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Leachate Discharges: Review Treatment Techniques

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Abstract : During storage and under the combined action of rainwater and natural fermentation, these wastes produce over 800.000 m3 of landfill leachates. Due to population growth and changing global economic activities, the amount of waste constantly generated increases, making more significant volumes of leachate. Leachate, when leaching into the soil, can negatively impact soil, surface water, groundwater, and the overall environment and human life. The leachate must first be treated because of its high pollutant load before being released into the environment. This article reviews the different leachate treatments in September 2022 techniques. Different techniques can be used for this purpose, such as biological, physical-chemical, and membrane methods. Young leachate is biodegradable; in contrast, these biological processes lose their effectiveness with leachate aging. They are characterized by high ammonia nitrogen concentrations that inhibit their activity. Most physical-chemical treatments serve as pre-treatment or post-treatment to complement conventional treatment processes or remove specific contaminants. After the introduction, the different types of pollutants present in leachates and their impacts have been made, followed by a discussion highlighting the advantages and disadvantages of the various treatments, whether biological, physicochemical, or membrane. From this work, due to their simplicity and reasonable cost compared to other treatment procedures, biological treatments offer the most suitable alternative to limit the effects produced by the pollutants in landfill leachates.

Keywords : landfill leachate, landfill pollution, impact, wastewater
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