Coloring: The mulch sized rubber pass through a coloring system in batches (A multitude of colors can be used). It is important to note that nontoxic paint is used in this process.

- Drying: The colored rubber mulch goes through a dryer to dry the paint and to avoid the mulch sticking together when bagged.
- Bagging: The final product is bagged in 50-pound sized bags.

This system is electrically powered and is capable of generating 6,000 pounds of colored rubber mulch per hour.

The following table shows the results of testing that were conducted by RMD Americas in regards to safety when it comes to the use of rubber mulch in playgrounds:

Critical Fall Height*	Material
12 feet	Rubber Mulch
12-10 feet	Shredded Tires
07 feet	Wood Chips
06 feet	Double Shredded Bark Mulch
06 feet	Engineered Wood Fibers
06 feet	Fine Gravel
05 feet	Course Sand
05 feet	Medium Gravel

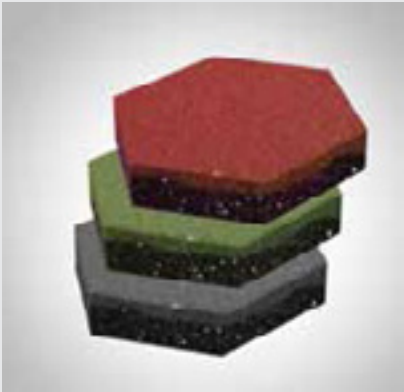
RUBBER

Recycled Rubber Tiles & Pavers

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An environmentally-friendly product made from clean recycled rubber, available in a variety of colours, can be used in many applications, both indoor and outdoor, such as playgrounds, walkways, sports complex, golf clubs, health-care centers, day care centers, nursing homes, malls, basement floors, or can be used for dressing borders and pathways.

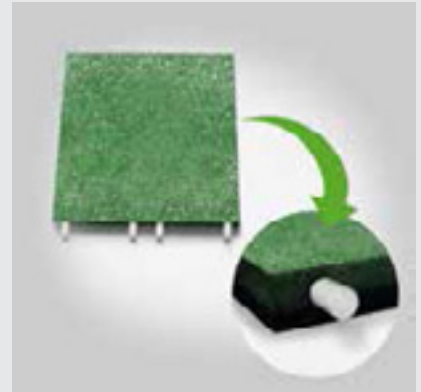
Tiles and pavers are laid down according to our client's needs and designs, by our team of professionals in a number of patterns. Tiles and pavers are provided in a variety of thickness of 25mm / 30mm / 45mm / 50mm, in the following shapes:



Hexagon-shaped Pavers
300mm X 300mm



I-shaped Pavers
200mm X 160mm



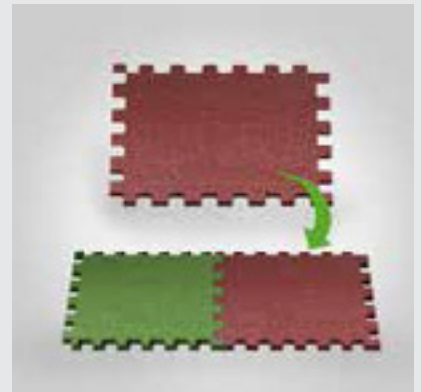
Anti-shock flooring Tiles
Come in sizes 60X60 /
80X80 / 100X100



Rectangular-shaped Pavers
125mm X 250mm



Square Z-designed Pavers
230mm X 230mm

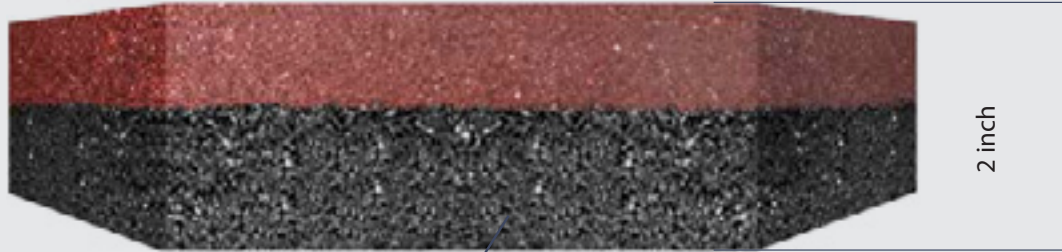


Puzzle-shaped Tiles
500mm X 250mm

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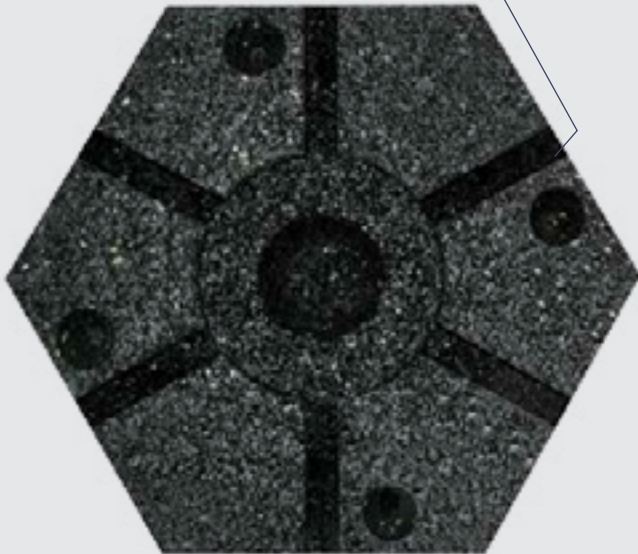


Eco-Friendly

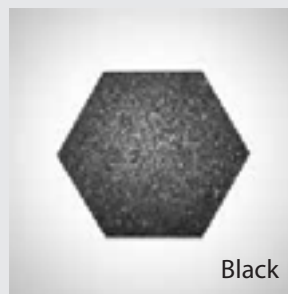
Made from clean recycled rubber.
Non-toxic and latex free.

Exclusive Drainage Design

Water drains easily. Can play right after the rain.



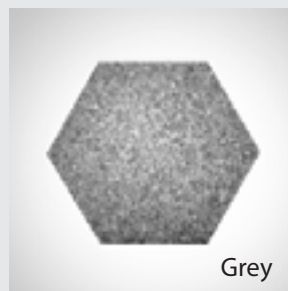
Color Sample



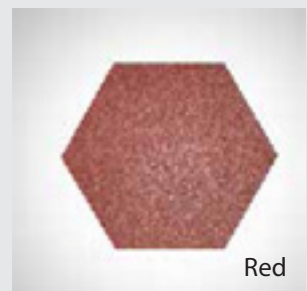
Black



Green



Grey



Red

RUBBER

Recycled Rubber Tiles & Pavers

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THE ADVANTAGES OF RUBBER TILES & PAVERS

- **Safety:** Superior slip resistance and shock absorption qualities, make them the safest alternative flooring product for any high traffic areas, especially in playgrounds, fitness centers, parks and gymnasiums.
- **Designed for disassembly:** Can be installed over a variety of surfaces and if one becomes damaged, there is no need to replace the entire surface, unlike concrete tiles.
- **Low Maintenance:** The crumb rubber tiles are non-toxic and latex-free. They have an exclusive drainage design, allowing for rain water to drain easily, so running tracks and playgrounds can be used right after, without having to wait for the water to dry up; and easily eliminates dirt and mud.
- **Durability:** In the warm climate of the UAE, concrete tiles or wood flooring tend to crack and come apart. However, rubber tiles last longer, are prone to warm weather and can easily be changed, without having to remove the entire flooring system.



RUBBER

Recycled Rubber Molded Products

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PARKING BUMPERS & CAR STOPS

Rubber parking bumpers and stops are useful in the organization of parking areas and roadways. Designed in a bar-like structure, they assist in outlining the barrier of a designated parking spot. Not only do they reduce the chances of lowimpact accidents from happening, they stop drivers from “over parking”. This product also gives the structure a perfect finishing touch so that a parking lot looks professionally constructed thus, adding a level of sophistication to the environment.

Rubber parking bumpers are very lightweight and can easily be moved from place to place by one person. They provide an easy-to-use alternative which gives facility personnel more control over their parking organization. They last longer than concrete blocks, will not chip and will not cause damage to cars



RUBBER

Recycled Rubber Molded Products

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CURB STONE & SIDEWALKS

Ideal for creating traffic circles, curb extensions, medians, or lane widening or narrowing, rubber curb stones are made of flexible rubber that allow to be bent and shaped in any configuration. Available in a choice of white or yellow stripes embedded onto each unit, the rubber curbing is highly visible even in poor lighting conditions. With the flexibility required to create customized solutions, Bee'ah's rubber curbing products can be used in any traffic setting.



RECYCLED RUBBER TREE RINGS

Recycled rubber tree rings are placed around the bottom of the tree bark and can be used in parks, gardens or pedestrian walkways.

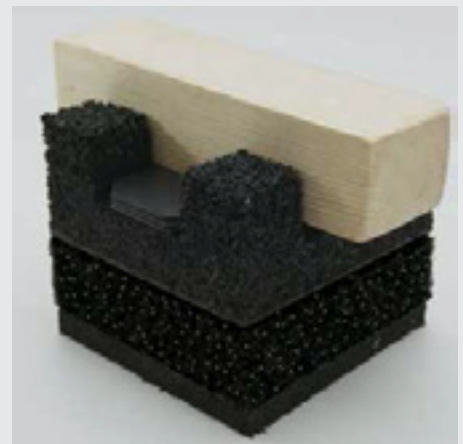
The Benefits for using Recycled Rubber Tree Rings:

- Insulates the soil protecting it from heat, and keeps it moist.
- Prevents weeds from growing.
- Does not attract wood termites, ants and other garden insects.
- Safe for urban plants and pets.
- Ideal for pavements and walkways.
- Extra cushioning providing additional safety for pedestrians and children.



FLOOR LEVELING SYSTEMS

Unique supports made from recycled rubber are used as raised flooring to accommodate underfloor services, and can also be used for on-site levelling to eliminate unevenness in the structural floor surface. These can be used for refurbishment, conversions and even new building projects, enabling an extensive range of finished floor heights, with significant noise reduction and exceptional support to all floor coverings.



RUBBER

Jogging Track Surfaces & Fitness Trails

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UNIPRO's recycled rubber can be adapted into the creation of walking and jogging tracks for indoor or outdoor use in parks, gymnasiums, athletic fields and sports centers. The 100% recycled crumb rubber is mixed with 100% polyurethane binder to create an athletic surface. The rubber jogging surface allows for an incredibly comfortable «cushion like» surface that's easier on the legs and knees which makes it most preferred by all players and athletes.

BENEFITS

- Seamless
- Drains Quick
- Easy to Maintain
- Proven Durability
- Materials are made from 100% recycled rubber in the UAE



RUBBER

Rubberized Asphalt

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In partnership with leading contractors, Bee'ah also offers rubberized asphalt and recycled green roads, which help improve safety, enhance driving and reduce maintenance costs.

Rubberized asphalt is comprised of crumb rubber mixed with asphalt and applied in new roads. This technology is currently used in a number of countries around the world, and has many benefits over existing asphalt – the return on investment alone has resulted in ongoing savings to the cities who have implemented the technology. Another advantage of asphalt rubber over conventional asphalt is that it creates a safer and

longer lasting road system. It decreases the cost of building roads, increases the lifespan to almost double of road surfaces, enhances traction for cars on road surface and reduces noise generated from passing vehicles.

Recycled green roads are useful in the maintenance of roads and are remodeled on-site; whereby a state-of-the-art machine removes the existing road asphalt and road base, mixes it with cement and water, and then reapplies the road in a matter of minutes. This not only saves time in remodeling but also cuts maintenance expenses.

