



## ARMAMENT™ TECHNICAL SHEET

### WHAT IS ARMAMENT?

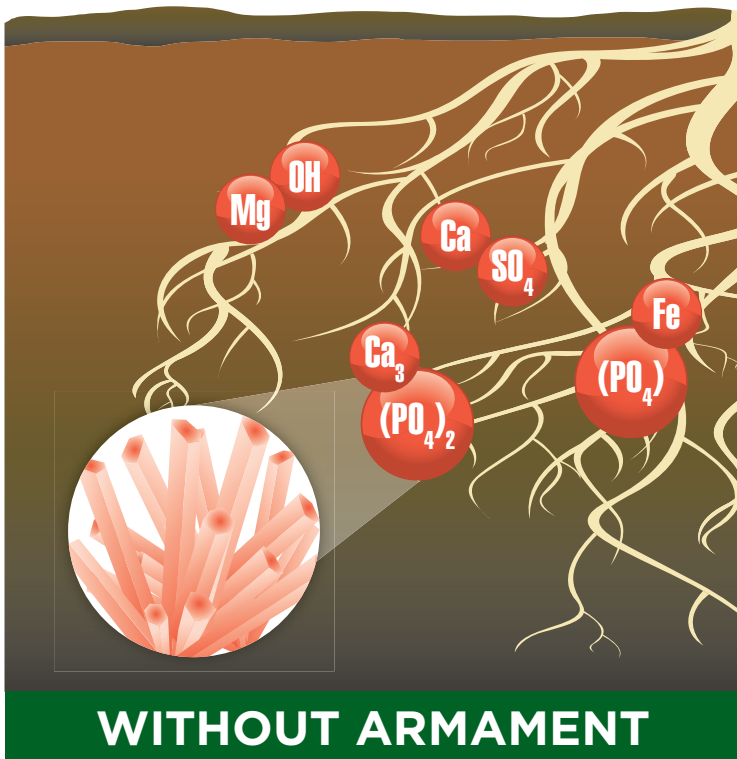
Armament™ technology is a patented, biodegradable nutrient enhancer that protects certain nutrient ions from interactions, antagonisms, and tie up in the soil.

Armament's primary job is to ensure that the nutrients applied to the soil remain in a plant-available form—preventing interaction with other nutrients in the soil and from hydrogen and hydroxide ions. It is composed of a patented blend of chelating agents and is made through a highly refined manufacturing process.

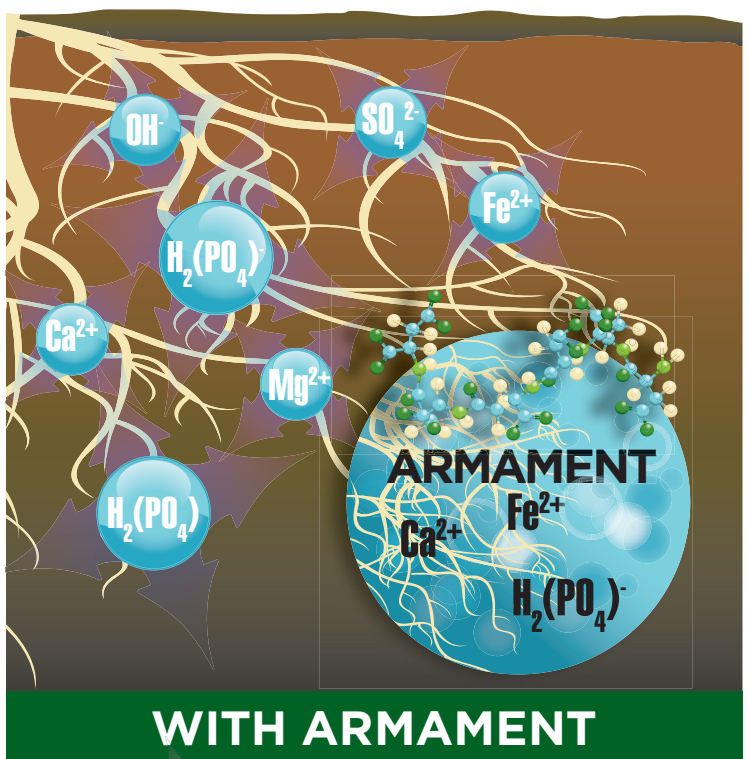
The image below illustrates the unavailable nutrients present in soil without Armament™ on the left, and the complexed, plant-available nutrients protected by Armament™ on the right.

### BENEFITS

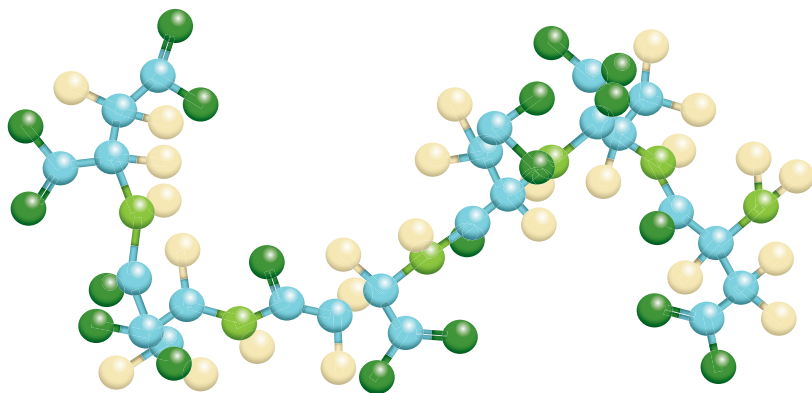
- Increases nutrient uptake by 20-30%
- Ensures predictable nutrient availability
- Improves nutrient performance at lower use rates
- Reduces nutrient waste and the need for additional nutrient inputs because Armament™ unlocks the tied-up nutrients that already exist in the soil, turning them into plant usable nutrition
- Completely biodegradable and will not accumulate in the environment
- Prevents nutrient-to-nutrient interactions and chemical changes in the spray tank and the soil
- Acting as a buffer, Armament™ can be used in high pH and hard water



**Nutrients locked out**



**Nutrients available**



## HOW DOES IT WORK?

Armament™ is a biodegradable, high molecular weight structure that has an extremely high density of negative charges. These negative charges gently complex positively charged metals, keeping them in solution and delivering them to the roots for uptake in the turf.

Armament™ seeks out the positively charged ions in the soil and surrounds them—ultimately sharing electrons with them and creating a bond. This bond prevents their interaction with other negatively charged ions, such as phosphorus and sulfur, and prevents chemical changes in the soil. This allows the nutrients to remain in plant-available forms and increase the uptake efficiency of the nutrients.

The graphic to the right shows all plant-available forms of macro and micronutrients. In high pH soils, positively charged nutrients might interact with negatively charged hydroxide ions and become insoluble precipitates—making them unavailable for plant uptake by the turf. Armament™ guards against nutrient precipitation, or chemical changes, and protects essential nutrients.

The result is increased nutrient uptake by 20 to 30 percent and the following plant health benefits:

- Deeper, stronger root systems
- Healthier, more resilient plants
- Better playability and quicker recovery
- Faster and longer lasting green up

## PRODUCTS

The following Foliar-Pak® products are protected by Armament:

**Foliar-Pak Armament MKS**

**Foliar-Pak Armament ZnB** (granular fertilizer coating)

**Foliar-Pak Armament P**

**Foliar-Pak Armament K**

## PLANT-AVAILABLE NUTRIENTS

### Macronutrients

|    |                           |                              |                            |
|----|---------------------------|------------------------------|----------------------------|
| N  | $\text{NH}_4^+$           | $\text{NO}_3^-$              | $\text{CO}(\text{NH}_2)_2$ |
| P  | $\text{H}_2\text{PO}_4^-$ | $\text{H}(\text{PO}_4)^{2-}$ |                            |
| K  | $\text{K}^+$              |                              |                            |
| S  | $\text{SO}_4^{2-}$        |                              |                            |
| Ca | $\text{Ca}^{2+}$          |                              |                            |
| Mg | $\text{Mg}^{2+}$          |                              |                            |

### Micronutrients

|    |                          |                           |
|----|--------------------------|---------------------------|
| Fe | $\text{Fe}^{2+}$         | $\text{Fe}^{3+}$          |
| Mn | $\text{Mn}^{2+}$         | $\text{Mn}^{3+}$          |
| Zn | $\text{Zn}^{2+}$         |                           |
| Cu | $\text{Cu}^{2+}$         |                           |
| B  | $\text{H}_3\text{BO}_3$  | $\text{H}_2\text{BO}_3^-$ |
| Mo | $\text{MoO}_4^{2-}$      |                           |
| Ni | $\text{Ni}^{2+}$         |                           |
| Si | $\text{H}_2\text{SiO}_4$ |                           |