Non-toxic Hydrogels as Water Absorbers for Agriculture

Over the years, several forms of technologies have been tried to conserve water for plants, for application in agriculture, gardening, horticulture, forestry, lawns, play grounds, golf-course etc. Recently, an allied research by eminent scholars Prof. Oren Sherman of The Department of Chemistry-University of Cambridge and Dr. David A. Weitz of Harvard University came up with a novel Polyacrylate based water absorbing polymer that they claimed can greatly reduce loss of soil water by evaporation without any environmental damage. The research published in International Journal of Agricultural Research, USA laid focus on non-toxic eco-friendly super absorbent polymer also known as SAP as potential moisture retainers in soil. According to Dr. David A. Weitz, the inoculation of potentially dry soil with excessive moisture loss both due to leaching and evaporation can be prevented by 80% with proper and periodic dosing of this SAP that is now officially a class of hydrogel.

A hydrogel is basically a polymer made by cross-linking monomers with an ionic agent such as a strong cation. It can absorb and store large quantities of water in its branched polymer network. While in most cases the cation can be a regular alkali metal, for application is soil, it was essential to consider a cation that can impart non-toxic biodegradable properties to the

water absorbing materials. It was coincidentally identified that potassium is a necessary alkali metal in soils that stimulates plant growth without polluting soil components. This led to a new application perspective of a 2in1 application of hydrogel in agriculture as well as a soil conditioner.

While most commercial ornamental hydrogel polymers come in the form of beads, this water gel can invariably produced and supplied by hydrogel manufacturers in the form of powder and granules. Such a form not only helps in absorbing moisture and binding soil but also as a potential source of moisture for plant roots that grow on such soils. Consecutively, it was found that hydrogels tend to absorb soil moisture along with dissolved nutrients including synthetic fertilizers as well as pesticides. This in turn lead to a new form of hydrogel agriculture technology involving use of plant gel for agriculture to reduce irrigation rates and over use of fertilizers and pesticides.

In this aspect, Chemtex Specialty Limited, a pioneer name in specialty chemicals introduced a novel potassium polyacrylate based super absorbent polymer for agriculture by the name ALSTA Hydrogel that has helped innumerable farmers cope with summer dry spells in the Indian Subcontinent as well as increase yield in fields that were located in arid regions. With the revolution of hydrogel for plants, the agricultural industry has accepted the use of SAP for agriculture at an enhanced pace and now ALSTA Hydrogel has become an integral part of all types of agro-farming sectors including rain-fed agriculture systems.

At Chemtex, we provide tailor-made solution to all agricultural problems and assist farmers get the best of their farms.

Visit www.hydrogelagriculture.com to help us introduce you to our revolutionary mode of hydrogel agriculture.