



Remove heavy metal pollutants using ecoStorm® plus

Stormwater runoff from urban and rural pervious and impervious surfaces carries many pollutants, including suspended sediments, trash, petroleum by-products, organics, pathogens, phosphorus, and heavy metals such as cadmium, chromium, copper, nickel, lead and zinc. Unlike organic constituents, heavy metals do not degrade in the environment and can create short-term and long-term toxicity due to their accumulation in sediments. Therefore, since heavy metals can attach themselves to soil particles, areas that produce high sediment loads tend to also produce high heavy metal pollutant loads.

The ecoStorm® plus Stormwater Filtration System is unique in its ability to combine physical and chemical processes – including **sedimentation**, **adsorption** and **precipitation** – to remove both solid particles and dissolved substances containing heavy metals and other pollutants.

How ecoStorm plus works

In the process of adsorption, pollutants such as dissolved heavy metals are adsorbed by the porous concrete surface. The filter buffers the pH of the stormwater, which is typically acidic, hence promoting precipitation and the accumulation of dissolved substances. The filter allows water to rise slowly through the porous concrete filter media, providing a greater opportunity for interaction between the water and the alkaline composition of the filter. Thus, a chemical transformation occurs and the particles become an insoluble compound, promoting precipitation into the sediment sump, retaining the captured particles until maintenance is performed.

Why ecoStorm plus is the best choice

High retention of captured pollutants: Unlike the process followed by the ecoStorm plus, removal processes based only on adsorption will eventually cause higher pollutant concentrations if the media is not maintained properly. Small particles show a good adsorption rate of dissolved heavy metal pollutants due to a high surface area, in proportion to a larger particle by weight. However, it is a general misconception that by simply trapping fine sediments, a system will permanently show consistent removal efficiency for heavy metal pollutants. The adsorption process is reversible, and if the media containing the trapped pollutant is not maintained properly, the media will eventually cause a higher pollutant concentration to be discharged. Thus, previously adsorbed pollutants will be discharged again, causing a higher effluent than influent concentration.

Extensive field testing is ongoing, but initial heavy metal pollutant removal data indicates that the ecoStorm plus filters remove heavy metal pollutants more efficiently than zeoliths, and are comparable to expensive filter material designed especially for removing heavy metal pollutants, such as GEH and Ferrosorp. Having precipitation as an integral component of the ecoStorm Plus system reduces heavy metal pollutant discharge, thus extending the filter's life expectancy.