



TESTING TECHNOLOGY FOR SPORT

How artificial turf Systems are being developed to meet environmental challenges

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MEETING THE CHALLENGES

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Role of the
Laboratory

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Shock pads

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Infill materials

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Using Recycled
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The role of
maintenance

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Next steps



BACKGROUND

- Legislation, environmental concerns and sustainability is driving change but more importantly stimulating innovation.
- These are not new conversations; the use of alternative infills has been around for 15 + years.
- Even shock pads are not new being around for 30 years +.
- What has changed is the availability and diversity of new products on the market



ROLE OF THE LAB

- Working with manufacturers to develop systems to determine what works/does not work.
- A constructive influence to play in the evolution of new systems without compromising intellectual property.
- Advising on what standards systems will should and will comply with.
- Advising on issues such as degradation/compaction or issues with maintenance and many other things



ROLE OF THE LAB

- Developing new test methods for evaluating the properties and performance of sustainable turf systems that can be assessed for performance against conventional systems?
- Acting in a technical advisory capacity to governing bodies on modifications to standards to accommodate the properties of new systems coming onto the market.



SHOCK PADS

- Shock attenuation
- Insurance policy
- Various types
- Prefabricated/in-situ laid
- Foam, rubber, composite
- Vastly differing performance
- We see a huge number of variants in the Lab and a huge range in quality



SHOCK PADS

- New artificial turf systems will require shock pads - good quality shock pads!
- In general shock pads last a long time 2x life cycle of the turf – and are value for money!
- Resurfacing is a significant % of the market now
- Refurbishment of EoL pitches will require evaluation of any existing shock pad to assess suitability to be re-used with the new systems.



SHOCK PADS

- Specific testing methodologies to determine properties and quality of shock pads.
- Shock absorption/Vertical Deformation
- Water permeability
- Tensile properties
- Determination of dimensional stability
- Resistance to dynamic fatigue by repeated pounding
- Resistance to permanent deformation after short-term loading
- Resistance to Permanent Deformation after Static Loading
- Thermal conductivity

English Version

Surfaces for sports areas - Synthetic turf and needle-punched surfaces primarily designed for outdoor use
Part 4: Specification for shockpads used with synthetic turf, needle-punch and textile sports surfaces

Sols sportifs - Surfaces en gazon synthétique et surfaces en textile aiguilleté principalement destinées à l'usage en extérieur - Partie 4 : Spécifications relatives aux couches de souplesse utilisées avec les sols sportifs en gazon synthétique, en textile et en textile aiguilleté

Sportböden - Überwiegend hergestellte Kunststoffrasenflächen
Teil 4: Festlegungen für Kunststoffrasenflächen und Sportbelägen

This European Standard was approved by CEN on 16 October 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate that the European Standard has the status of a national standard without any alteration. Up-to-date lists and bibliographies concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre member.

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INFILLS

- Organic, mineral and others
- Organic can be granular or fibrous
- Mineral is coated sand or sand
- Others are <5mm



INFILLS

- Granular organic infill
- Non resilient (except cork)
- Can be prone to higher levels of grip
- Can be somewhat abrasive when dry
- Other issues



WOOD

Forestry
Bi-product



OLIVE PITTS

Food by-product



CORN KERNELS

Food by-product



CORK

Product

INFILLS

- Fibrous
- Nice player experience when in optimum condition
- High maintenance
- High levels of wear
- Freezes in our climate
- Frequent topping up required



COCO PEAT/CORK

Food by-product



COCO HUSK

Food by product

INFILLS

- Mineral
- Can result in a firm playing surface
- High levels of wear on yarn
- Freezes
- Abrasive on both plater and turf



COATED SANDS

Quarry materials



COATED SANDS

Quarry materials

INFILLS

- <5mm
- Performance is dubious
- Issues with integration into matrix of fibres or carpet pile
- Not going to be a long-term solution to a ban on polymeric infills



Hollofill

TPE Product

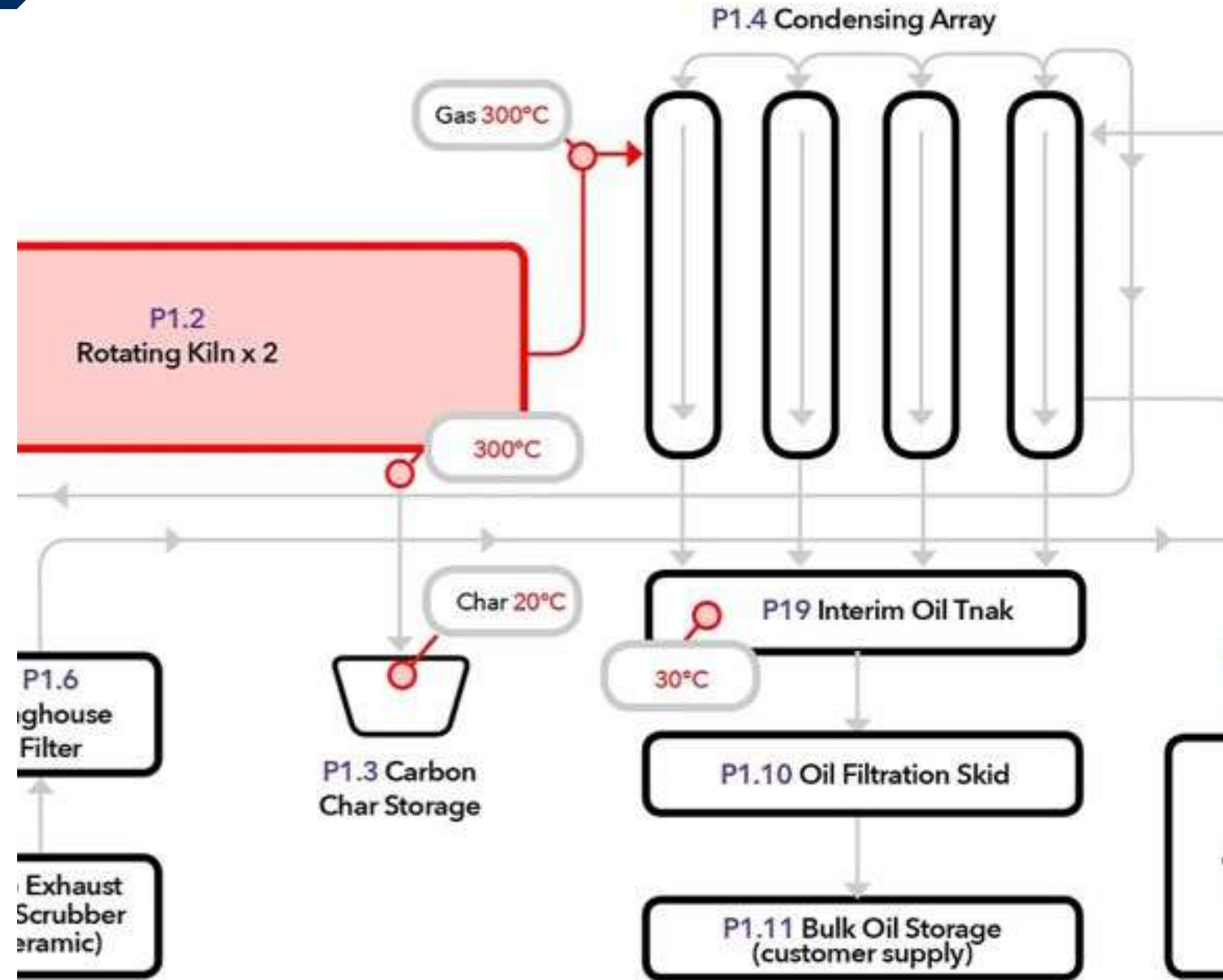
INFILLS

- Testing methodologies for infills;



RECYCLED MATERIALS

- The whole industry is looking at the use of recycled materials in their constituent lines
- Some success with yarn/backings and other applications



THE ROLE OF MAINTENANCE

- Maintenance is key!
- To make sure the pitch is kept in optimum condition
- To make sure the pitch is safe and consistent
- To repair any issues observed
- To top up the pitch
- to get the pitch ready for a test
- To protect your asset
- To extend the life of your pitch



ROLE OF MAINTENANCE

- New methodologies and equipment to deal with new materials
- Learnings from current installations which can be fed back into industry



NEXT STEPS

- New methodologies and equipment to deal with new materials
- Learnings from current installations which can be fed back into industry
- Test bed project monitoring to gather valuable insights into the performance, durability, player experience and maintenance of a variety of organic infilled pitches

		Infill
		Corn
	2mm	Sand
	Demier Pro Elite 40mm	Cork
	Turf X-Pro 28mm	Wood (Pine)
	Profoot TLT Star 45mm	Wood (Birch)
Field Turf	RGF XM7 45mm	Olive
Lano	Profoot TLT Star 50mm	Rubber



NEXT STEPS

- New test methodologies to evaluate properties of the materials
- Research to develop new tests to measure the properties of the new materials
- Research to test the in-service performance of the new materials



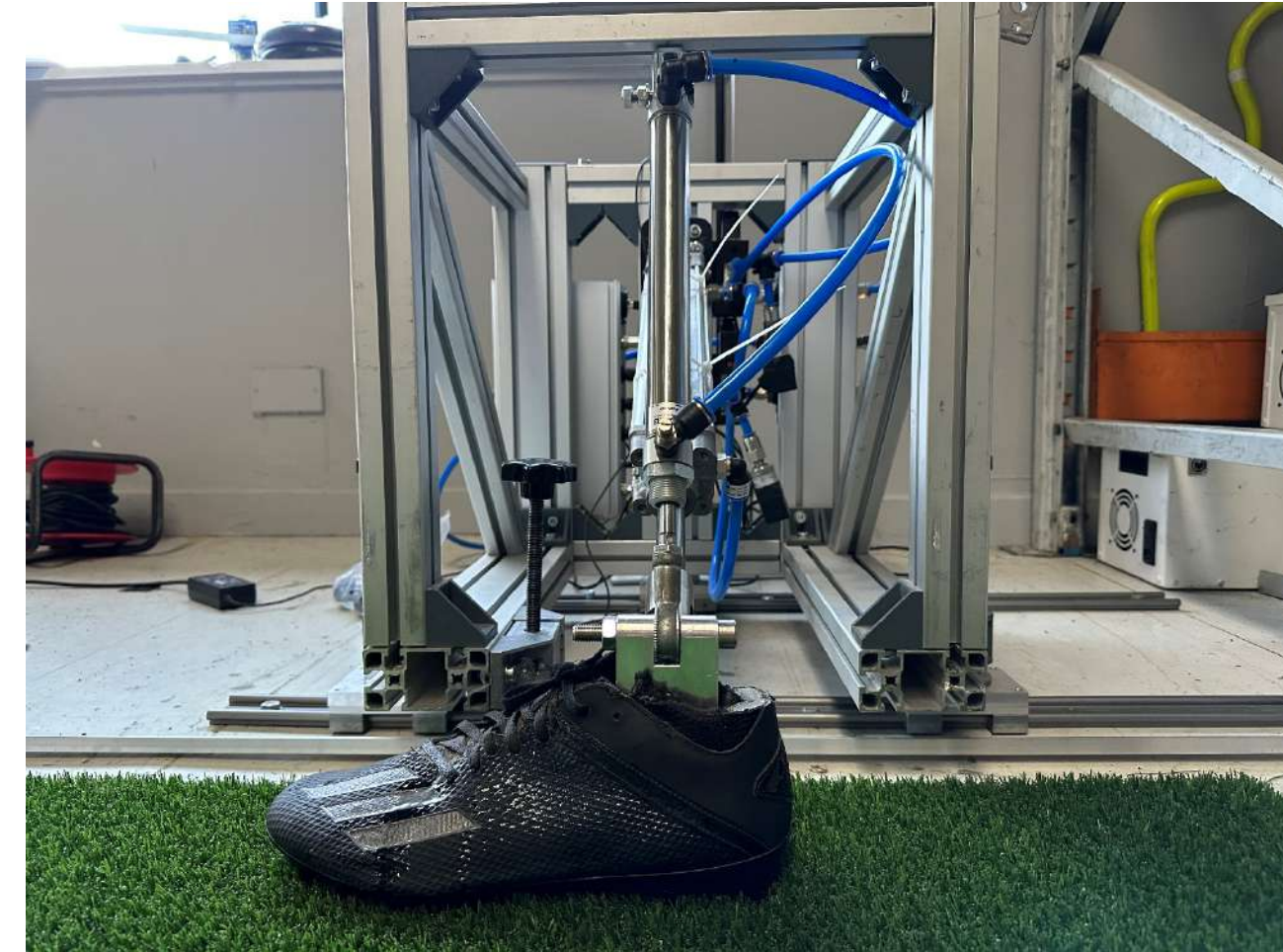
NEXT STEPS

- New test for skin injury potential – project for World Rugby



NEXT STEPS

- New test for skin injury potential – project for World Rugby



INFORMATION

ESTC Guidance on infill

[Infill](#)

ESTC Guidance on shock pads

[Shock pads](#)

ESTC Guidance on End-of-Life Turf

[End of life Guidance](#)

ESTC guide to Recycling facilities for synthetic turf systems in Europe

[Recycling facilities](#)





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ANY QUESTIONS

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