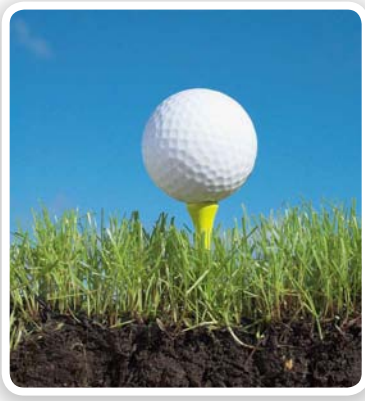


St. Cloud Zeolite Soil and Turf Products



St. Cloud Zeolite is a unique mineral product which offers a two fold benefit to golf courses... it helps conserve and time release two valuable resources that all vegetation rely on....water and fertilizer.

Numerous research efforts conducted worldwide have shown the benefit of zeolite in retaining water and fertilizer in the root zone of golf course grasses, and releasing them to the grass as it is required.

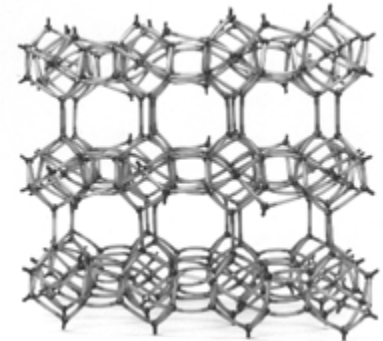
This not only conserves one of our most valuable resources in increasing demand – water, but reduces stress on grasses by providing a source of water over a longer period of time than typical golf course sands will provide.

Properties of St. Cloud Zeolite

St. Cloud Zeolite is often referred to as a molecular sieve, with its molecular structure consisting of a rigid, resistant framework of an aluminum and silica atoms, connected by oxygen atoms. This framework attracts and binds cations such as calcium and potassium.

The sponge like structure also will hold water molecules in its open frame, which it then releases as the plant root systems exceed the surface tension holding it to the **St. Cloud Zeolite** particles.

In addition to the water retention and time release features, **St. Cloud Zeolite** will “exchange” molecules of calcium and potassium for molecules of ammonia, a major form of nitrogen fertilizer. As with water, the ammonia is retained within the zeolite particle until demand by a plant root system extracts it.



Results with St. Cloud Zeolite

Research shows:

- A Cornell University study demonstrated that zeolite used in golf course soils resulted in an increased shoot growth rate during periods of limited water availability of 60% over soils without zeolite. Another study conducted at Cornell using zeolite amended soils resulted in reduced nitrogen leaching through the root zone and a doubling of water holding capacity.
- A study published in Agricultural Chemistry showed that zeolite amended golf course soils increased the moisture supplying capacity to grasses by 50%.
- A study published in Agronomy Journal showed increased clipping yields and nitrogen recovery in zeolite amended golf course sands.
- A report in HortScience demonstrated increased establishment rates for grasses in zeolite amended golf course soils.