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Evaluation of 3M Petrifilm as an equivalent alternative to drop-plating on agar plates in a biofilm system

This project evaluated 3M Petrifilm as an alternative, more efficient method for bacterial enumeration. Using Petrifilm allows the researcher to avoid preparing agar plates for bacterial enumeration. Currently, the majority of scientific literature concerning enumeration of bacteria on Petrifilm is from the food industry. There are no published studies examining the use of Petrifilm for enumeration of biofilm bacteria. A *Pseudomonas aeruginosa* biofilm was grown in a CDC reactor according to ASTM Method E2562. The mature biofilm was exposed to chlorine (buffered water for controls) and neutralized. The biofilm was removed from the surface, disaggregated, and serially diluted. Samples from the dilution tubes were plated in duplicate on Petrifilm Aerobic Count plates and drop plated on R2A plates. The Petrifilm and R2A plates were incubated at 36^{o}C and colonies enumerated after 24 and 48 hours. The experiment was replicated three times by two technicians. The time required for both plating methods was recorded to help assess the efficiency of both methods. The results from this study may demonstrate that Petrifilm could replace drop plating as a more efficient and cost effective method for bacterial enumeration.