

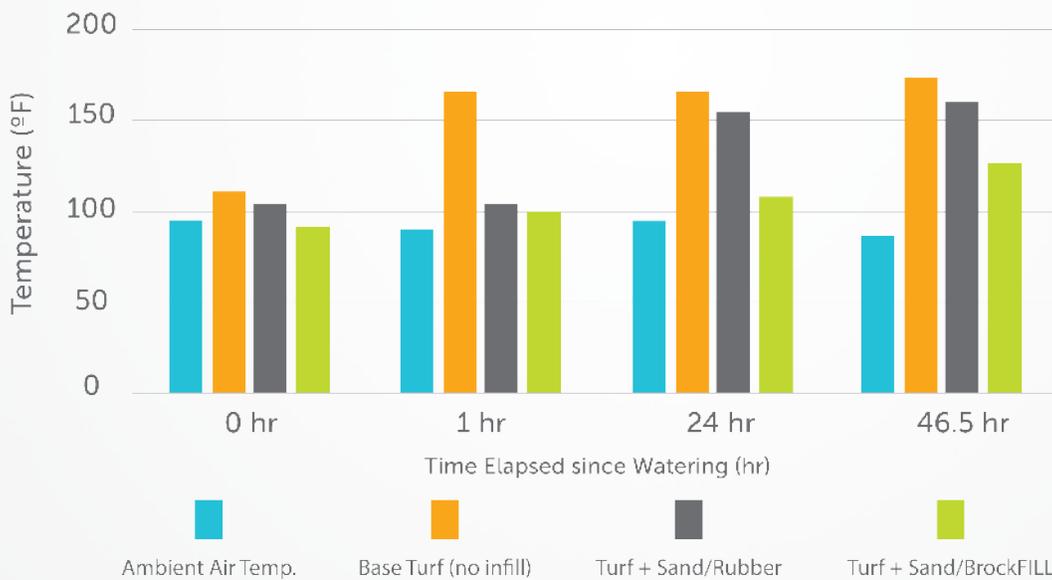
# BrockFILL

## Moisture Retention and Cooling

BrockFILL is an organic infill for artificial turf engineered from wood particles. It readily absorbs moisture, which enables it to provide lower surface temperatures via evaporative cooling. BrockFILL can hold roughly its own weight in water (one pound of BrockFILL can hold about one pound of water).

Brock performed experiments at its lab in Boulder, CO, to determine how long BrockFILL retains water and provides cooling. In one such experiment, two turf samples, one with sand/rubber and one with sand/BrockFILL were prepared along with a non-infilled landscape turf sample. Both infilled turf samples were placed on a section of Brock PowerBase PRO and then placed outdoors in the sun along with the landscape turf. The samples were in direct sunlight for roughly 30 minutes, after which they were watered with tap water to the point of saturation. The ambient temperature, the surface temperature of the landscape turf, and the surface temperatures of both infilled samples were then measured over the course of two days. Temperature measurements were taken during the afternoon when conditions were warm, sunny, and dry. The chart below shows the results.

Temperature Data for Watered Turf Plots



Five minutes after soaking the turf samples with water, the BrockFILL plot and rubber plot had temperatures of 92 °F and 104 °F, respectively. After 1 hour, the non-infilled turf, which doesn't retain much if any moisture, had heated up to 166 °F, demonstrating how readily the turf fibers absorb radiant solar energy and thereby generate heat. The BrockFILL and crumb rubber plots both appeared wet, and the surface temperatures had not changed much from the initial measurements. In less than 24 hours the surface temperature of the rubber infilled sample had risen to 155 °F (61 °F above ambient), while the BrockFILL plot had a surface temperature of 108 °F (14 °F above ambient) and still appeared wet. After about two days, the temperature of the rubber plot was 160 °F (73 °F above ambient), while the BrockFILL sample was 127 °F (40 °F above ambient, 33 °F below the rubber plot). The surface layer of the BrockFILL sample appeared dry, but the BrockFILL just below the surface was still damp.

While the cooling performance and moisture retention will vary depending on environmental conditions (e.g., temperature, sunlight intensity, relative humidity), this experiment demonstrates that fully saturated BrockFILL, in warm and sunny outdoor conditions in a relatively dry climate, retains moisture and provides significant field cooling for at least two days.