LT 120

120 DAY PRACTICAL SOLUTION TO SUMMER STRESS

Many golf course superintendents today are concerned about how to manage their turf soil moisture requirements during elongated periods of summer stress. Use of surfactant have proven to be effective in reducing soil hydrophobicity and decreasing localized dry spots, but budget constraints often preclude the use of such products on monthly or even shorter frequency schedules during summer stress periods that may last four or more months.

Regardless of the efficacy of surfactant, how long it will maintain its promised performance is usually determined by the how rapid its polymer structure is degraded and disassociated by microbes and chemical interaction in the soil profile.

Soil microbes that proliferate in the rootzone of turfgrass consider surfactants as a viable food (carbon) source they need to provide the energy necessary to sustain life. It is therefore common for soil microbes to degrade surfactant efficacy as they enzymatically separate bonds in the surfactant's molecular chain.

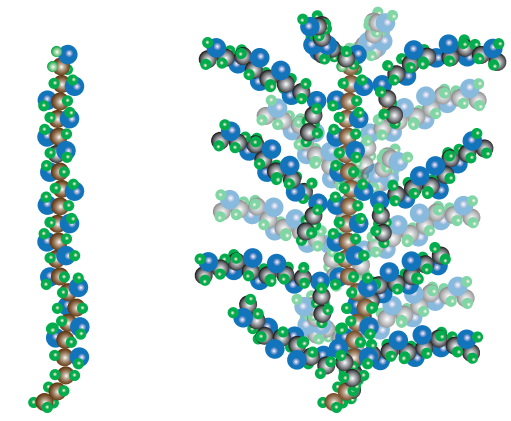
For this reason, most surfactants need to be re-applied every 15 to 30 days to maintain performance. This can result in increased water management costs that may be unsuitable for some areas of the golf course such as fairways, approaches and surrounds.

LT 120 TECHNOLOGY

Radically Different Chemistry

At the heart of the LT 120 long term soil surfactant technology is a new copolymerization processes that allows selected surfactants to be grafted onto a large fully functional parent molecule in a manner similar to branches on a tree.

This branched configuration of independent copolymer surfactants is used to increase LT 120's hydration characteristics as well as provide a means to compensate for microbial degradation of the surfactant's structure -- the primary cause of performance decay.



Parent Molecule Branched Chain Molecule

Improved Hydration Strategy

LT 120 makes use of an advanced combination of two surfactant technologies –a block polymer surfactant in addition to its long-lasting branch copolymer surfactant. These surfactants have been selected specifically for their unique hydration properties, their impact on water movement into and within the soil and their overall contribution to improved water management.

Once attached to hydrophobic areas on the soil particle surface, the copolymers establish new sites of hydration. This greatly extends the time that LT 120 will continue to provide improve hydration on water repellent soils. It should be noted that the parent molecule also retains its surfactant structure and activity – even when all its "branches are removed.

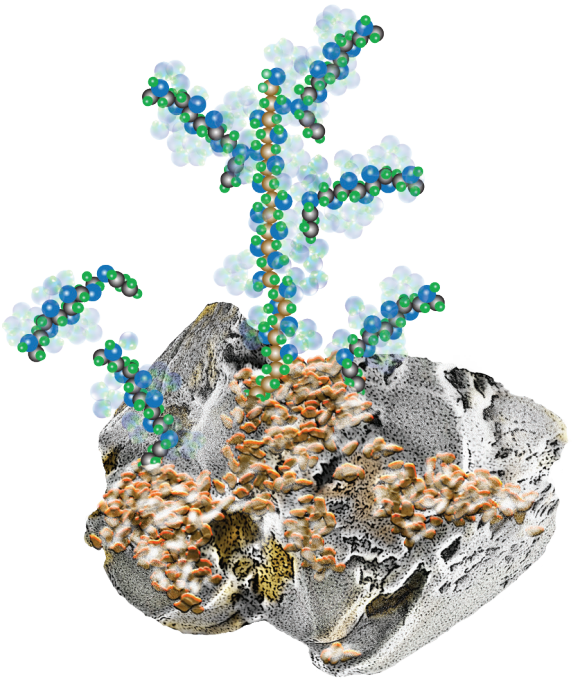


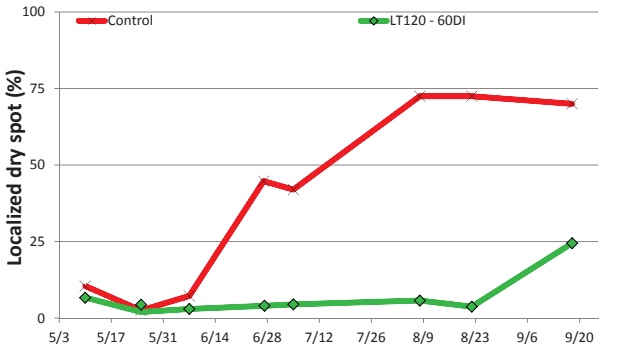
Illustration showing cleavage, disassociation and reattachment of fragmented side chain surfactants on water repellent soil particle surface.

PERFORMANCE VERIFIED

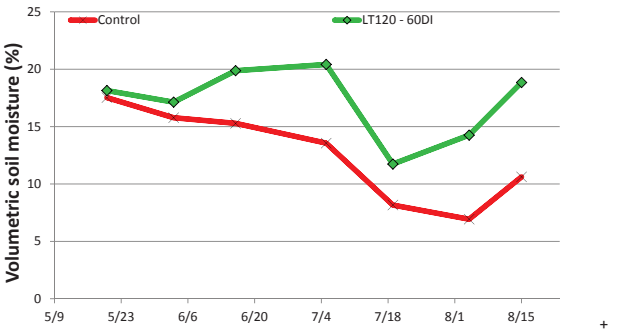
LT120 was tested on 8-year-old 'L-93' at the University of Arkansas on sand based putting green that was constructed according to USGA recommendations. The study was conducted from May through September in 2011.

Irrigation was applied judiciously in May, moderately in June and July, and only to avoid severe drought symptoms in August and September, so that the LT 120 agent effects may be evaluated across a range of irrigation regimes.

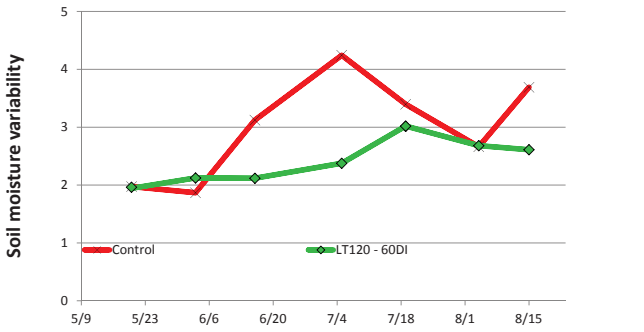
LDS symptoms, soil moisture and rootzone moisture uniformity (neither excessively wet/dry) were evaluated. Results are illustrated below:



Effect of wetting agent application localized dry spot incidence - Fayetteville, AR, 2011.



Effect of wetting agent application average volumetric soil moisture content - Fayetteville, AR, 2011.



Effect of wetting agent application soil moisture variability, as measured by standard deviation - Fayetteville, AR, 2011.

PRACTICAL APPROACH

LT 120's novel graft polymer surfactant technology is capable of significantly extending the performance window of its surfactant activity. This unique surfactant combination is **ideally suited for superintendents looking for a long-lasting, *practical solution* for extended periods of heat and water deficit conditions associated with summer stress**.

When used under a 60-day interval split application treatment, the LT 120 chemistries will provide superintendents with an exceptional, longer-lasting treatment for water repellency in greens, tees, fairways and other areas suffering from hydrophobic soil conditions. **Truly, LT 120 puts technology to work for you for unsurpassed performance**.

Golf course superintendents will find that using LT 120 will result in:

- **120 days of uniform distribution of soil moisture throughout the soil rootzone**
- **Reductions in localized dry spot (LDS)**
- **Exceptional hydration and rehydration of existing areas showing symptoms of hydrophobicity**
- **Improved stress tolerance, color and overall turf quality**
- **Significant improvement in soil air:water ratios**
- **Better drainage**
- **Reduced surfactant and labor costs associated with application**

USE DIRECTIONS

ACTIVE INGREDIENT: 100% Alkoxylated Polyols
NOT A PLANT FOOD INGREDIENT

DIRECTIONS FOR GENERAL TURF USE

GREENS, TEES, FAIRWAYS, LAWNS AND SPORTS TURF

Localized Dry Spot and Water Repellency Conditions:

LT 120 L Formulation: Apply LT 120 L as a preventive program. LT 120 L should be applied in two applications. Apply at 8 ounces per 1,000 ft^2 (240 ml. per 100 sq. meters). Wait 60 days to reapply second application. Under the two split applications LT 120 L should be sprayed at 8 ounces per 1,000 ft^2 (240 ml. per 100 sq. meters) and should be applied in 2 gallons of water per 1,000 ft^2 (8 liters of water per 100 sq. meters) spray solution.

LT 120 G Formulation: Apply LT 120 G as a preventive program. Apply at 3.5 lbs per 1,000 ft^2 (1.6 kilograms per 100 sq. meters). Wait 60 days to reapply second application. Irrigation should be applied after application to remove LT 120 G from the leaf surfaces. LT 120 G is safe on turf.

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It streches your surfactant performance and your budget!

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