FACT SHEET No.14 MM & ARTIFICIAL TURF

mineral magic

Making soils better & wetter - permanently

The Heat-Insulating Attributes of Amorphous Silica and Its Benefits as Artificial Turf Infill

Amorphous silica, such as Mineral Magic, possesses unique physical and thermal properties that make it an excellent candidate for use as infill in artificial turf. Its ability to insulate against heat offers significant advantages in mitigating surface temperature issues commonly associated with synthetic grass.

Key Insulating Properties

1. Porous Microstructure: Amorphous silica's highly porous and lightweight structure reduces thermal conductivity, effectively minimizing heat absorption and retention. This characteristic helps artificial turf surfaces stay cooler during hot weather compared to conventional infill materials like rubber or sand.

2. Reflective Qualities: The silica particles reflect sunlight rather than absorbing it, contributing to a lower heat index on the turf surface. This property is particularly beneficial in high-temperature climates where heat buildup can become a safety concern.

3. Thermal Stability: Amorphous silica exhibits excellent thermal stability, meaning it resists temperature fluctuations. Its ability to disperse heat evenly prevents the formation of localized hot spots, ensuring a consistent temperature across the turf.

Benefits in Artificial Turf Applications

1. Improved Safety and Comfort: Lower surface temperatures reduce the risk of heat-related injuries, especially for athletes, pets, and children using the turf. The cooler surface enhances comfort during play and leisure activities.

2. Durability of Turf Components: By insulating against heat, amorphous silica helps protect the turf's backing and synthetic fibers from heat-induced degradation, extending the lifespan of the installation.

3. Sustainability and Water Savings: Unlike traditional infill, which may require water cooling to reduce surface temperatures, silica's insulating properties minimize the need for additional cooling measures, conserving water and energy resources.

4. Enhanced Environmental Benefits: As a natural, certified organic product, amorphous silica offers a sustainable alternative to rubber or plastic-based infill, contributing to reduced environmental impact without compromising performance.

Conclusion

Incorporating amorphous silica as infill in artificial turf systems provides a heat-insulating solution that enhances safety, comfort, and sustainability. Its ability to maintain cooler surface temperatures without additional water or energy inputs makes it an innovative choice for environmentally conscious applications in sports fields, playgrounds, and residential landscaping.