



SOIL SURFACTANT

Superior technology to maximize turf quality, performance and environment.



Multi Block Co-Polymer: 100%

Power Play

Combining Science for Improved Performance. Engage Agro USA introduces **Pisces™ EA**, a new generation soil surfactant with advanced properties that meet standards of excellence for comprehensive soil-water management on golf courses.

Pisces EA is blended with leading edge surfactants and penetrants that promote improved plant productivity through uniform and stable water movement and retention plus distribution of moisture and nutrients to root zones.

The innovative technology behind **Pisces EA** also optimizes the growing environment by balancing air-to-water ratios in the soil. This creates resilient turf that is fully equipped to withstand stress and disease.

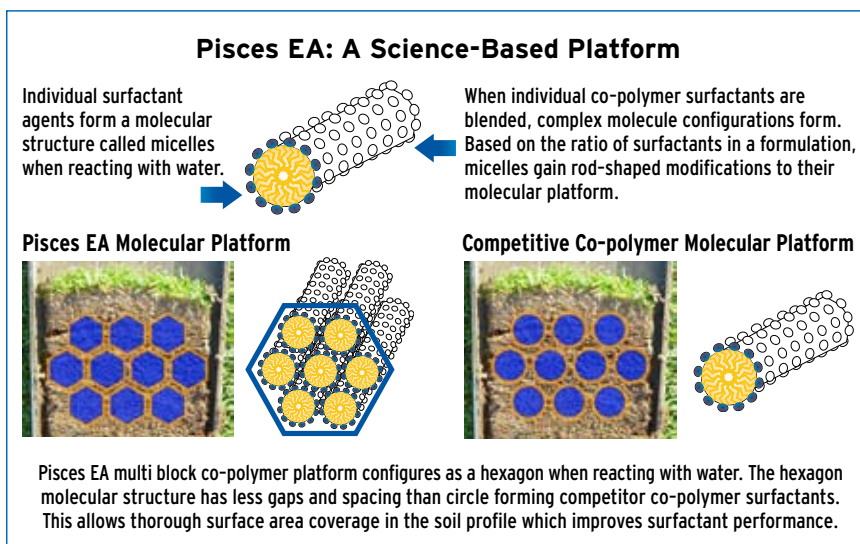
With **Pisces EA**, performance advantages include:

- Less irrigation volumes, frequency
- Faster, deeper soil moisture penetration
- Drier, firmer surfaces under wet or dry conditions
- Reduced turf stress during drought or excess rainfall
- Better utilization of nutrients and other inputs

Pisces EA is extremely safe to turf due to its high quality molecular construction and weight which help prevent cell membrane disruption in plants.

Avoiding Water Hazards

Soil Moisture in Motion. Hosting different but highly complementary chemistries to prevent and correct water repellent soils, **Pisces EA's** formulation and performance agents are proven to outperform competitive polyblend surfactants.



GROW IT LIKE A PRO

Features & Benefits

- Prevents & corrects water repellent soils
- Improves soil profile from surface to root zone
- Reduces irrigation timing & water volumes
- Preventative & curative control of LDS
- Improves air-to-water ratio throughout soil layers

Liquid Formulation

- Easy to apply
- Safe to use
- No mixing or agitation required
- Non-phytotoxic

Use Rate

- Timing: Apply monthly starting 30 days prior to the onset of turf stress
- Initial application: 6 ounces tank mixed with 2 gallons water per 1,000 square feet
- For improved performance, always irrigate treated turf prior to mowing

Application Methods

- Broadcast spray application
- Drench

Tank Mix Capability

- Compatible with most fertilizers
- Compatible with most pesticides
- Compatibility jar test recommended

Packaging

- 1 gallon jugs per case (4 units)
- Pallets of 192 gallons (48 cases)

Pisces EA Performance Drivers

Spreading Agent - delivering a scientifically-advanced soil-water filtration and re-hydration pattern for more efficient moisture spreading horizontally and vertically.

Soil Penetrant Agent - delivering faster and deeper water movement which travels directly into the soil profile with downward flow into the targeted root zone.

Re-Wetting Agent - delivering a slower breakdown which holds the agent longer in the soil and maintains its "bridge" between water repellent soils and irrigation.

Field Trial Research

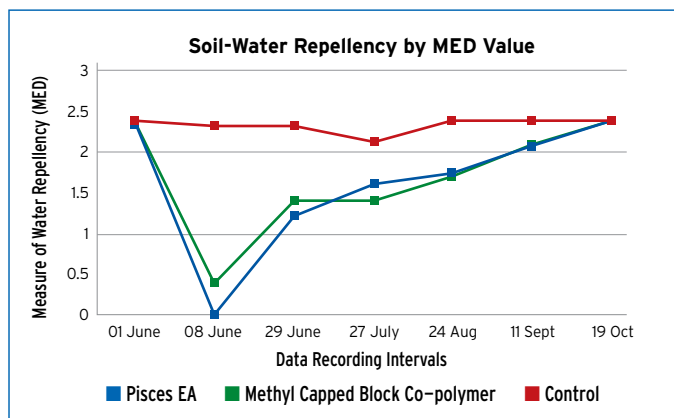
Field trials conducted by university researchers and independent third-party consultants have been completed to evaluate the effect of **Pisces EA** regarding soil-water repellency and irrigation efficiency.

Topline Results

- Pisces EA** required less irrigation to achieve optimum soil moisture levels in comparison to a leading methyl capped co-polymer surfactant.
- Pisces EA** reduced soils Measure of Water Repellency (MED) level to "0" following initial application.
- Pisces EA** demonstrated efficacy lasting 4 and 8 weeks after the last application.

Pisces EA Soil-Water Repellency Research Study

Effects of Wetting Agents on Creeping Bentgrass and Soil Water Repellency
Dr. Keith Karnok, University of GA Experimental Golf Green USGA specification, Athens



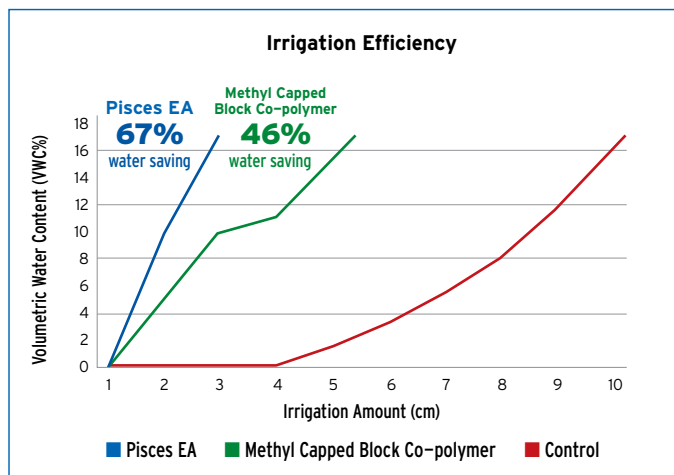
In field trials completed by the University of Georgia, Pisces EA was evaluated for its impact on soil-water repellency. Also tested was an industry-leading methyl capped block co-polymer surfactant. On a USGA test green, soil-water repellency was measured prior to the first application and at repeated intervals every 7 days after single applications of Pisces EA and the methyl capped block co-polymer surfactant.

Conclusion: Pisces EA reduced soil MED to "0", proving its ability to eliminate water repellency while allowing more consistent distribution of moisture at greater depth across plots. Also, Pisces EA outperformed the methyl capped block co-polymer surfactant - which reduced soil MED to only "0.4."

- MED used as standard measurement guide. Based on molarity of the ethanol droplet test.
- MED scale of 0 to 4+.
- Study completed in 2010 and 2011.

Pisces EA Irrigation Efficiency Research Experiment

Irrigation Efficiency Affected by Several Wetting Agents
Dr. Keith Karnok, University of GA Experimental Golf Green USGA specification, Athens



In a field trial experiment completed by the University of Georgia, Pisces EA was evaluated for its impact on irrigation efficiency. Also tested was an industry-leading methyl capped block co-polymer surfactant. Initial Volumetric Water Content (VWC) was determined prior to applications. Surfactant treatments were applied at recommended rates for single applications. Irrigation was applied evenly in 1.3 cm (0.5 inch) and 0.6 cm (0.25 inch) increments. VWC of the water-repellent soil was determined after each irrigation. Irrigation efficiency was determined by calculating the amount of water required to raise the VWC of water repellent soil to 18 to 20%. Once VWC of water repellent soil reached 18 to 20% (volume/volume) irrigation was terminated.

Conclusion: Pisces EA plots reached 15% VWC after 2.5 cm of irrigation. Control plots required an additional 7.5 cm of water for VWC to meet the equivalent level of Pisces EA plots. The methyl capped block co-polymer surfactant plots required an additional 2.1 cm (4.6 cm total) of water to reach the same 15% VWC as Pisces EA. This experiment demonstrated that Pisces EA required less water irrigation with a **67% water savings benefit** when used.

- VWC of the water repellent soil was determined by time-domain reflectometry (TDR).
- Study completed in 2011.

Leading the Field

Engage Agro USA: A Performance Partner. Engage Agro USA specializes in crop protection and nutritional products for agricultural, turf, industrial, and niche crop markets in the United States. We select innovative products to include in our portfolio for both our agriculture and commercial customers. **Trust Engage Agro USA to be your preferred performance partner.**