ARTIFICIAL TURF SYSTEMS
STATUS INFILL, SAND OR NON INFILL ?
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PERSONAL INTRODUCTION

- Friedemann Söll
- Industrial engineer – Textile technology
- Chief Product Officer Sport Group Holding GmbH
- Managing Director Polytan GmbH
- 16 years with the outdoor sport surface industry
- Member of national and international standardisation bodies and committees

STATUS OF ECHA RESTRICTION PROPOSAL

- Proposal commented from RAC & SEAC committees is still under consultation within the EU commission and the member states

- No proposal from the EU commission has been published so far and presented to the EU parliament

- Still different options available concerning polymeric infill in artificial turf systems e.g.
  - derrogation with risk management measures or
  - ban with transfer period of up to 6 years with risk management measures or
  - immediate ban for polymeric infill in AT
  - discussion about existing systems not decided

- Development of CEN Technical Report CEN TR 17519 according risk management measures

SITUATION IN GERMANY

- No ban for polymeric infill from country or state legislation up to now
- No public financing for 3G systems with polymeric infill available any longer
- Since 2020 only minimal (2%) new and renovation projects have been finalized with polymeric infill
- Nearly complete switch to sand-filled systems or turf systems with organic infill mainly cork, wood chips, (olive pits)
- Existing 3G systems with polymeric infill under usage without restriction to end of usage time depending on EU decision

STANDARD SYSTEM DESIGN

ARTIFICIAL TURF APPLICATION LONG PILE SYSTEMS (FILLED SYSTEM)

- Elastic layer (mainly from SBR rubber – quality and environmental controlled) with or without gritting material (normative)

- 35 – 40 mm turf carpet with texturized or combined straight and texturized fibers (loose laid)

- Mineralic infill for ground fixation and as functional infill
  - mini-pitches, multifunctional fields, municipality applications with high usage times

- Mineralic infill and organic infill as comfort layer
  - semi-professional and soccer club applications, more natural appearance and comfort

STANDARD SYSTEM DESIGN

MOST COMMONLY USED TURF TYPES

- Fully texturized systems with one monofilament type = LigaGrass Pro systems
  - 38 mm pile height and 3/8 gauge and meanwhile high stitch density
  - Sand-filled or sand dressed with comfort layer of organic infill
  - Easy to maintain, high usage properties
  - Multi-purpose fields, mini-pitches, municipality and public applications

- Fully texturized systems with two monofilament yarn types = LigaGrass Synergy systems
  - 32 to 38 mm pile height and 3/8 gauge
  - Sand-dressed (or as non-filled alternative)
  - Easy to maintain, high usage properties, good coverage of sand filling
  - Multi-purpose fields, mini-pitches, municipality and public applications, training grounds

STANDARD SYSTEM DESIGN

MOST COMMONLY USED TURF TYPES

- Combined texturized and straight monofilament systems with two monofilament yarn types = LigaTurf Cross systems
  - 35 to 40 mm pile height and 3/8 gauge, high stitch density
  - Sand-organic infill layer for maximum player comfort
  - Most similar appearance and properties to natural sport turf design
  - Public fields, training grounds, club and amateur application

- Combined texturized and straight monofilament systems with three monofilament yarn types = LigaTurf Trion systems
  - 26 to 30 mm pile height and 3/8 gauge, extremely high stitch density, high yarn wheight
  - Non infill or sand dressed
  - Appearance similar to texturized systems but straight fibers available with more natural look

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UNFILLED SYSTEM DESIGN

SOCCER APPLICATION (NOT COMMONLY USED IN GERMANY)

- Elastic layer (mainly from SBR rubber – quality and environmental control) with or without gritting material

- 28 – 32 mm turf carpet with texturized or combined straight and texturized fibers (clamped)

- Fully texturized fibers
  - mini-pitches, multifunctional fields, municipality applications with high usage times

- Combined texturized and straight fibers
  - semi-professional and soccer club applications,

LIGATURF TRION

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LIGATURF TRION

NEW GENERATION OF SEMI-FILLED OR UNFILLED TURF

- Synthetic turf for football and multisport
  - Clamped installation
  - Sand-filled version: approx. 15 kg for stabilization

- Three different filament systems with different functions:
  - Straight/Smooth: Ideal play & ball rolling properties
  - Textured: traction and holding forces
  - Thatch yarn: filling and volume in the turf

- New tufting technology: Polytan X-Tuft
  - Improvement of the optics
  - Better stabilization of filaments counters the inclination of the filaments and improves ball roll behaviour
  - Reduction in slipperiness

POLYTAN X-TUFT

Without X-Tuft

With X-Tuft

LIGATURF TRION VARIANTS

- LigaTurf Trion R
- Use of recycled regranulate PE → PCR
- Reduction of the usage of virgin PE
- Conservation of fossil resources
- Reduction of CO2 emissions

- LigaTurf Trion GT
- Use of biobased Polyethylene →
- Usage of renewable resources (sugar cane)
- No competition to food industry
- Saving of fossil resources
- Reduction of CO2 emissions

SYSTEM DESIGN UNFILLED

RESTRICTIONS AND CONCERNS

- Usage of up to 50% more filament material to replicate the functionality of a filled system
  - 2.000 g/m² for new designed filled turf vs 2.900 g/m² and higher for unfilled turf
  - high consumption of fossil resources and energy if not biobased or recycled materials are used
- Restriction on player safety (and comfort)
  - changing performance of traction and rotational resistance under dry and wet conditions
  - fibre material can cause stick-slip effect and skin injuries
- Concerns on ballroll and playing performance
  - direction deviation
  - compaction with heavier usage over short time
  - maximum fibre stress
- No FIFA certification for unfilled turf systems for soccer

SUSTAINABLE SYSTEM DESIGN

ALL MENTIONED TURF PRODUCTS ARE AVAILABLE WITHIN THE POLYTAN GREEN TECHNOLOGY STRATEGY

- GT or GTzero product version for
  LigaGrass Pro GT, LigaTurf Cross GT/GT zero, LigaTurf Trion GT
  - Usage of biobased PE materials to save CO2 emissions during production
  - LT Cross GT zero as the first artificial turf systems produced from cradle to gate as climate neutral product
  - Increasing demand for products in Germany
  - Fully certified from independent institutes

SUSTAINABLE SYSTEM DESIGN

RECOMMENDATION

- Preference for sand-dressed or 3G systems with organic infill
- Consider a standard design and sustainable solutions for sub-base, elastic layer and turf system
- Save CO2 now by using biobased filaments - Polytan GT technology
- Fiber technology with regranulate PCR material saves valuable ressources – Polytan R technology
- Recycling of artificial turf has to provide solutions for the complete system with all his components
- Different recycling concepts stand for open technology approach in this young industry branch

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THANK YOU