// FAQs

Geofill®

What is GeoFill?

GeoFill is an environmentally-friendly alternative infill for synthetic turf systems.

How long has GeoFill infill been used and how many GeoFill fields have been installed?

GeoFill has been used since 2005. Over 500 GeoFill fields have been installed world-wide. (Reference List Available)

What is the make-up of the GeoFill?

GeoFill is 90% coconut and 10% cork.

Where is the source for the coconut raw material?

The coconut for our Geofill system comes from Sri Lanka or India.

Is there any performance data for a FIFA 2 Star recommended product which includes GeoFill?

GeoFill Product Performance Properties

PROPERTY	FIFA 2 STAR LIMITS	ELITE GEO 45P	ELITE GEO 45G	ELITE GEO 2.5
g-max		98	100	118
Force Red (%)	60-70%	65	65	66
Vertical Deformation (mm)	4-11 mm	9.0	9.6	10.0
Rotational Resistance (NM)	30-45 NM	40	40	36
Vertical Ball Rebound (m)	0.6-0.85 m	0.75	0.71	0.82
Ball Roll (m)	4-8 m	5.0	5.0	5.1

How does the infill splash (fly) of GeoFill compare to fields with crumb rubber infill?

A properly maintained GeoFill system has little to no infill splash or fly.

Do GeoFill systems require a pad?

All 100% GeoFill systems require a shock pad. A system containing a combination of GeoFill and SBR crumb rubber can be installed without a pad.

What is the warranty of a Shaw Sports Turf synthetic turf field with the Geofill infill mixture?

Shaw Sports Turf systems with the Geofill infill mixture carry the same standard 8 year warranty as all other Shaw Sports Turf systems.

// FAQs

GeoFill®

Does it require a watering source and what is the optimum moisture percentage?

The watering requirements for the GeoFill system are directly related to the amount and frequency of rainfall and the relative humidity at a given location. The optimal level of moisture in the GeoFill system is between 30% and 40%. If an installation is located where occasional precipitation and humidity is in the 30-50% range, less mechanical irrigation is required. However, the system's moisture content should be monitored at least twice a week when no precipitation has taken place to naturally add. If the system drops below a 30% moisture reading, approximately 3,200 gallons of water should be added to an 80,000 square foot field (5 oz. per square foot). Typically, during a dry period this would not have to be done more than two times per week. Cloud cover and sunlight will affect the evaporation of the water from the system, and need to be monitored with the other variables noted above.

What happens in drought conditions when watering restrictions are in effect, and the system cannot be watered?

If the proper moisture content is not maintained, the system can become dusty, more splash can be seen, and the playing speed can be slower. Under these conditions, additional GeoFill may need to be added more frequently (dry GeoFill breaks down more quickly than properly maintained GeoFill).

How is the moisture content of the GeoFill system measured?

Moisture content can be measured by using a meter such as the Extech MO210 Moisture Meter.

What is the moisture content when the GeoFill is shipped?

The moisture content at shipping is generally around 20%.

What routine maintenance is required?

The synthetic turf system with GeoFill should be maintained in accordance with the Shaw Sports Turf Maintenance Manual as written for routine maintenance. If larger issues arise that are not covered in the maintenance manual, a solution would be developed on a case by case basis.

Is there any additional yearly maintenance required?

Shaw Sports Turf GeoFill systems should be de-compacted on yearly basis by a Shaw Sports Turf crew or a Shaw Sports Turf certified maintenance crew. This is typically a one-and-a-half to two-day process.

Can the customer do their own yearly decompaction?

With the proper equipment and training, a customer could do their own yearly decompaction; however, we would prefer that a properly trained Shaw Sports Turf crew or a Shaw Sports Turf certified maintenance crew do the yearly maintenance.

// FAQs

GeoFill®

When does the system need to be topped off, and how much?

If the moisture content of the GeoFill is maintained correctly, approximately 10% of the GeoFill will need to be replenished every 2-3 years. Based on an 80,000 square foot field requiring 1.5 lbs. of GeoFill per square foot, 12,000 lbs. (or 7 bags) would need to be added every two to three years. This process will include a decompaction, the addition of the new GeoFill, and a final grooming. This process will take two to three days.

Does the degradation of the GeoFill over time affect the drainage properties?

Experience with these fields has not shown drainage to be negatively affected.

Will dry GeoFill blow away?

Dry GeoFill will not typically blow away; however, if the proper moisture content is not maintained, the dry system can become somewhat dusty.

Are there any limits to hours of play on a GeoFill system?

No, there are no limits on hours of play. However, higher usage will require more frequent routine maintenance. As with any Shaw Sports Turf system, all high use areas should be monitored frequently for proper infill depth. If the infill depth is low in any area, it should be brought up to the proper depth immediately.

Does the GeoFill system freeze or get hard in the winter?

The system typically contains moisture, so without any type of treatment it stands to reason that some freeze/thaw will take place. We recommend a pre-winter treatment with a salt solution of 0.2 lbs. salt/sq. ft. mixed into the GeoFill infill system. While this will decrease the freezing potential, GeoFill, like natural grass and traditional synthetic turf fields, will become harder during freezing weather.

Will heavy rain affect the playability or drainage of the field?

During heavy rains the GeoFill may become saturated, but the drainage and playability should not be affected.

Do weeds grow in the system, if so, how are they treated?

While this does not happen in most environments, some environments have led to weed growth. The system has been treated with a herbicide (that is naturally washed out of the system) to effectively to kill the weeds. A pre-emergent has also been used to further control weed growth in those areas.

Will GeoFill be more likely to harbor bad bacteria such as MRSA than traditional synthetic turf systems?

There is no documented proof of this being the case. With respect to our systems (GeoFill/Sand), and the benefits of sunlight/UV, these systems will closely match natural grass fields as it pertains to harboring any contaminant. Coconut, or Coir, fibers are completely natural and biodegradable. They are used as a growing medium in greenhouses because it retains moisture very well and is free of bacterial and fungal spores.

// FAQs

GeoFill®

Are birds and animals attracted to GeoFill more than traditional synthetic turf?

GeoFill is not a food source, so there has been no evidence that this is the case.

Will the GeoFill system pass synthetic turf flammability tests?

A properly maintained (proper moisture content) GeoFill Field will pass ASTM D2859 (pill burn test) and ISO 11925-2 (filter paper test).

How is the GeoFill delivered to the field?

GeoFill comes in 1784 lb. super sacks loaded on a flatbed truck. Typically 22 bags/truck.

How is GeoFill Installed?

GeoFill is installed with the same equipment and the same techniques as standard infill. GeoFill cannot be installed when the field is wet or when it is raining.

Can game lines be painted on a GeoFill system?

Yes.

If a GeoFill field is painted and then groomed, is there any impact on the aesthetics of the field?

The grooming process should not affect the overall aesthetics of the painted game lines.

Are people with peanut allergies at risk on a GeoFill field?

No. Coconut is not a nut or a legume (like peanuts). Coconuts are part of the palm tree family.

Explain the cooling effect of GeoFill.

The excellent moisture retention capabilities of GeoFill allows the infill system to absorb water which is released when sunlight warms the field. The release of water removes heat from the field by evaporative cooling. The surface will remain cooler as long as there is water present in the system. When compared to crumb rubber infilled fields, GeoFill fields have been seen to be 40 degrees F cooler than traditional synthetic turf fields. Test result are available upon request.

Can GeoFill be recycled or re-used?

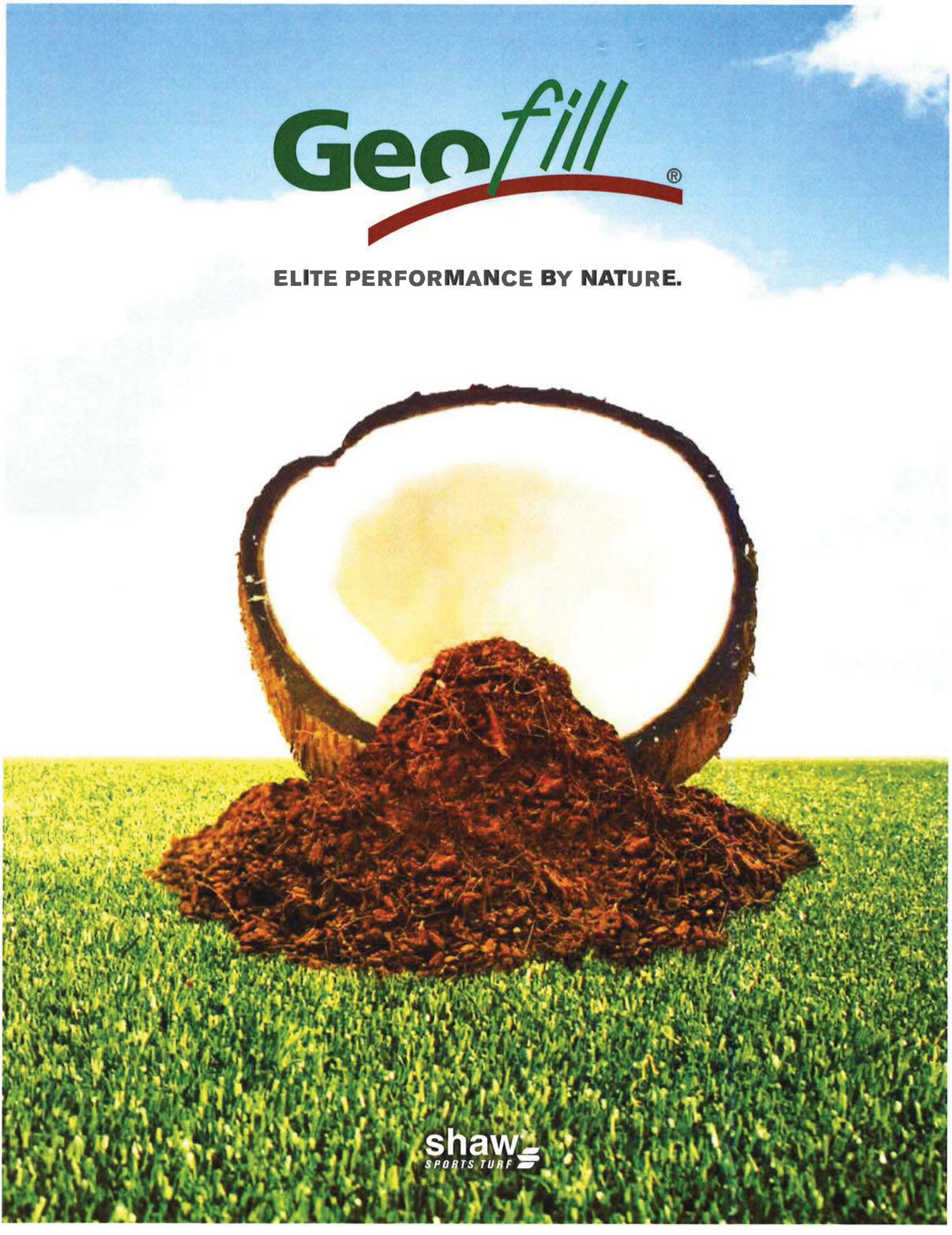
A large percentage of the existing GeoFill can be removed from the synthetic turf system and the mix is perfect for top-dressing of natural grass fields or landscaped area. Coconut, or Coir, fibers are completely natural and biodegradable. It is used as a growing medium in greenhouses because it retains moisture very well and is free of bacterial and fungal spores.

How do you remove snow and ice from the GeoFill system?

Refer to the Shaw Sports Turf Maintenance Manual for the recommended guidelines for snow removal. If these recommendations are followed, there should be no adverse effect to the GeoFill system. It is important to point out that no removal method should dig into, or gouge the surface.

We do not recommend breaking up ice from the surface and removing, as infill may be stuck in the ice.

THIS IS CONSIDERED A GENERAL GUIDELINE. IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT YOUR SHAW SPORTS TURF REPRESENTATIVE, AND WE WOULD BE MORE THAN HAPPY TO ADDRESS ANY QUESTIONS YOU MAY HAVE.


Geofill®
ELITE PERFORMANCE BY NATURE.
shaw
SPORTS TURF

THE TOP FIVE REASONS TO CHOOSE Geofill®

1 IT'S NATURAL.

Geofill is the leading natural alternative infill in the synthetic turf market. It is made from completely natural materials that are environmentally friendly. Geofill is composed primarily of coconut husks and fibers.* Coconut fibers are 100% organic and are a rapidly-renewable resource.

2 IT PERFORMS.

Geofill provides the natural footing and support of a natural playing field without the mess of dirt and instability of other infill systems. Geofill demonstrates great infill stability and excels in critical ball-to-surface interactions such as ball roll and ball bounce. The use of a shock pad with a Geofill system keeps the field safe, while providing the best in performance characteristics. GeoFill performance infill looks and performs like natural soil with the added benefit of continuous hours of play you expect from high performance synthetic turf systems from Shaw Sport Turf.

3 IT'S COOLER.

As an absorptive organic material, Geofill is inherently cooler than other synthetic turf playing surfaces. The coconut fibers in Geofill have excellent moisture retention qualities which allows the system to absorb water; which is released when sunlight warms the field. The release of water removes the heat through evaporative cooling. The surface will remain cooler as long as there is water present. Geofill fields have been seen to be as much as 40 degrees cooler than traditional synthetic turf fields. Other alternative infills claim to be cooler, but most are hydrophobic and cannot provide the cooling effect that Geofill has.

4 IT'S PROVEN.

Currently, there are over 500 successful Geofill installations around the world, ranging from recreation fields to professional level soccer pitches. Coconut fibers have also been used for hundreds of years. Ancient Polynesians used coconut husks for everything from ropes, to baskets, and materials for holding their homes and canoes together. Coconut fibers are used in netting which is used to stop and prevent erosion.

5 IT'S ENVIRONMENTALLY-FRIENDLY.

Because it's natural, Geofill provides an organic ground layer for a field. Geofill allows for clean water runoff. Coconut fibers have an excellent natural resistance to mold, mildew, and decay. For Geofill, end-of-life recycling means it's as easy as using it to create a soil layer in a garden bed.

* 90% coconut / 10% natural derived plant based matter

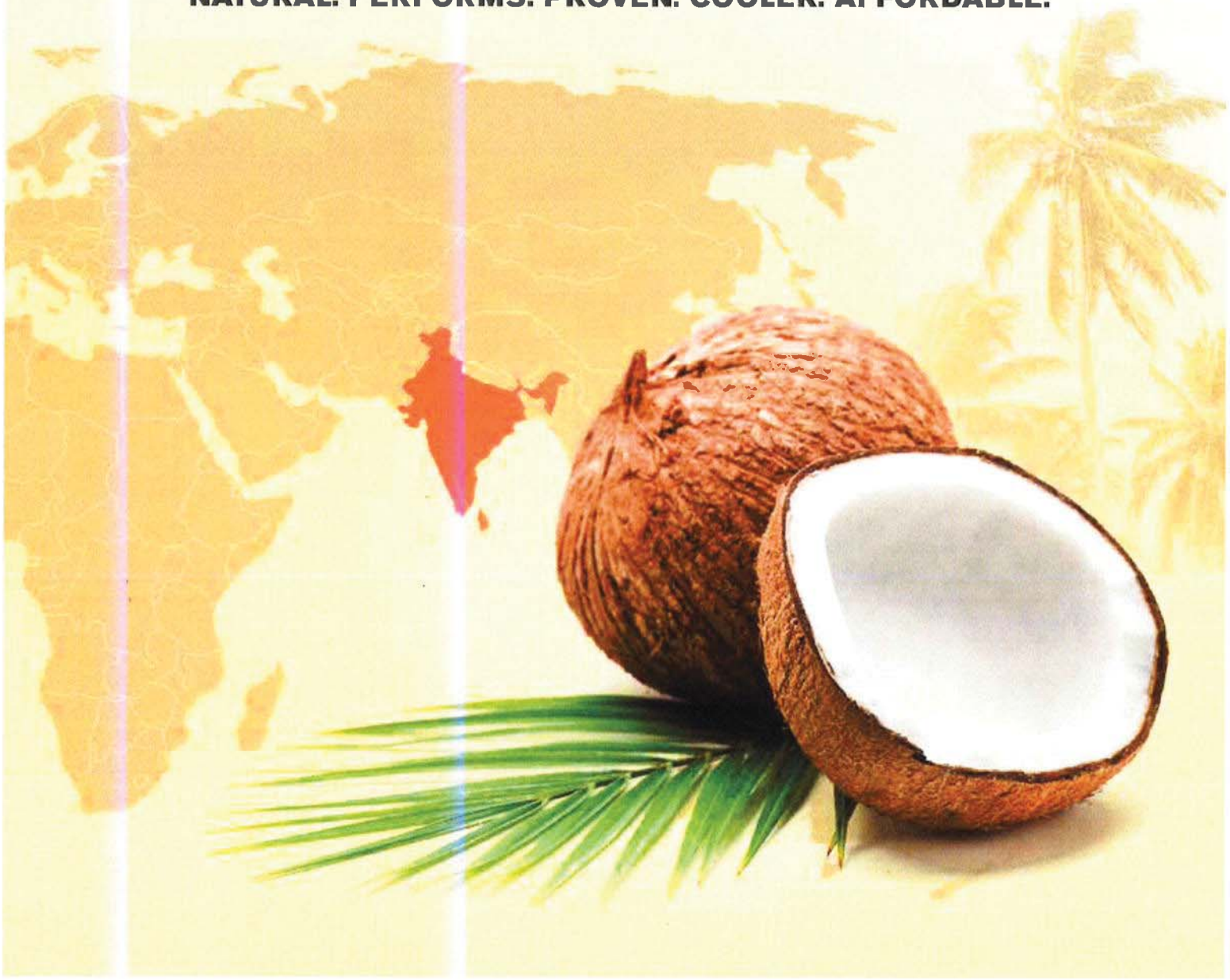
The Natural Choice

The coconut in our Geofill system comes from Sri Lanka or India. These two geographic areas are the leading suppliers of coconut coir fibers in the world.

Geofill is the leading natural "soil" infill in our industry – it acts like soil. Due to salt water retting, Geofill is resistant to mold, mildew, and salts. Geofill's unique mix of coconut fibers create a natural matrix; locking in the infill and reducing infill flyout.

The organic nature of the material alleviates the concerns with questionable chemicals from any synthetic infill material. It is a completely safe system that serves as an excellent natural choice. Geofill will not negatively affect the environment, subsequent users, or a landfill at the end of its life cycle.

NATURAL. PERFORMS. PROVEN. COOLER. AFFORDABLE.



Geofill System

Geofill has been in use for over 10 years, longer than any alternative infill on the market. Geofill has more installations than any other alternative infill system; with over 500 fields worldwide, including every type of climate from Southeast Asia, Russia, Africa, and the U.S.

Geofill is 100% natural and plays natural resulting in perfect balance of Vertical Deformation, Rotational Resistance, and Energy Restitution. In conjunction with the GeoFill infill, the system will yield low g-Max levels (head safety) yet have vertical deformation (foot stability) and force reduction (lower extremity protection) values in range of high quality natural grass.

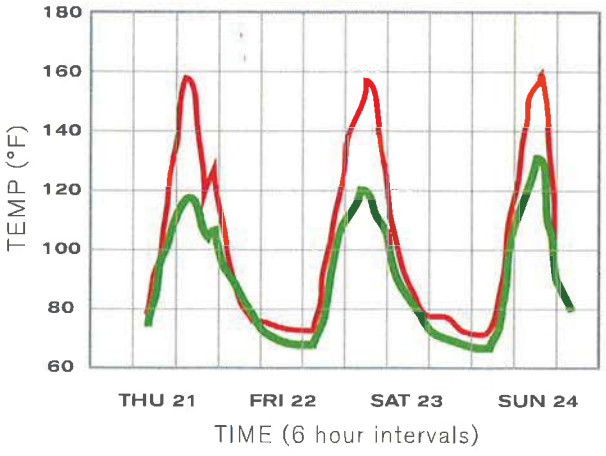
For Geofill systems with organic and sand materials, a shock pad is required. A shock pad provides additional safety and performance benefits, including shock attenuation which can help prevent injuries from tackles, trips, and falls throughout the season.

WITH GEOFILL'S PROVEN HISTORY, THE SHOCK PAD'S PROVEN HISTORY, AND SHAW SPORTS TURF'S PROVEN HISTORY... THIS CUTTING EDGE TECHNOLOGY SIMPLY IS THE CHOSEN ONE.

Cooling Effects of Geofill

- The excellent moisture retention capabilities of Geofill allow the infill system to absorb water which is released when sunlight warms the field. When the infill absorbs sunlight, the temperature starts to increase, but the release of water held in the infill reduces the infill temperature by the mechanism of evaporative cooling. As the sunlight intensity increases, the amount of water evaporating increases, which creates more of the cooling effect.

STANDARD RUBBER &
HYDRATED ORGANIC INFILL OVER THREE DAYS



- When compared to crumb rubber infilled fields, fields with Geofill have been seen to be 40° F cooler than traditional synthetic turf fields.

- Geofill does not absorb energy like other synthetic alternative fields, therefore it is naturally cooler. Other composite or synthetic alternatives cannot provide the cooling effect that Geofill can.

Hydrating for Optimal Performance

- Our Geofill system is the only infill system that has the ability to hold up to 7-8 times its weight in moisture. This allows the system to retain moisture, but not become water logged. Once the capacity it met, the remaining water flows through the turf and drainage system.

- By absorbing water, you create a surface much like natural soil allowing for the evaporative cooling of the surface and more natural interaction between player and ground. The organic mix creates a stabilized layer between the turf fibers which replicates the feeling of playing on natural grass.

- The Geofill system uses natural moister better than any other alternative infill system. Geofill's peak performance is when the material has a moisture level of 30-40%. Outside of these ranges, Geofill can have some playing differences in the field's performance.

HOW MUCH RAIN (IN INCHES) EQUATES TO AN 80,000 SQ FT. FIELD

1/16"	3,120 gal

We Suggest 3200 gal per watering cycle

Organic Field Maintenance

Follow your manufacturer's guidelines.

Every synthetic grass field requires maintenance, depending on the intensity of use and the type of system installed.

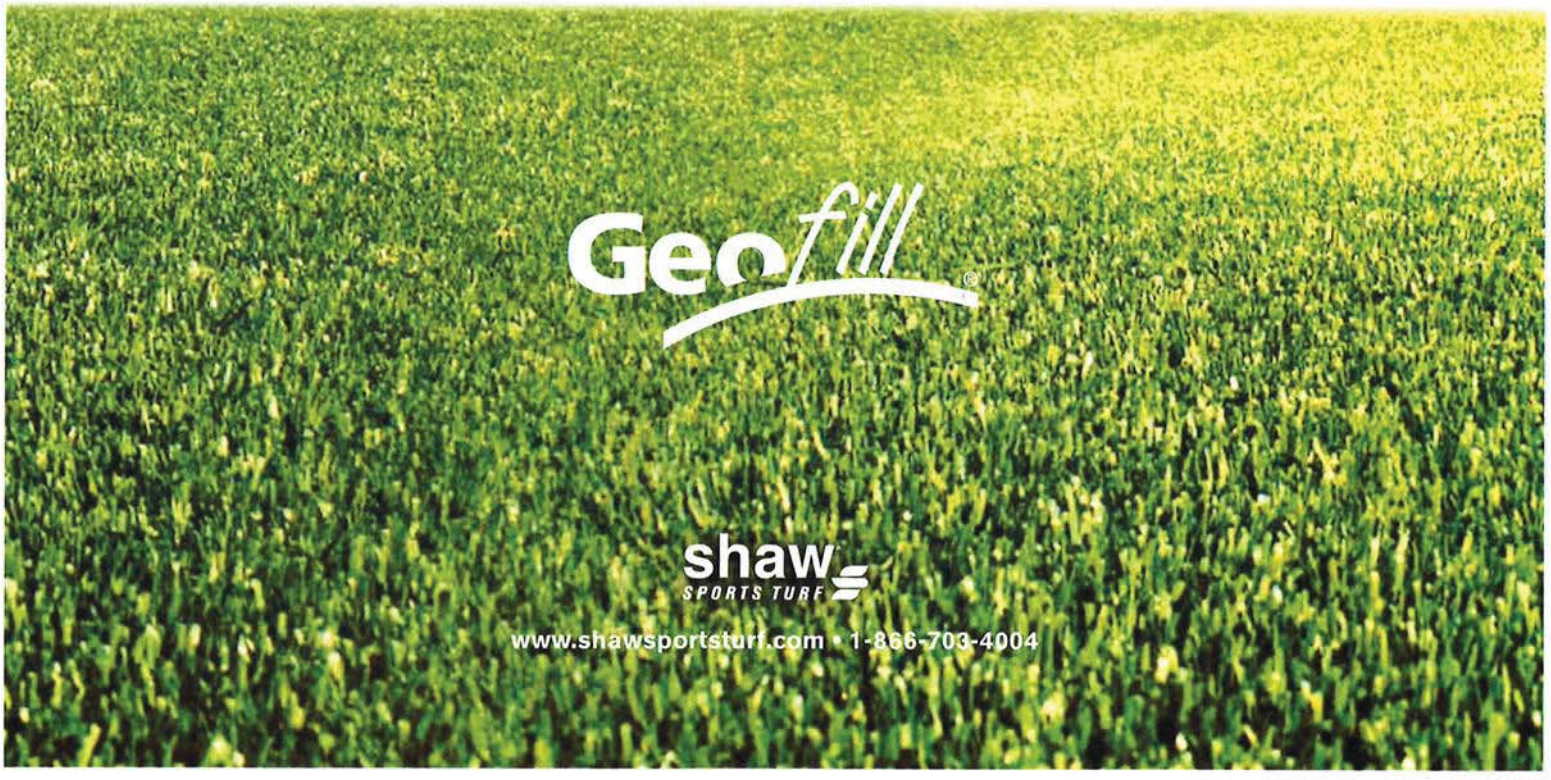
- Our Geofill systems require the same amount of maintenance compared to sand and rubber infill systems, but much less compared to natural fields.

- We usually recommend regular brushing/sweeping as normal procedure (approx. every 100 hours of play). Also, using a spring tine rake on a groomer will help de-compact a field which should be done no more than once per year.

- With regards to the equipment, Geofill can be installed and maintained with the same standard machines used for rubber/sand installations.

- To maintain proper infill depths, as with all infilled synthetic turf systems, GeoFill requires a top dressing. Frequency and amount depend on use of the field, regularity of routine maintenance, and other environmental conditions. In most cases, as long as the proper moisture content is kept, top dressing should only be necessary every 2-3 years.

- While this does not happen in most environments, some environments have led to weed growth. The system has been treated with a herbicide (that is naturally washed out of the system) to effectively to kill the weeds. A pre-emergent has also been used to further control weed growth in those areas.



Safety Data Sheet in accordance with Directive 91/155/EC

Geofill — Issue 1 Review 1 dated 30 March 2010

1 IDENTIFICATION OF THE PRODUCT AND THE COMPANY:

Commercial name of product: "Geofill ".

Product description: Coconut mesocarp fiber and peat with additives.

CAS Number: not defined.

Use: Infill of synthetic grass

Manufacturer: ITALGREEN S.p.A. – Via Crusnigo 11, 24030 Villa D'Adda (BG), Italy.

Tel. No. 035/784178

Fax No. 035/784144

Emergency No.: Poison Treatment Centre "NIGUARDA", Milan 02-66101029.

2 IDENTIFICATION OF THE DANGERS:

Not regulated by EC 67/548 Directive as a hazardous product

TLV exposure standard test: PNOC (Inhalable dust) = 10mg/Nm^3 8 h TWA Time Weight Average
PNOC (Breathable dust) = 3mg/Nm^3 8 h TWA Time Weight Average
SiO2 (Quartz, Cristoballite) = 0.025mg/Nm^3 8 h TWA Time Weight Average

3 COMPOSITION / INFORMATION ON THE INGREDIENTS:

The mixture comprises the substances indicated below:

Substance	CAS No.	EINECS No.	% in weight	Risk periods
Coconut fibre	Not assigned	Not assigned	88 ÷ 92 %	R22, R36
Spheroidal silice sand	14808-60-7	Not assigned	8 ÷ 12 %	R20

Chemical name: granular coconut with additives
Chemical formula: none (mainly C)
CAS: not defined
EINECS: not defined
U.N.: not defined
Customs code: not defined

4 FIRST AID MEASURES:

Ingestion: rinse the mouth out thoroughly with water, drink plenty of water and consult a health professional.

Inhalation: the product as it is comes with a degree of humidity of around 35%, therefore it does not give rise to the formation of dust. Therefore, handling and application of the product do not produce inhalable dust. In the event of use of the dry product, dust may form and therefore it is necessary to thoroughly ventilate the room. In the event of heavy inhalation of the dust, take the individual outside into the fresh air and rinse the throat out thoroughly with drinking water and blow nose to free it from dust. Consult a health professional.

Contact with the skin: remove contaminated clothing and footwear, wash with water and neutral soap. In the event of a rash, consult a health professional.

Contact with the eyes: DO NOT RUB EYES Wash immediately and thoroughly with running water for at least 15 minutes with eyes open. In the event of irritation, consult a health professional.

5 FIRE PREVENTION MEASURES:

Fire: the product as supplied does not present any risk of fire in natural surroundings. Keep the product away from direct heat sources and live flames. Avoid contact with highly oxidizing substances such as ozone, liquid oxygen, chlorine, permanganate, etc..

Explosion: the product as supplied does not present any risk of explosion in natural surroundings. The fine dust dispersed in the air in a sufficient concentration and the presence of a source of primer could give rise to an explosion.

Specific risks: no combustion, without flame if the product is a compacted mass. Possible combustion in the presence of highly oxidizing substances (O_2, O_3, $KMnO_4$, Cl_2).

6 MEASURES IN THE EVENT OF ACCIDENTAL LEAKAGE:

Cleaning methods: if the product is dehydrated due to heat, it is necessary to avoid the dispersion of dust in the air. Therefore, wet with water to reduce the formation and dispersion of dust.

Individual cleaning: Equip yourself with personal protection equipment (anti-dust mask compliant with existing standards). Avoid the formation of dust and their building up.

Decontamination methods: collect the product using mechanical devices or vacuum cleaners, avoiding the formation of dust. Use equipment which does not generated electrical charges or sparks.

7 HANDLING AND STORAGE:

Handling: during handling, use systems or envisage methods for the containment of dust. Avoid the dispersion of the dust into the atmosphere. Avoid inhalation and contact with eyes.

Storage: avoid contact with solvents whose vapours may be absorbed by the grains and highly oxidizing substances. Any storage of the product in metal tanks must be earthed so as to avoid the formation of electrostatic charges. The empty tanks must be cleaned so as to remove any residual dust.

Protect the product from any damage. Store the product in a cool and ventilated place, far from heat sources, solvents and oxidizing agents.

Packaging materials: 1,000 L big bags in polythene material.

8 EXPOSURE CONTROL / INDIVIDUAL PROTECTION:

Inhalation:

- no particular precautions when laying the product outdoors
- when laying the product indoors, a forced ventilation system is required

Skin: gloves

Eyes: protective eyewear

9 CHEMICAL AND PHYSICAL PROPERTIES:

Physical state	granular solid
Colour:	brown
Smell:	odourless
Boiling point:	n.a.
Vapour tension:	0
Solubility:	insoluble in water
pH (1:10):	7÷8
Bulk density:	400 Kg/m3 ± 10%
Flash point with vessel closed:	250°C
Flash point with vessel open:	> 260°C
Dry residue at 105°C:	65% ± 2%
Dry residue at 650°C (Ash):	35% ± 2%

10 STABILITY AND REACTIVITY:

Stability: product stable at usual storage and handling temperatures (< 50°C).

Dangerous combustion products: fire causes the formation of carbon dioxide and carbon monoxide.

Chemical incompatibility: liquid oxygen and highly oxidizing substances such as ozone, chlorine, permanganate, etc..

Conditions to be avoided: solvents and highly oxidizing substances.

11 TOXICOLOGICAL INFORMATION:

Inhalation:	not a harmful product
Ingestion:	do not swallow; accidental swallowing of a few grams does not lead to any side effects
Eyes:	possible dust may cause irritation, no side effects are know of
Skin:	harmful effects have not been noted
LD 50:	not registered

12 ECOLOGICAL INFORMATION:

Biodegradability:	it is not biodegradable
Acute EC50 toxicity:	non-toxic; trials carried out on the UNI EN 12457 transfer test over 48 hours disclose a survival of over 99% of the luminescent bacteria *Vibrio fischeri*

13 RECOMMENDED DISPOSAL:

Removal of the product: remove the product mechanically by means of water flows. The personal protection equipment as per Article 8 should be used.

14 TRANSPORT INFORMATION:

Avoid dispersion of the dust during transportation

ADR/RID (road and rail transportation)	Class: Free.
IMDG:	Class: Free.
ICAO/IATA:	Class: Free.

15 REGULATORY INFORMATION:

Classification: Classification not requested.

Additional information on labelling: Safety fact sheet.

Italian legislation throughout national territory.

16 OTHER INFORMATION

GeoFill is not a hazardous substance pursuant to the Guideline 67/548/EC

ITALGREEN S.p.A
Produzione Erba Sintetica
Sede: Via Crusnigo, 11 - 24030 Villa d'Adda (BG) - tel +39-035-784178 - fax +39-035-784144
Sede Secondaria: Via Molinetto, 3 - 24030 Villa d'Adda (BG) - tel +39-035-784147
Cap. Soc. € 5.000.000,00 i.v. - REA BG214799 - Cod. Fisc./R.I. BG 07075130158 - P.IVA 01640880165
www.italgreen.it - info@italgreen.it

Legion HP 1.75 Turf Composition

Chemical Name	CASRN	Weight %
1-Hexane Ethylene Copolymer	25213-02-9	28-42%
Polyurethane Foam	9009-54-5	20-40%
Ethylene Copolymer	9002-88-4	20-30%
1-Propene, Homopolymer	9003-07-0	5-15%

Effective: Jan 05, 2017
Source: Shaw Sports Turf

JSP

www.jsp.com

ARPRO®
Expanded Polypropylene (EPP)

MATERIAL SAFETY DATA SHEET (MSDS)
ARPRO Expanded Polypropylene (EPP) Black and White

IMPORTANT

Read this MSDS before handling and disposing of this product. Provide this information on to all users of this product.

1. Company and Substance Identification

1.1 Company

JSP Resins LLC
1285 Drummers Lane
Suite 301
Wayne, PA 19087
USA

Tel.: +1 (610) 651-8600
Fax: +1 (610) 651-8601

1.2 Product identification

Trade name:	ARPRO® Expanded Polypropylene (EPP)
Chemical name :	Propylene Ethylene Copolymer
Chemical Family:	Polypropylene
Emergency phone number	+1 (610) 651-8616

2. Hazard(s) Identification

Risk Phrases: None

Not harmful to health or environment under normal use of product. If material is heated up, may cause burns.

3. Composition/Information on Ingredients

3.1 Composition

Compositions given are typical values, and are not to be construed as specifications.

Component	% Weight	CAS No	EINECS No
Polypropylene Copolymer:	95.0 - 99.9	9010-79-1	Not applicable
Carbon Black:	0.1 – 5.0 (0.0 for White)	1333-86-4	215-609-9

3.2 Information on components

Hazardous component(s): None

r. MAY 2014

MATERIAL SAFETY DATA SHEET (MSDS)
ARPRO Expanded Polypropylene (EPP) Black and White

4. First-Aid Measures

Inhalation:	Not expected to present a significant inhalation hazard.
	In case of breathing excessive airborne dust, remove from area, provide fresh air and have subject blow nose.
Skin contact:	Not expected to present a significant skin hazard under anticipated conditions of normal use.
	Any heated/molten material on skin should be cooled as fast as possible. Seek immediate medical attention.
Eye contact:	Rinse the eyes in order to remove particles of this product.
Ingestion:	Not applicable under normal conditions of use.

5. Fire-Fighting Measures

Usual extinguishing methods:	Water (preferably spray), CO_2, foam, or dry chemical.
Special exposure hazards:	Combustible material.
	Heat sensitive: May melt.
	Molten material forms flaming drops after igniting.
	Incomplete thermal decomposition or burning may release hazardous products and/or flammable vapors (like ethylene, ethane, carbon monoxide, propane, etc.)

In case of close fire-fighting, use breathing apparatus.

6. Accidental Release Measures

Spilled product may create slipping hazard on any hard smooth surface. Quickly sweep up product. Handle and store according to measures as defined in section 7.

Use personal protection as defined in section 8.

Cleaning methods: Collect product in an appropriate way and avoid dust formation. Place in suitable labeled container for appropriate disposal (See Section 13).

7. Handling and Storage

Handling:	In order to avoid static discharge, equipment should be made of conducting material and should be grounded.
Storage:	Keep away from heat or ignition sources (flame or sparks). Do not smoke.

MATERIAL SAFETY DATA SHEET (MSDS)
ARPRO Expanded Polypropylene (EPP) Black and White

8. Exposure Controls / Personal Protection

Occupational Exposure:	EU: VME = 10 mg/m^3 (8 hour basis - Decree 84-1093)
Dust	USA: TLV (ACGIH) 1997-98: TWA= 10 mg/m^3.
Collective protection:	Good general ventilation should be provided.
Personal protection:	Eye protection should be worn for all industrial operations.
Skin protection:	Under anticipated conditions of normal use: not normally considered as skin hazard. Use suitable protection gloves and clothes against contact with molten product.
Industrial hygiene:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities.

9. Physical and Chemical Properties

Appearance:	Plastic beads
Physical state at 25°C:	Solid
Color:	Black or white (depending on grade/type)
Odor:	Odorless
Density at 25°C (g/l or kg/m^3):	10 to 225
Solubility in water (% weight):	Insoluble
Other solvents:	Slightly soluble in hot organic solvents
Melting point temperature (°C):	130 to 170°C
Decomposition temperature (°C):	> 300°C
Auto-ignition temperature (°C):	> 350°C

10. Stability and Reactivity

The product is stable in normal use conditions.

Decomposition products:	Incomplete combustion will generate carbon monoxide and possibly other toxic vapors.

11. Toxicological Information

Refer to section 3.

Acute Toxicity:	LD50 not available
Inhalation:	Dust can irritate the upper respiratory tract.
Skin contact:	Although no appropriate human or animal health effects data are known to exist, this material is not expected to be a skin irritant.
Eye contact:	Can induce irritation or injury of the cornea due to a mechanical action.
Ingestion:	May cause choking if ingested.
Chronic Toxicity:	No chronic health effects for this material have been reported.

MATERIAL SAFETY DATA SHEET (MSDS)
ARPRO Expanded Polypropylene (EPP) Black and White

12. Ecological Information

Product is biologically inert and not readily degradable.

13. Disposal considerations

Dispose of product in accordance with local and national regulations on waste disposal. User is encouraged to recycle or reuse material.

14. Transportation information

UN No.	Not classified.
ADR/RID	Not classified.
ADR/VLG	Not classified.
ADNR	Not classified.
IMO-IMG code	Not classified.
ICAO/IATA	Not classified.

15. Regulatory Information

EEC Labeling	
Symbol(s):	None.
R Phrase(s):	None.
S Phrase(s):	None.

The contents and format of this MSDS are in accordance with US OSHA requirements and EEC Commission directives 67/548/EEC, 91/155/EEC (and its modification 2001/58/EC), 1999/45/EC and their adaptations to technical progress.

16. Other information

All information contained herein is based on the present state of our knowledge at the date of issue. It is believed to be accurate. It is intended to describe products from the point of view of safety requirements. It should not be construed as guaranteeing specific properties.

Under no circumstances is the user exempt from respecting legislative or administrative requirements related to the product in terms of safety, hygiene, and/or health and environmental protection.

This product should be stored, handled and used in accordance with good industrial hygiene practices and according to local regulations.

For this and other reasons, we do not assume responsibility and expressly disclaim any liability for loss, damage or expense arising out of, or in any way connected with the handling, storage, use of, and/or disposal of the product.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

STANDARD SAND & SILICA CO.

P.O. BOX 1059, DAVENPORT, FL 33836

Material Safety Data Sheet

SECTION I

Manufacturer's Name: Standard Sand & Silica Co.

Address: P.O. Box 1059 - 1850 Hwy. 17-92 North
Davenport, FL 33836

Emergency Telephone No.: 863-422-7100

Printed Date: September 20, 2002

Product Class: N/A

Information Telephone No.: 863-422-7100

Toll Free: 877-444-7263

SECTION II HAZARDOUS INGREDIENTS

Hazardous Components (Specific Chemical Identity: Common Name (s))
Quartz Silica Sand, Crystalline Silica, Silicon Dioxide (SiO_2)
(CAS Number 14808-60-7)

Exposure Limits Respirable Dust
Osha Pels: 0.1mg/m3 - 8 Hr Twa
Acgih Tlvs: 0.1mg/m3 - 8 Hr Twa

SECTION III PHYSICAL CHEMICAL DATA

Boiling Point: N/A
Vapor Pressure (mm Hg.): N/A
Vapor Density (AIR =1): N/A
Evaporation Rate-(Butyl Acetate =1): N/A
Solubility in Water: Insoluble

Appearance: Grayish White
Odor - None
Specific Gravity (H_2O = 1): 2.65
Melting Point: 2900 Degrees F, 1600 Degrees C

SECTION IV FIRE & EXPLOSION HAZARD DATA

Flash Point (Method Used) Not Flammable
Flammable Limits: Not Flammable
Extinguishing Media: No Fire or Explosive Danger
Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: Not known

SECTION V REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Contact with incompatible materials.
Incompatibility (Materials to Avoid): Avoid fluorine, chlorine trifluride, manganese trioxide and oxygen difluoride. May cause fire/explosion. Hydrofluoric acid dissolves silica producing a corrosive gas (Silicon Tetrafluoride).
Hazardous Decomposition or Byproducts: Will not occur.
Hazardous Polymerization: Not known to polymerize.

SECTION VI HEALTH HAZARD DATA

ROUTE(S) OF ENTRY
Inhalation: Yes
Skin: No
Ingestion: Yes

Health Hazards (Acute and Chronic): Respiratory system (Respirable Dust) Silicosis - Individuals with pre-existing conditions of the lungs may have increased susceptibility to excessive exposures.

Carcinogenicity: Quartz - IARC states known human carcinogen.

Signs and Symptoms of Exposure: Includes but not limited to: Shortness of breath, fever, cough, weight loss, chest pain.

Medical Conditions Generally Aggravated by Exposure: Asthma and Respiratory diseases.

EMERGENCY AND FIRST AID PROCEDURES
Respiratory: Remove to fresh air, clear nose and throat, consult physician if continued difficulty in breathing.

Skin: Wash with soap and clean water.

Eye: Flush with clean water.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled: Clean-up immediately. Wetting of spilled material will avoid airborne dust. Use of respiratory protective equipment may be necessary if spill is of a large quantity.

Waste disposal method: Pick up and re-use clean materials. Dispose of waste materials only in accordance with applicable Federal, State and Local laws and regulations.

Precautions to be Taken in Handling and Storing: BULK: Store in bins or containers. BAGGED: Secure any torn bags to avoid spillage. Use a NIOSH, OSHA or MSHA approved respirator that is permissible with Quartz.

SECTION VIII CONTROL MEASURES

Respiratory Protection (Specify Type): A positive pressure full face respirator is required if respirable quartz dust exceeds 0.1mg/m3 - 8 Hr Twa.

Ventilation: Local Exhaust-General ventilation.
Mechanical (General)-Engineering controls.

Protective Gloves: Yes

Eye Protection: Goggles, glasses (side shields).

Other Protective Clothing or Equipment: Optional

Work/Hygienic Practices: Wear approved respirators, keep away from food, wash dust-exposed skin with soap and clean water, wash work clothes after each use.

SECTION IX REGULATION

Quartz is registered on the TSCA chemical inventory. However, it is not regulated.

shaw SPORTS TURF

Geofill US Installations	City	State	Year of Installation	Contact	Phone	Position	SF	Product	Pad	Pile Height	Face Weight
Santa Clara University-Bellomy	Santa Clara	CA	2009	Gary Vargas	408-564--2750	Facilities Director	7.8 acres	Italgreen	Brock PowerBase	2"	41 ozs/SY
Santa Clara University-Stanton	Santa Clara	CA	2007	Gary Vargas	408-564-2750	Facilities Director	80,000	ItalGreen	Brock PowerBase	2"	41 ozs/SY
Google HQ Campus Landscape	San Jose	CA	2014	Mark Baginski	408-823-1514	Architect	6,400	Powerblade Pro 2.0	Brock PowerBase	2"	41 ozs/SY
Google HQ Soccer Field	San Jose	CA	2014	Mark Baginski	408-823-1514	Architect	67,500	Powerblade Pro 2.0	Brock PowerBase	2"	41 ozs/SY
Jim Johnson Park	San Clemente	CA	July, 2016	Aeryn Donnelly-Terney	940-361-8267	Park Planner	63,000	Legion 2.0	Brock Powerbase	2"	41 ozs/SY
Masuk High School	Monroe	CT	September,2016	John DeGennaro	203-452-5823	Athletic Director	87,400	Legion 1.75	Brock Powerbase	2"	41 ozs/SY
Wilton High School	Wilton	CT	July, 2016	Steve Pierce	203-834-6234	Director of Recreation	82,000	Momentum Pro 2.0	Brock SP-14	2"	42 ozs/SY
Shady Hill School	Cambridge	MA	2011	Tim Whyte	781-434-8583	Facilities Director	150,000	ItalGreen	Brock PowerBase	2"	41 ozs/SY
Simmons College	Boston	MA	July, 2016	Ali Kantor	617-521-1038	Director of Athletics	89,168	Momentum HP 2.0	Brock PB-YSR	2"	42 ozs/SY
Simmons College	Boston	MA	August, 2016	Ali Kantor	617-521-1038	Director of Athletics	87,665	Legion 2.0	Brock PB-YSR	2"	42 ozs/SY
Tantasqua Regional High School	Fiskdale	MA	August,2016	Michael Lucas	508-347-9301	Principal	85,800	Legion 2.0	Schmitz Pro Play	1.75"	41 ozs/SY
Tantasqua Regional High School	Fiskdale	MA	September 25,2016	Michael Lucas	508-347-9301	Principal	80,500	Legion 2.0	Schmitz Pro Play	1.75"	41 ozs/SY
Thayer Academy	Braintree	MA	August,2016	Bill Stephenson	781-664-2519	Vice President, Finance	153,200	Legion 1.75	Schmitz Pro Play	1.75"	41 ozs/SY
Laytonia Park	Montgomery	MD	November, 2016	Kimberly Paniati	301-495-2465	Engineer	85,000	Momentum 2.25	Schmitz 23 D	2.25"	46 ozs/SY
Davie Park	Charlotte	NC	June, 2016	Bob Reardon	980-722-2347	Mecklenburg County Parks	90,000	Momentum 2.25	Brock SP-14	2.25"	46 ozs/SY
Matthews Sportsplex Phase 2	Charlotte	NC	June, 2016	Bob Reardon	980-722-2347	Mecklenburg County Parks	430,000	Momentum 2.25	Brock-SP-14	2.25"	46 ozs/SY
Pleasantville High School	Pleasantville	NY	2015	Mary Fox Alter	914-741-1400	Superintendent of Schools	73216	Legion 2.0	Schmitz Pro Play	2"	41 ozs/SY
Pleasantville High School	Pleasantville	NY	2015	Mary Fox Alter	914-741-1400	Superintendent of Schools	40145	Legion 2.0	Schmitz Pro Play	2"	41 ozs/SY
Ramapo CSD-Stadium	Suffern	NY	2016	Dr. Doug Adams	845-357-7783	Superintendent of Schools	78,000	Legion 2.0	Brock SP-14	2"	41 ozs/SY
Ramapo CSD-Practice Field	Suffern	NY	2016	Dr. Doug Adams	845-357-7783	Superintendent of Schools	72,000	Legion 1.75	Brock SP-14	2"	41 ozs/SY
Madeira School	McLean	VA	2016	Katie LaRue	703-556-8251	Direcctor of Athletics	150,000	Legion Pro 2.0	Brock SP-14	2"	46 ozs/SY
Upcoming Geofill US Installations	**City**	**State**	**Year of Installation**	**Contact**	**Phone**	**Position**	**SF**	**Product**	**Pad**	**Pile Height**	**Face Weight**
Hamden High School	Hamden	CT	April, 2017	Tom Dyer	203-407-2040	Athletic Director	111,118	Legion 1.75	Brock SP-14	1.75"	42 ozs/SY
Gateway Sports Village	Grandview	MO	April, 2017	Valarie Poindexter	816-868-2756	Gateway Media Coordinator	1.2M SF	PowerBlade Pro	Brock Powerbase	2"	41 ozs/SY
Landmark College	Putney	VT	April, 2017	Kyle Skyrocki	802-387-6887	Director of Facilities	82,000	Legion 1.75	Brock SP-14	1.75	41 ozs/SY