Information Sheet

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Combining innovative chemical technology with sound engineering principles

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Wetless

Wetting Agents in General

Note:

Some soils, known as *hydrophobic soils*, are difficult to wet because they repel water. The infiltration of water into these soils can often be improved by applying a non-ionic surfactant, more commonly called a wetting agent. Wetting agents are detergent-like substances that reduce the surface tension of water, allowing it to penetrate and wet the soil more easily.

How it works.

To understand how wetting agents work, it is necessary to know something about the three forces that affect the movement of water into the soil. The first is *gravity*; it is a constant force that pulls the water downward. The second is *cohesion*, the attraction of water molecules for each other. It is the force that holds a droplet of water together. It creates the droplet's surface tension, which causes the droplet to behave as if a thin, flexible film covered its surface, tending to keep the water molecules apart from other substances. The third force is *adhesion*, the attraction of water molecules to other substances. This force causes water molecules to adhere to other objects, such as soil particles.

In hydrophobic soils, the soil particles are apparently coated with substances that repel water, much like wax. In studies of localised dry spots in soil surfaces, the soil particles were found to be coated with a complex organic, acidic material that appeared to be the mycelium (growth structure) of a fungus.

Nonionic surfactants, or surface active wetting agents, reduce the surface tension of water, allowing the water molecules to spread out. When applied to water-repellent soils, surfactants can improve the ability of the water to penetrate the soil surface deeper thus increasing the infiltration rate and retarding the evaporation rate.

In most cases, low water infiltration rates are caused by factors other than water repellency. For example, water naturally moves more slowly into fine-textured (*clayey*) soils because the soil pores (spaces between the soil particles) are simply too small to allow rapid water movement.

Basically the deeper the moisture penetrates the soils the longer it will take to for the climatic conditions to evaporate both the water and the wetting agent mix.

Wetless is a blend of sophisticated surfactants specifically formulated for the road construction industry.

Information prepared by Brian Jackson

THANK YOU FOR YOUR INTEREST!