

STAMINA[®] 90



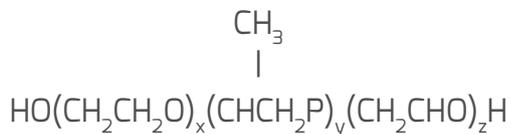
STAMINA® 90

The benchmark in residual surfactant technology

STAMINA 90 is a 100% non ionic, residual surfactant formulation for long term prevention of localised dry spot. STAMINA 90 is unmatched in its residual performance capabilities in both sandy and heavier soil profiles. STAMINA 90 also has excellent warm and cool season turf safety characteristics and can be used in all forms of turf management, where residual properties are required.

The molecule in STAMINA 90

The molecule in STAMINA 90 is a heavy molecular weighted material. It is a EO/PO block co-polymer, which is a non-ionic surfactant containing ethylene oxide and propylene oxide units. EO/PO block copolymers allow for efficient wetting because the water hating end of the chemical attaches itself to the water repellent sand by physical adsorption, providing an anchor which allows the more water soluble end to extend into the aqueous phase to draw water to the soil's surface. The Chemical structure of the STAMINA 90 Molecule is as follows;



The large nature of the molecule, is what gives STAMINA 90 its residual performance. Microbial decomposition takes several months, due to the complexity of its molecular make up.

Major benefits of STAMINA 90

- Highest quality, 100% Surfactant Formulation.
- Proven performance, backed by Nuturf and BASF.
- Excellent residual properties.
- Improves water usage by improving water penetration and retention.
- Reduces irrigation requirements by increasing the rate and depth of water penetration.
- Non burn formulation.
- Effective in both sand and heavier soil profiles.
- Flexibility in rate, dependent upon intensity of use.
- Low foaming properties.
- Manufactured and developed in Australia for Australian conditions.

STAMINA 90 module characteristics

% of Polypropylene glycol block in molecule	20
pH:	Approx. 7.0
Surface tension:	41mN/m

STAMINA 90 at a glance

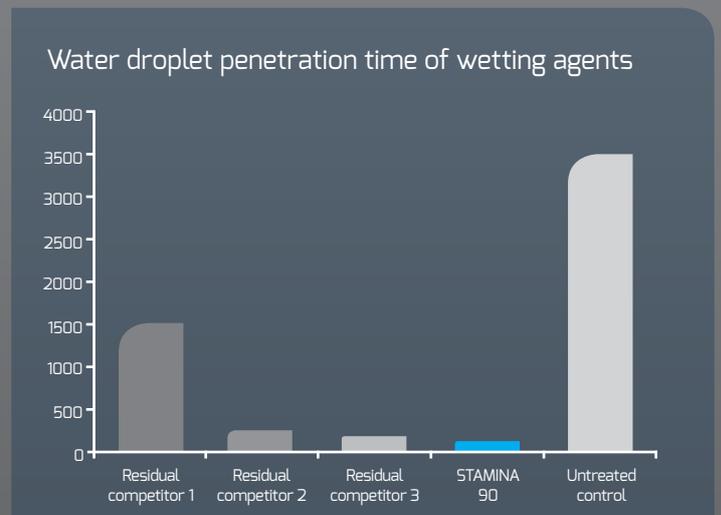
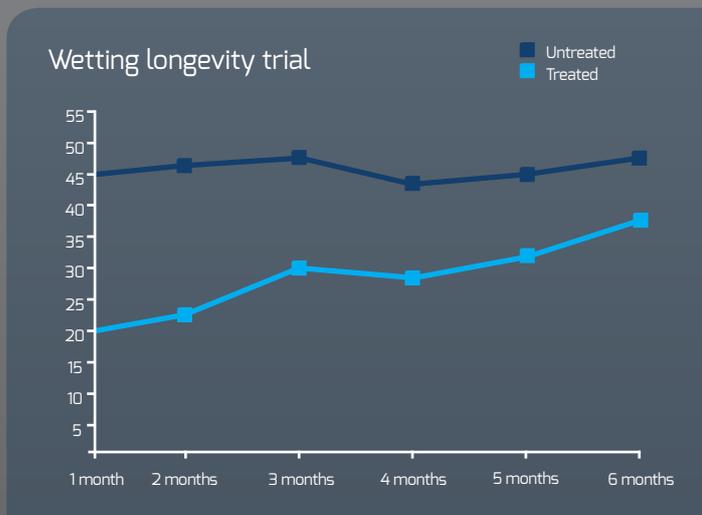
Formulation:	100% non ionic surfactants
Uses:	Long term prevention and control of dry patch
Rate:	25-50L/ha
Residual performance:	Several months
Potential for burn:	Non burn formulation
Pack sizes available:	20L, 200L, 1,000L



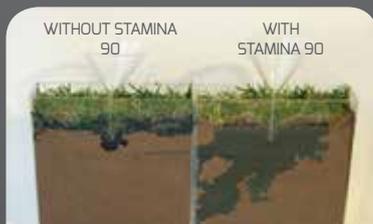
STAMINA 90 performance

Longevity

The below trial was established to determine wetting agent performance on a hydrophobic soil material over an extended period of time (kept in greenhouse conditions). At each month, water droplet penetration tests (WDPT) were undertaken, with the below results recorded. It clearly indicates that STAMINA 90 had improved performance over untreated control at all months over the six month period, confirming that the excellent residual and rewetting capabilities of STAMINA 90.



Residual performance is dependent upon soil type, rate of application and climatic conditions.



Initial wetting performance

Water droplet penetration testing has proven that STAMINA 90 has excellent residual wetting capabilities, as well as its residual performance. These initial wetting properties allow STAMINA 90 to overcome hydrophobic conditions as well as prevent them.

Environmental benefits

By using the ranking provided (US EPA guidelines) and on the basis of the results from two bioassays conducted STAMINA 90 can be considered as being a non-toxic surfactant to frogs.

Summary of the toxicity data on STAMINA 90

	48-h tadpole bioassay (mg/L)	96-h teratogenic assay (mg/L)
LC ₅₀	9,000	7,500

Concentration (mg/L)	Toxicity category
<0.1	Very highly toxic
0.1 – 1	Highly toxic
>1 – 10	Moderately toxic
>10 – 100	Slightly toxic
>100	Practically non toxic

LC50 (lethal concentration to 50 per cent): the concentration of a chemical in water which kills 50 per cent of the organisms placed in that water for a stated time, usually 48 or 96 hours.



Application rate

Situation	Rate	Rate/Ha	Comments
Preventative application of Localised Dry Spot in Sportsfields and Fairways	250-500mL/100m ²	25-50L	Apply in no less than 400L/ha of water. Irrigation is not critical but is recommended to ensure product effectiveness. Repeat treatments at the desired application frequency.
Preventative application of Localised Dry Spot in Greens and Tees	250-500mL/100m ²	25-50L	Apply in no less than 400L/ha of water. Irrigation is not critical but is recommended to ensure product effectiveness. Repeat treatments at the desired application frequency.
Curative application of Localised Dry Spot (Green, Tees, Fairways and Sportsfields)	500mL/100m ²	50L	Apply in no less than 400L/ha of water. Irrigation is not critical but is recommended to ensure rapid hydration of the profile. Repeat applications fortnightly and continue as required until recovery occurs.
Dew control	250-500mL/100m ²	25-50L	Application of Stamina® 90 on the day or one day prior to the event will help prevent dew formation. Application of Stamina® Rescue at 500mL per 100m ² every 7-10 days will be required for long term dew formation. Although irrigation is not essential, for best results, irrigate following application with 4-6mm of water.
Domestic Gardens (Lawns and Garden Beds)	15mL/10L		Sufficient to drench area of up to 5m ² . Water in well following application. Apply as necessary.
Horticulture (General Use)	150mL/100L		Apply around base of plants or tree and water in well following application. Apply as necessary.

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