



Synthetic TurfSM
COUNCIL

Suggested Environmental Guidelines for Infill



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Suggested Environmental Guidelines for Infill

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Introduction

With billions of square feet of synthetic turf installed throughout the world, the Synthetic Turf Council (STC) is pleased that so many owners, players and children have enjoyed the appearance, performance, playability, water savings and longevity benefits these modern surfaces provide. Infill materials have played a key role in synthetic turf as they are often used in supporting one or more of the following objectives:

- Shock absorption
- Traction
- Foot stability
- Player safety
- Surface consistency
- Extending the synthetic turf's useful life
- Improve game performance

Due to these benefits, the use of infill materials in synthetic turf fields is widely accepted. Infill materials currently available include a variety of options, including crumb tire rubber, sand, elastomers, zeolite, organic materials, coated sand and coated rubber.

The STC has gathered considerable scientific information, specifically on crumb rubber infill. Much of this research can be found on the STC website, www.syntheticurfCouncil.org. Although no research to date has found any elevated health risk of humans interacting with synthetic turf or infill, the STC continues to gather and support research performed by credible and independent sources.

The purpose of these suggested voluntary guidelines is to provide owners, buyers and interested stakeholders an additional resource to better understand the environmental and toxicological considerations when evaluating the use of infill materials.

Objectives

The objectives of these voluntary guidelines are to:

- Reflect the core of the STC objectives and Mission Statement:

Committed to community wellness and environmental responsibility through the use of synthetic turf, the Synthetic Turf Council is the industry's voice for promoting the highest ethical and professional standards, education, legislative and community advocacy.

- Suggest an objective guideline for limits on heavy metals based upon proven scientific toxicology test methods.
- Provide information and educational tools for parents, players, owners, and operators of synthetic turf fields.
- Continue to advocate social responsibility, respond to market questions, and provide useful tools and data to STC members.



Suggested Environmental Guidelines for Infill

The STC suggests that any toxicological test and analysis of infill for synthetic turf fields be performed according to **European Standard EN 71-3 – Safety of Toys Part 3: Migration of certain elements**.

The EN 71-3 protocol specifies maximum migration limits for three categories of (toy) materials. The limits for the migration of certain elements are expressed in milligrams per kilogram (parts per million) of the tested material and should be detailed in the testing report. The purpose of the limits of the European protocol is to minimize children's exposure to certain potentially toxic elements. EN 71-3 concerns all toys and materials that might be ingested. While the STC does not consider synthetic turf infill as a toy or children's product, pieces of infill can be ingested. The STC has identified Category III of EN 71-3 to be the closest definition to infill materials.

Under EN 71-3, soluble elements are extracted from materials using conditions which simulate the material remaining in contact with gastric juices for a period of time after swallowing. The concentrations of the soluble elements are determined quantitatively by two different methods:

1. Method for determining general elements: Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Strontium, Tin and Zinc; and
2. Method for determining Chromium (III) and Chromium (VI).

The STC suggests that if performed, these tests should be performed by an ISO/IEC 17025 accredited laboratory, which assures testing in an independent and scientific manner. The test report should indicate:

- Name and details of the testing laboratory
- Description of the product tested
- Name of the product tested
- Manufacturer of the product tested
- Sample number or identification
- Date of the tests
- Table of substances tested including element, unit of measure, test method, results, compliance requirements and pass/fail indication

Table of Substances Tested

Element	Test method	STC Guideline per EN 71-3, Category III (in mg/kg MS)
Aluminum	NF EN ISO 11885	70,000
Antimony	NF EN ISO 11885	560
Arsenic	NF EN ISO 11885	47
Barium	NF EN ISO 11885	18,750
Boron	NF EN ISO 17294-1 et 2	15,000
Cadmium	NF EN ISO 11885	17
Cobalt	NF EN ISO 11885	130
Copper	NF EN ISO 11885	7,700
Lead	NF EN ISO 11885	160
Manganese	NF EN ISO 11885	15,000
Mercury	NF EN 13506	94
Nickel	NF EN ISO 11885	930
Selenium	NF EN ISO 11885	460
Strontium	NF EN ISO 17294-1 et 2	56,000
Tin	NF EN ISO 17294-1 et 2	180,000
Zinc	NF EN ISO 17294-1 et 2	46,000
Chromium III	NF EN ISO 11885	460
Chromium VI	NF T 90-043	0.2

Certificate of Compliance

If the testing is performed, a Certificate of Compliance to these guidelines may be issued by the infill supplier, including the following information:

- Identification of the product covered by the Certificate of Compliance
- Citation that the product complies with the STC's *Suggested Environmental Guidelines for Infill* and EN 71-3 Standard – Safety of Toys Part 3: Migration of certain elements
- Identification of the infill supplier
 - ⇒ Company name, full mailing address and telephone number
 - ⇒ Contact information for the individual maintaining records of test results that supports of the certification
 - ⇒ Manufacturing location of the infill product
- Validity dates of the certificate
 - ⇒ Initial testing should be performed in conjunction with the initial certification by the infill supplier
 - ⇒ Ongoing production should be tested at least once annually and tested again within the same year if a change in production materials or process occurs that could affect compliance with these STC suggested guidelines
- Identification of the date, laboratory name and place when the product was tested for compliance
- Signature of an authorized legal representative

Disclaimer

These voluntary Guidelines were prepared in good faith and are suggested as a limited informational tool only. The resources referenced herein are believed by the STC to be reliable; however, users of this document are strongly encouraged to consult their own professional advisors and conduct their own research concerning any matters herein. These Guidelines are not standards and are not to be used as the basis for warranty or other claims. The Guidelines are also not, and are not intended to be considered as, safety standards and do not imply that an injury or illness is less likely to occur if the Guidelines are followed or that an injury or illness is more likely to occur if the Guidelines are not followed. The suggestions contained in and the resources referenced are not exhaustive and there may be other resources and information concerning these issues that should be considered. This document contains information concerning current infill products used with synthetic turf only and does not address any other components of the synthetic turf system. The use of these Guidelines is voluntary, unless otherwise agreed.

About the Synthetic Turf Council

Based in Atlanta, the Synthetic Turf Council was founded in 2003 to promote the industry and to assist buyers and end users with the selection, use and maintenance of synthetic turf systems in sports field, golf, municipal parks, airports, landscape and residential applications. The organization is also a resource for current, credible, and independent research on the safety and environmental impact of synthetic turf. Membership includes builders, landscape architects, testing labs, maintenance providers, manufacturers, suppliers, installation contractors, infill material suppliers and other specialty service companies. For more information, visit the STC's Online Buyers' Guide and Member Directory at www.syntheticurfCouncil.org.



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Online Buyer's Guide and Member Directory
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