

Serial dilution is a technique for reducing the concentration of microorganisms to a level that can be counted. Diluting a sample this way is particularly useful when you are not sure about the concentration of the microorganisms in the original sample. You can plate out each dilution to find the level at which the plate count fits into the recommended range. You then correct for the dilution factor when expressing the final result.

For example, the preferable counting range for the Petrifilm Aerobic Count plate is 25 to 250 colonies. A serial dilution is performed on an unknown sample of orange juice and a count of 87 colonies is found for the 1:10,000 dilution. This means the concentration of colonies in the undiluted orange juice sample is $87 \times 10,000$ or 8.7×10^5 colonies per mL. Given the sample preparation method, this would be more correctly expressed as 9×10^5 colonies per mL.

