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INCUBATION OF R-CARD® AND MEMBRANE FILTER MEDIA

The statement “no incubator required” does not mean that no incubation or no incubation time is required. Anytime that a nutrient medium is inoculated with a test sample, a period of time must be allowed before evidence of visible growth is present. That is, the inoculated medium must be incubated.

Anyone with even a rudimentary knowledge of microbiology knows that microbes such as bacteria and molds do not form visible growth or CFU’s (colony forming units or colonies) instantaneously when a sample containing bacteria or mold propagules is added to a nutrient medium. Certain conditions must be met for such growth to occur. These include proper nutrients, moisture and temperature. A proper medium will contain the first two, but temperature is dependent upon where the inoculated medium is incubated. The purpose of an incubator is to provide a constant, set, narrow temperature range that is optimum for the microorganisms you are trying to grow.

Every living organism inherently has a temperature which is optimum for its growth and reproduction. Most organisms have a range within which growth and reproduction will occur which has a lower boundary (the “minimum”) and an upper boundary (the “maximum”), with the “optimum” being somewhere between the two.

An incubator is normally set to maintain temperature close to the optimum for the desired target microorganisms to be grown on the medium. When this is done, the growth of the target organisms is the fastest and the results can be read in the shortest incubation time.

However, when we state that no incubator is needed and instruct that inoculated R-CARD® should be placed in a “warm” area for incubation, we are indicating that the target organisms will grow over a large temperature range. This does not mean that they will grow as quickly as those in the controlled environment of an incubator.

Hence, our instructions are to allow the plates to sit (incubate) in a warm (usually 75-90° F) place and to check them periodically (at 24, 36, 48 hrs.) for visible growth. Once initial growth is seen, we advise giving an additional 24 hrs. time and then doing “final” counts.

Obviously, an incubator is advantageous as it eliminates the temperature variable and allows total reproducibility of that factor. However, for many situations, it is possible to achieve satisfactory results without the use of an incubator. Roth Bioscience is happy to advice on ways to make your own no cost incubator or to direct you to a source where you can buy a very good unit for less than \$75.00.