

Biomat Formation

As the effluent is discharged into the soil absorption system, bacterial growth develops beneath the distribution lines where they meet the gravel or soil. This layer is known as the clogging mat, clogging zone, biocrust, and biomat.

This biomat (biological mat) is a black, jelly-like layer that forms along the bottom and sidewalls of the drain field trench. This clogging zone reduces infiltration of the wastewater into the soils. The biomat is composed of anaerobic microorganisms (and their by-products) that anchor themselves to soil and rock particles. Their food is the organic matter in the septic tank effluent.

Less than one centimeter to several centimeters thick, the biomat acts as the actual site for effluent treatment. The biomat forms first along the trench bottom near the perforations where the effluent is discharged, and then up along the trench walls. It is less permeable than fresh soil, so incoming effluent will move across the biomat and trickle along the trench bottom to an area where there is little or no biomat growth.

Biomats tend to restrict the flow of effluent through the drain field, but are crucial because they filter out viruses and pathogens. As the biomat develops, the soil infiltration rate decreases. Once the hydraulic loading rate exceeds the soil infiltration rate, ponding starts. At some point wastewater will either back up into the home or break out on to the soil surface.

Biomat formation cannot, and should not, be prevented, but septic tank filters, proper organic loading, and proper maintenance of the septic tank including the use of approved natural additives can slow the rate at which it forms.

