interscience

THE APPLICATION POINT

THE APPLI'NEWS

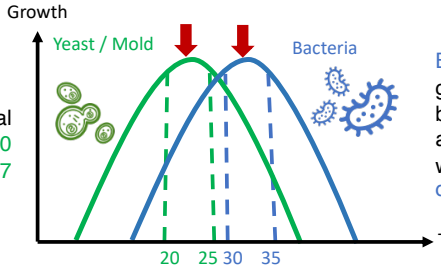
January 2023

Microbiology reminder

Microbiological analyses aim to detect and quantify microorganisms, which can be categorized into two groups: bacteria (for Total Aerobic Microbial Count (TAMC)) and yeast/molds (for Total Yeast and Mold Count (TYMC)). These two categories of microorganisms have different optimal growth conditions.

In the traditional method, plates are placed in an incubator, and colonies are counted at the end of incubation. With the **ScanStation**, incubation is automated, and counting is in real-time, providing greater precision in counting and other advantages. Whether using the **ScanStation** or a traditional incubator, laboratories must consider the different growth conditions of microorganisms and organize their analyses accordingly.

Yeast/molds have an optimal growth temperature between 20 and 25 °C, and it takes 5 to 7 days for colonies to develop.



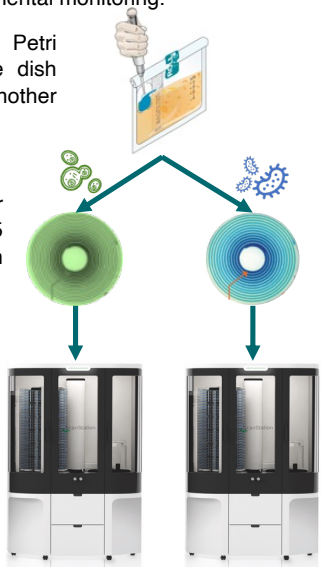
Bacteria have an optimal growth temperature between 30 and 35 °C and form visible colonies within approximately 3 days.

3 Ways to Use the ScanStation

Two Temperatures / Multi-batch

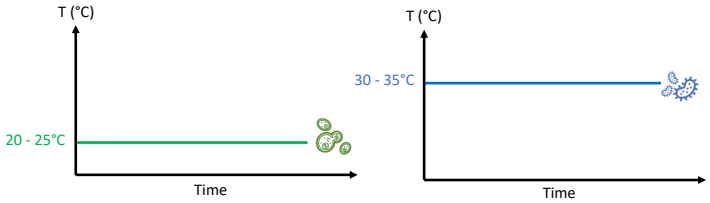
Whether with or without the **ScanStation**, the first two protocols are used in the cosmetic and pharmaceutical industries for quality control and environmental monitoring.

1) Plating of the sample on two Petri dishes with different media. One dish with TSA medium for TAMC and another with Sabouraud medium for TYMC.



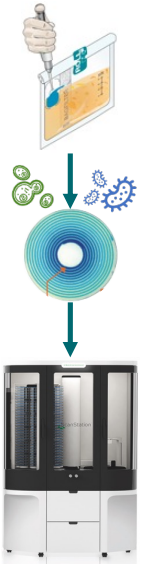
2) Incubation of Petri dishes for TAMC in a **ScanStation** at 30 - 35 °C and Petri dishes for TYMC in another **ScanStation** at 20 - 25 °C.

The advantage of this protocol is a constant temperature per **ScanStation**, allowing multi-batch incubation. There is no need to wait for the end of incubation to load the **ScanStation** with additional Petri dishes.



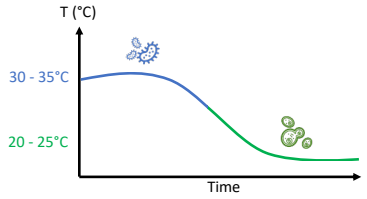
Two Temperatures / Mono-batch

1) Plating of the sample on a single Petri dish with TSA medium for both TAMC and TYMC.



2) Incubation of Petri dishes for TAMC and TYMC in a single **ScanStation**. Incubation starts at 30 - 35 °C to allow bacterial growth and then switches to 20 - 25 °C for yeast/molds.

The advantage of this protocol is that the analysis is done on a single Petri dish in a single **ScanStation**. However, it operates in a mono-batch, as it requires waiting for the end of incubation.

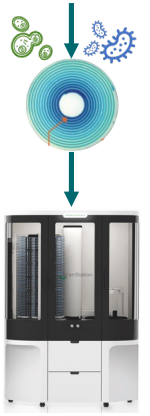


Single Temperature / Multi-batch

- Method to be validated by customer -

1) Plating of the sample on a single Petri dish with TSA medium for both TAMC and TYMC.

2) Incubation of Petri dishes for TAMC and TYMC in a single **ScanStation** at a unique temperature determined by a prior study and validation. This temperature must allow for the growth of both bacteria and yeast/molds.



The advantage of this protocol is that a single **ScanStation** is sufficient, and there is the possibility of multi-batch incubation. However, **this method must be validated by the client.**