MAINTENANCE OF ARTIFICIAL TURF PITCHES WITH RUBBER INFILL

This guide targets everyone contemplating or already in the process of ordering the installation of an artificial turf pitch, as well as those who already have an artificial turf pitch – and wish to prevent rubber granulate from spreading to pitch surroundings.

ARTIFICIAL TURF PITCHES – FOR THE BENEFIT OF PUBLIC HEALTH AND THE ENVIRONMENT

Fact is that the existence of artificial turf pitches increases the number of hours of activity year-round – for the benefit of a lot of athletes as well as public health. You can play on artificial turf pitches all year round, and they withstand more frequent and intensive use than conventional grass pitches – irrespective of weather conditions.

The use of rubber granulate on artificial turf pitches helps ensure that the playing properties, such as resistance and shock-absorption, resemble those of natural grass as much as possible – and that balls roll and bounce naturally. Lying between the grass blades, rubber granules (infill material) support and protect blades from wear and tear – and at the same time, granules protect players from getting injured.

Climate-wise, artificial turf pitches with rubber granulate also have great positive impact; yet, as is also the case in many other contexts, e.g. in connection with the handling of batteries and household plastics, there may be environmentally negative effects, if rubber granulate is not handled correctly. With artificial turf pitches, it is thus important:

1. to ensure that pitches are constructed to help prevent the spreading of rubber granules,
2. to insist that excessive refill and the spreading of rubber granulate be avoided in connection with pitch maintenance (which is indeed possible with simple measures), and
3. to dictate a code of conduct for users, so they e.g. brush granulate off their clothes and empty their shoes, when they have used the pitch.

Rubber granulate for artificial turf pitches has attracted focus due to instances where granulate has unintentionally spread to nature. At Genan, we are striving for a sustainable future, and our factories have the capacity to spare the environment several hundred thousand tonnes of CO_2 emission annually, when end-of-life tyres are recycled into rubber granulate – e.g. for the application in artificial turf. And if Genan's recommendations for the construction and maintenance of artificial turf pitches are followed, you can ensure that rubber granules remain on the pitch – and are not spread to nature.

GENAN

- is a Danish company, which is world leader in the recycling of end-of-life tyres
- is a high-technology manufacturer, working with sustainability, the recycling of valuable resources as well as the responsible use of rubber granulate
- focuses on high quality and the manufacture of products with a high degree of purity.

Genan has made three guides with recommendations for the construction and maintenance of as well as responsible conduct around artificial turf pitches.

These guides have been prepared on the basis of:

- the results from a newly published, Swedish study
- a new and comprehensive, international literature review on the spreading of rubber granulate from artificial turf pitches, prepared by the Danish Technological Institute (Teknologisk Institut), as well as
- experience from both the Danish and the Norwegian football associations.

Recent research shows that if the right measures are established, and if artificial turf pitches are both used and maintained responsibly, the spreading of different types of microplastics from these pitches to the environment can be reduced to 100 grammes a year. Approx. 10% of these 100 grammes are rubber granules.

GENAN INSIDE – ENVIRONMENTALLY CORRECT MAINTENANCE OF ARTIFICIAL TURF PITCHES

In relation to the environment and the surrounding nature, an artificial turf pitch is best maintained as follows:

1. **Pitch maintenance during summer**
   - » Avoid the use of herbicides on the pitch
   - » Rake/brush the pitch regularly to prevent compaction of the infill material.
     As a rule of thumb, 1 hour should be spent on maintenance for each 10 hours of use.
   - » Prevent excess consumption of granulate refill by optimising regular maintenance.

2. **Pitch maintenance during winter**
   - » In so far as possible, choose mechanical and manual snow removal instead of using road salt and/or other de-icing chemicals.
   - » If de-icing agents are used, make sure to request documentation from the supplier or the manufacturer, proving compliance with current regulations for xenobiotics.
   - » Avoid the use of snowblowers for snow removal, as this will increase the risk that rubber granulate is spread.
   - » Snow removed from the pitch should ideally be deposited at a designated area, which may be an artificial turf area or an area with a paved / tiled surface or where crop protection fleece is laid out at the bottom. Once the snow has melted, the remaining granulate must be collected for the purpose of being put back on the pitch.

» If the pitch does not have an area designated for the depositing of snow, a solution could be to reduce the size of the originally chalked pitch. Snow may then be deposited on the area from the solid fence demarcation, if any (or at least from the original sideline and / or goal line), to the temporary line marking (cf. Figure 1).
When the snow melts, the granulate can easily be reused.

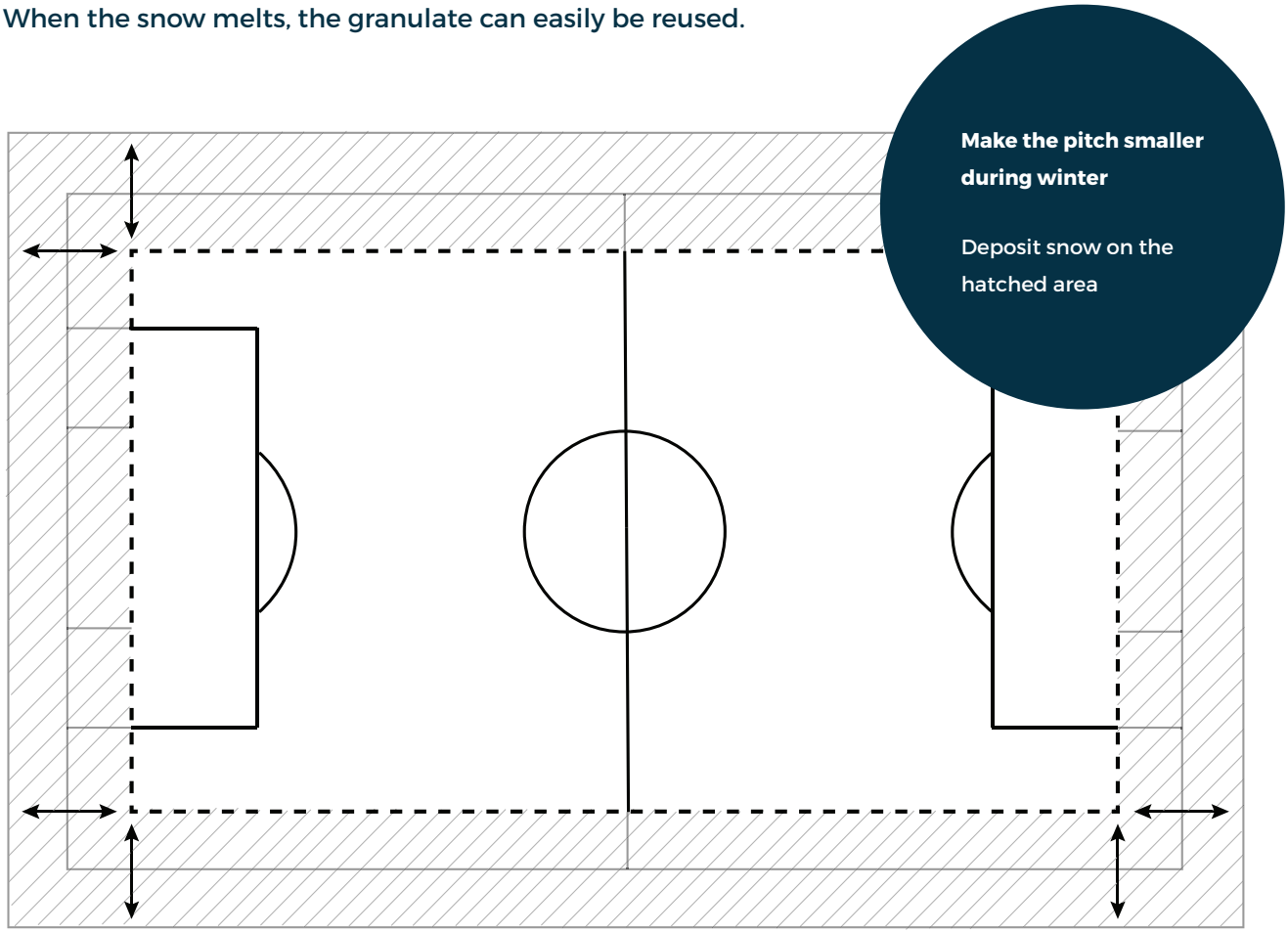

Figure 1

3. Pitch maintenance year-round

a. The paved / tiled area around the pitch

» Sweep up granulate from the paved / tiled area around the pitch, if such area exists – and put granules back onto the pitch in connection with granulate refill.

» Remove granulate deposited along the pitch demarcation panel, if such exists – and put it back onto the pitch.

» Keep rubber granulate separate from other waste, so as much granulate as possible can be reused on the pitch. We recommend to keep granulate in a closed container, so it is not mixed with leaves and other material to a degree, where it is not suitable for reuse.

b. Granulate traps

» We recommend to avoid open wells for rainwater in connection with the pitch system – and instead let rainwater percolate to a drainage system. If open wells exist, a filter should be mounted to retain granulate, i.e. a kind of granulate trap.

Granulate traps around pitches and mesh gratings, if any, located in changing rooms, must be emptied regularly; and material collected must be disposed of as solid waste for incineration.

c. Clean-down exit area or brushes at pitch access points

» The ground surface at the pitch access point – ideally a specially designed clean-down exit area, where players brush granulate off their clothes and socks and empty their shoes – must be regularly cleaned, so collected granules can be put back onto the pitch in connection with refill.

d. Operation of machinery

» Machines which have been on the pitch area, must either be swept clean of granulate on the pitch before exiting – or at a designated area with a paved / tiled surface.

FIND OUT MORE

To facilitate correct and responsible, ongoing maintenance of artificial turf pitches, the right measures to ensure that granules stay on the pitch should be thought in as early as in the pitch installation planning phase. Consult the pitch installation guide "Construction of Artificial Turf Pitches – Genan Inside", which may be downloaded on www.genan.eu.

If you wish to read more about the knowledge and documentation, on which Genan's recommendations are based, we make reference to the following:

- *"Dispersal of microplastic from a modern artificial turf pitch with preventive measures – Case study Bergaviks IP, Kalmar," by Fredrick Regnell, Ecoloop, October 2019*
- *"Utforming av miljøvennlige kunstgressbaner", Norges Fotballforbund ("Designing environmentally friendly artificial turf pitches", by the Norwegian Football Federation)*
- *"Etablér en miljøvenlig kunstgræsbane", DBU.dk ("How to construct an environmentally friendly artificial turf pitch", by the Danish Football Association)*
- *"Vejledning om kunstgræsbaner", Miljøstyrelsen, 2018 ("Guide on Artificial Turf Pitches", by the Danish Environmental Protection Agency, 2018)*
- *"Mass balances of rubber granulate disappearing from artificial turf pitches with focus on discharge to the water environment", by the Danish Technological Institute, December 2018 / revised May 2019*
- *"Fact sheet – Rubber Granulate for Artificial Turf Pitches in Denmark", by Genan, August 2019*

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