

# Guide to synthetic infill products

## Glossary of Terms from the Synthetic Turf Council:

### CRUMB RUBBER AND COATED RUBBER INFILL

Crumb Rubber is derived from scrap car and truck tires that are ground up and recycled. Two types of crumb rubber infill exist: Ambient and Cryogenic. Together these make up the most widely used infill in the synthetic sports field and landscape market. Crumb rubber infill is substantially metal free, and, according to the STC Guidelines for Crumb Rubber Infill, should not contain liberated fiber in an amount that exceeds .01% of the total weight of crumb rubber, or .6 lbs. per ton.

Coated Rubber: Both ambient and cryogenic rubber can be coated with colorants, sealers, or anti-microbial substances if desired. Coated rubber provides additional aesthetic appeal, reduction of dust by products during the manufacturing process and complete encapsulation of the rubber particle.

### EPDM INFILL

EPDM (Ethylene Propylene Diene Monomer) is a polymer elastomer with high resistance to abrasion and wear and will not change its solid form under high temperatures. Typical EPDM colors are green and tan. EPDM has proven its durability as an infill product in all types of climates. Its excellent elasticity properties and resistance to atmospheric and chemical agents provide a stable, high performance infill product.

### ORGANIC INFILL

There are several organic infills available in the North American market, all utilizing different organic components, such as natural cork and/or ground fibers from the outside shell of the coconut. These products can be utilized in professional sports applications as well as for landscaping. At the end of its life cycle it can be recycled directly into the environment.

### SAND (SILICA) AND COATED SILICA SAND INFILL

Pure silica sand is one of the original infilling materials utilized in synthetic turf. This product is a natural infill that is non-toxic, chemically stable and fracture resistant. Silica sand infills are

typically tan, off-tan or white in color and - depending upon plant location - may be round or sub-round in particle shape. As a natural product there is no possibility of heavy metals, and the dust/turbidity rating is less than 100. It can be used in conjunction with many other infills on the market to provide a safe and more realistic playing surface. The round shape plays an integral part in the synthetic turf system. It is important that silica sand have a high purity (greater than 90%) to resist crushing and absorption of bacteria and other field contaminants. Silica sand can either be coated with different materials as a standalone product or can be used to firm up in combination with traditional crumb rubber infill systems.

Coated Silica Sand. This class of infill consists of coated, high-purity silica sand with either a soft or rigid coating specifically engineered for synthetic turf. These coatings are either elastomeric or acrylic in nature (non-toxic) and form a bond with the sand grain sealing it from bacteria to provide superior performance and durability over the life of a field. Coated sand is available in various sizes to meet the application's needs.

Depending on the amount and type of infill, coated sands can either be used with or without a pad and are available in various colors. All of the coatings are non-toxic and are bonded to the quartz grain for superior performance and durability over the life of your field. These materials are typically used as a homogenous infill which provides both ballast and shock absorbing qualities to a synthetic turf application.

### TPE INFILL

Thermo plastic elastomer (TPE) infill is non-toxic, heavy metal free, available in a variety of colors that resist fading, very long lasting, and 100% recyclable and reusable as infill when the field is replaced. TPE infill, when utilizing virgin-based resins, will offer consistent performance and excellent g-max over a wide temperature range. ■

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### BRAND NAME: CUSHIONFALL SPORT

**What it is:** Colored and Encapsulated SBR Recycled Crumb Rubber Infill, covered in a special coating using a specialized patent-pending process.

#### Selling points:

- Lead free
- Reduces heavy metal leachates of crumb rubber by 80%
- Less odor and dust
- Minimizes static cling
- Improves water permeability
- Improves Gmax levels

**Color:** Green or Tan

**Manufacturer:** Color Biotics

### BRAND NAME: CUSHIONFALL SPORT GREEN

**What it is:** Rubber infill coating

#### Selling points:

- Bright green encapsulation of rubber crumb material contributes to vibrant, more realistic-appearing surface (better for HD TV)
- Extends life of crumb rubber and is UV-resistant, helping fields retain their shock-absorption properties and reducing static
- Reduces volatile organic compounds by 71% and heavy metal runoff by 80%

**Colors:** Green, Tan, Silver

**Manufacturer:** Color Biotics

### BRAND NAME: ENVIROFILL

**What it is:** Acrylic-coated, rounded sand

#### Selling points:

- Lower the surface temperature of a synthetic turf field.
- "Microban" protection against bacteria, mold and mildew that can cause stains, odors and product deterioration.
- Can be reused for at least two turf life-cycles because it's not mixed with other infills
- Round infill plays very consistent
- No odor, dust, leachate or VOC's.
- Does not cling

**Colors:** Green or Cool Tan

**Manufacturer:** USGreentech

**BRAND NAME: FLEXSAND ACTION**

**What it is:** Polyolefin elastomers and high-purity quartz coated sand infill

**Selling points:**

- Shock absorption qualities and the ballast performance of raw sand
- Eliminates static charge
- Low abrasive index; no chemicals or metals
- Reduces “kick out” of infill material
- Uses cross-linking molecular bonding to ensure coating’s integrity

**Color:** Sand

**Manufacturer:** Fairmount Sports + Recreation

**BRAND NAME: ENTECH**

**What it is:** SBR rubber infill

**Selling points:**

- Material made out of only all black commercial truck tires containing no fiber
- Very low dust and no white sidewall particles
- Inexpensive, durable, no fiber, recyclable
- Playability and shock absorbing qualities
- Service all Midwest by truck

**Color:** All Black

**Manufacturer:** Entech Inc.

**BRAND NAME: FLAMEGUARD**

**What it is:** Polyolefin-based infill pellets

**Selling points:**

- Will quickly extinguish flame spread
- Non-abrasive, performance layer added as a small topdressing application to a standard infill mix

**Color:** Black

**Manufacturer:** FieldTurf

**BRAND NAME: FLAMEGUARD GREEN**

**What it is:** Infill pellet

**Selling points:**

- Environmentally friendly pellet that extinguishes flame spread and is made using recycled artificial turf fibers

**Color:** Green

**Manufacturer:** FieldTurf

**BRAND NAME: NATURAFILL**

(part of system, not sold separately)

**What it is:** Organic infill composed of 100% cork

**Selling points:**

- Recyclable and re-usable with no by-products

- Odorless
- Cork will not crumble or become deformed
- Drains off rather than absorbs water
- Not a medium for microorganisms
- Cooler than rubber infill

**Color:** Cork

**Manufacturer:** Domo Sports Grass

**BRAND NAME: INFILLPRO GEO**

(part of system, not sold separately)

**What it is:** natural cork and coconut fiber (coir)

**Selling points:**

- Reduces heat of synthetic turf system
- Increased foot stability
- Lower Gmax
- Highly permeable for improved drainage
- 100% organic and Earth friendly, 100% recyclable

**Color:** Earth brown

**Manufacturer:** Limonta Sport Spa

Type of Infill	Material Cost of 90,000 sq ft Field	Pro	Con	Comment
Ambient Rubber	\$50,000	It works, low cost	?	Qualifies for LEED credit
Cryogenic Rubber	\$100,000	It works	Cost 2x more than ambient	Qualifies for LEED credit, some area supplies are monopolized by one turf company so they try to get it specified to give them a cost advantage.
Silica Sand	\$15,000	Uniform size, lower Gmax (20%)	Cost 10x more than angular	Owner's choice if about \$13,000 is worth it
Angular Sand	\$2,000	Cost 1/7th	Compacts a bit more	Haven't seen the "cuts turf fibers" that some companies claim—even in 12-yr-old fields
Colored, Man-Made Rubber	\$220,000	Special look	Cost \$160K more than ambient	Can lower surface temp by 3-10 degrees
Color-Coated Rubber	\$280,000	Special look	cost \$220K more than ambient	Can lower surface temp by 3-10 degrees, still get some LEED points
Rubber(green)-Coated Sand	\$100,000	Rubber & sand can't separate	Cost 2x more than ambient	Can lower surface temp by 3-10 degrees. Raises Gmax considerably (50%?)
Coconut Husks +	haven't used it			Qualifies for LEED credit
Cork or Walnut	haven't used it			Qualifies for LEED credit

**Note:** All prices vary and these are representative costs for relative cost analysis; compiled by W. Todd Smith, PE, LEED-AP, Academy Sports Turf, LLC, Englewood, CO.