Technology

Solubilizing Soil Nutrients with

Mineral Acid Technology

MAT
Mineral Acid Technology

MAT Solutions are exclusive Plant Food Company products which utilize a proprietary Mineral Acid Technology (MAT) as the foundation to specific formulations. This long-lasting acid material can correct soil chemistry by solubilizing and releasing tied up nutrient salts for 21-28 days.
In addition, it contains a soil penetrating surfactant for uniform water movement and Salicylic acid that helps the plant manage the available moisture more efficiently.

Plant Food Company MAT Solutions: **Hydration A-Plus®, FloThru™A-Plus, 6-Iron Green-T® , 12-Iron Green-T® pHusion Manganese 7%** and the **A-Plus Pellets**.

MAT Solutions are non-burning and safe on all types of turfgrass when applied following the label rates.

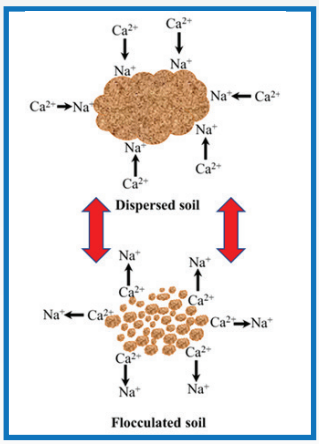

Figure 1: Soil Flocculation Diagram

Plant Food Company has produced a proprietary solution to revolutionize how we manage turf. Mineral Acid Technology (MAT) is a supplemental solution and turf management tool that is used to enhance fertilizer performance and nutrient availability. This technology has also been used to produce specialty MAT Solutions by incorporating this exclusive material into other Plant Food Company formulations.

How will MAT Solutions benefit you?

When you get a heavy rainfall, does your turf "green up" dramatically a day after? If you are nodding your head YES, then MAT Solutions will work wonders for you! This overnight green up is likely due to high bicarbonate soils.
Why does this happen? Rain water pH is low and this acidic rain water solubilizes tied-up calcium bicarbonate. The available calcium can displace the sodium, and overnight, you will witness a greener, healthier playing surface.

Nutrient Solubility = Nutrient Availability

Plant Food Company's MAT Solutions solubilizes tied-up nutrients by acidifying the moisture around the bonded nutrients. The acidity *(high amounts of hydrogen)* weakens the bonds allowing the tied-up nutrients to be released and making them more plant available.

Correcting Soil Chemistry of Calcareous Soils & high pH Soils

Calcareous, or calcium carbonate-based soil have high soil pH (greater than 6.8) and elevated levels of bicarbonates that may produce low calcium solubility. A lack of soluble calcium promotes "clogged" or "tight" soil. This is formed when microscopic sized clay and organic matter is scattered between the silt and clay. This scattering is called dispersed soil. When a small amount of sodium is present, it acts as a glue that "tightens" or "seals off" the soil structure. This condition is reversible when sufficient soluble calcium it present. Soluble calcium will 1.) displace sodium and will 2.) flocculates soils by creating particle aggregates. (Developing structure from loose soil fragments). This flocculation will increase soil porosity and increase nutrient uptake. Moist Calcium Carbonate soils, convert to calcium bicarbonate solutions which has low soluble calcium. Long Lasting Acids like that in the MAT products will further dissolve the bicarbonates which liberates calcium to flocculate the soil (fig.1) . This improves soil chemistry and increases the porosity between soil particles. This unique solubilization effect results in improved water movement, firmer playing surfaces and a greater solubility of a wide range of tied up nutrient.

Acidic soils (Less than pH 6.0)

In lower pH soils, phosphate and iron salts tend to be unavailable since they are bonded together. To "break the bonds", frequent, light applications of MAT products will solubilize nutrients, such as iron and phosphate. MAT products are a great way to release soil nutrients that would other wise be unavailable.

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