

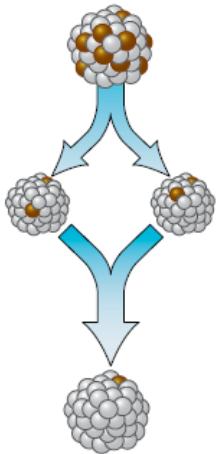
CIVITAS - Synthetic Isoparaffins

The science. The process.
Changing the game.



The Rationale.

The unique manufacturing process of CIVITAS synthetic isoparaffins is a process designed to produce what is known as Isoparaffinic oil that is similar to the natural paraffins found on the surface of leaves. As a result, the CIVITAS synthetic isoparaffins harmoniously integrate with the plant's own defense systems without triggering cell rupture and necrosis – omitting the issue of phytotoxicity.



The Patented manufacturing process removes impurities to create molecules that are virtually pure.

The Process.

Although the active ingredient in CIVITAS is classified by the EPA as a Mineral Oil, more specifically, it is described as a synthetic isoparaffin. Using the complex patented Hydro-Treating and Hydrosomerization technology, high pressure and temperature are utilized in the presence of hydrogen and a sophisticated catalyst to eliminate impurities and produce crystal-clear isoparaffins that are virtually 100% pure. This process modifies molecules to a desired spatial arrangement of atoms and specific carbon chain length.

The Benefits.

In addition to their purity, the resulting isoparaffin molecules have the ability to elicit the desired Induced Systemic Resistance (ISR) effect that enables the plant to use its own defenses to fight off pathogens. An additional benefit of synthetic isoparaffins used in the formulation of CIVITAS is that they do not induce phytotoxicity.

The Dramatic Difference.

CIVITAS' synthetic isoparaffins are not the same as conventional mineral oils. Conventional mineral oils burn turf and are derived from crude oil using mild conversion and/or conventional separation processes designed to isolate acceptable molecules from unacceptable ones. The original molecules found in crude oil are not modified to any great extent. Compositionally, conventional mineral oils are a complex mixture of countless different molecular types that can include those found in gasolines and crankcase oils. Aromatics, sulfur and oxygen bearing molecules are commonly encountered. Some of these molecules are exceptional solvents that can easily penetrate through plant cell membranes, causing cell mortality which results in phytotoxicity. Not surprisingly many of the same molecules are toxic to animals and can pollute the environment. Synthetic isoparaffins, due to their purity, will not harm the plant but will instead help induce the response required to allow the plant to protect itself. The difference really is dramatic between conventional mineral oils and CIVITAS' synthetic isoparaffins.

Unlike traditional chemicals, which kill fungal disease, CIVITAS triggers induced systemic resistance in the grass to defend against fungus attack. It boosts the plant's immune system so the plant itself fights off disease. Since the fungus can't gain a foothold on the grass, it dies off. For more information visit www.civitasturf.com

