

# International Standardization of Sports Surfaces

Hans J. Kolitzus

IST Switzerland  
USSL Virginia

IST



**USSL**

# Goal of Presentation

- Overview of Relevant Bodies of Standards
- Design Principles of Sports Surface Standards
- Remarks on Actual Developments

# National Public Authorities

- **ASTM**

American Society of Testing and Materials

- **DIN**

Deutsches Institut fuer Normung

- **BSI**

British Standards Institution

IST



USSL

# International Public Authorities

- **ISO**

International Standards Organization

- **EN (CEN)**

European Standard

CEN = Comité Européen de Normalisation

IST



**USSL**

# Sports Governing Bodies

- **FIH**

Federation de Hockey

- **IAAF**

International Association of Athletic Federations

- **UEFA / FIFA**

Union of European Football Associations

Federation International de Football Associations

IST



**USSL**

# Commercial Groups

- **STC**  
Synthetic Turf Council
- **EATP**  
European Association of Textile Polyolefins
- **MFMA**  
Maple Flooring Manufacturers Association

IST



USSL

- **ASTM F 1292**  
Impact Attenuation Playgrounds
- **ASTM F 1551**  
Comprehensive Characterization of Synthetic Turf
- **ASTM F 2157**  
Synthetic Track Surfaces
- **ASTM F 2117**      Ball Rebound
- **ASTM F xxx**      Force Reduction (in prep.)

- **DIN 18035-5**  
Mineral Surfaces
- **DIN 18035-6**  
Synthetic Track Surfaces
- **DIN 18035-7**  
Synthetic Turf Surfaces
- **DIN 18032-2**  
Sports Hall Surfaces



- **BS 7044**  
Sports Surfaces

IST



**USSL**

- **ISO 9000**

Quality Management Systems  
General

- **ISO 17025**

Quality Management Systems  
for Laboratories

- **EN 12 235** Ball Rebound
- **prEN 14 808** Force Reduction
- **prEN 14 877**  
Requirements for Synthetic Tracks Surfaces
- **prEN 14 904**  
Requirements for Sports Hall Floors
- **EN 1177** Playgrounds (HIC)
- **+ many more**

- **IAAF** Performance Specifications of Synthetic Surfaced Athletic Tracks (Jan. 2003)
- **FIH** Hockey Turf Manual
- **UEFA** Soccer Turf Manual
- **FIFA** Soccer Turf Manual

# Two Types of Standards

- **Test Procedures**  
,Testing Standards‘
- **Requirements**  
,Performance Standards‘

IST



USSL

# Types of Standards according to their use

- Standards for  
Users/Players/Athletes
- Standards for  
Product Checks
- Standards for  
Product Development

# Design of Standards (1)

- independent of specific product design
- use relevant
- selective power
- accurate
- simple and inexpensive

## Design of Standards (2)

- useful in job specifications
- tests = simulation of sportive actions
- tests = technical but based on biomechanical considerations
- requirements derived empirically



## Design of Standards (3)

- requirements need update acc. to ongoing experience and product development
- requirements do not guarantee products beyond question
- requirements not too loose and not too tight

# Abundance of Standardization

- testing standards = internationally the same
- performance standards = adjustment to national needs
- don't re-invent the wheel

# Environmental Compatibility

testing concept to control and monitor possible contamination of soil and ground water by leaching of dangerous substances from sports surfaces such as:

**Lead, Mercury, Chromate**

more information at

[www.iss.de/publications/UVP](http://www.iss.de/publications/UVP)

IST



USSL

## The TDI Question

- many good PUR binders naturally contain monomeric TDI
- monomeric TDI vapor with high concentration is toxic for installation crews
- monomeric TDI contents below 0.5 % avoid this and are considered acceptable
- production needs advanced technology

**Thank you  
for  
your attention**

[www.iss.de/ist-ch](http://www.iss.de/ist-ch)

**IST**



**USSL**