POLY SCIENTIFIC

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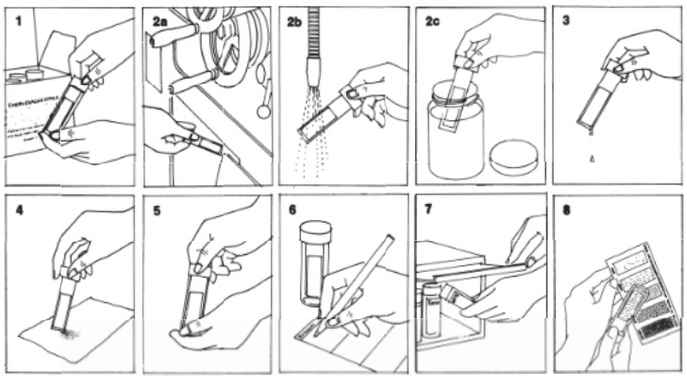
Microbiology

Cult-Dip combi

Instructions for use



1. Unscrew the tube and withdraw the slide without touching the agar surfaces.
2.

a) Dip the slide into a fluid tank, or
b) wet the slide by spraying or under a running stream of the fluid. If the fluid is under pressure the slide must be handled carefully so that the agar is not dislodged from it, or
c) mix the sample in a container and dip the slide into it.

Both agar surfaces should become completely wet. The slide must be in contact with the fluid to be examined for about 5–10 seconds.

3. Allow excess fluid to drain off the slide.
4. Blot lower edge of the slide on clean absorbent paper.
5. Screw the slide back into the tube (not tightly).
6. Fill in the label and affix it to the tube
7. Place the tube upright in an incubator at 27–30 °C. After 24–48 hours incubation the result can be read on the total bacterial count agar (TTC). Yeasts and fungi will show on the mod. Potato-Dextrose Agar after about 3 day's incubation. If the incubation takes place at room temperature, the results can be read after 2–4 days and 4–7 days respectively.
8. After incubation remove the slide from the tube. Compare the density of the colonies growing on the medium with the model density charts without actually counting the colonies. If the normal temperature of the fluid tested substantially differs from the incubation temperature stated above, this may result in slow bacterial growth during incubation. An incubation temperature corresponding to the tested fluid is then recommended.

Dilution of the sample

If the bacterial content of the sample exceeds 10^7/ml, or the viscosity is high, the sample should be diluted. For dilution put 100 or 1000 ml of tap water into a clean, well-rinsed and dried bottle with a cap. Before filling the bottle, let the water run for 5 minutes or boil it for 15 minutes and then cool. Using a clean (disposable) pipette, add 1ml of the sample, close the bottle and mix thoroughly by shaking (about 30 times). Dip the slide into this dilution and proceed as described in 1–8. Water used for dilution should not contain more than 100 bacteria/ml. Make checks at regular intervals with Cult-Dip combi-TTC agar.
The dilution factor should be taken into account in the evaluation. For example, if 1 ml of the sample added to 100 ml water reveals, after incubation, 10^6 bacteria, the real result is 10^8 bacteria/ml.

Interpretation of results

Practically all aerobic bacteria grow on the total bacterial count side (containing TTC) of the Cult-Dip combi slide. Yeasts and fungi appear on the mod. Potato-Dextrose agar of the slide (orange agar).

Determination of total bacterial count (colorless agar)

Most bacteria give rise to red colonies. The bacterial count/mi of the sample is determined by comparing the density of the colonies appearing on the slide with densities shown on the model chart. If there are colorless colonies present, these should also be taken into account when estimating the density of growth. In cases where large colonies occur it should be remembered that it is the density of the colonies which is important and not their size.
If the bacterial content is very high (over 10^7/ml) there is a confluent growth of bacteria. This may appear as a uniformly red surface layer. This kind of growth may be misinterpreted as a poor or negative result and it is advisable in doubtful cases to compare the incubated slide with an unused one. It is not possible to give any universally valid limits to illustrate the critical microbial count. This has to be determined by experience. With process waters and different coolants the following guide may be used:

bacterial count	10^4	slight infection
bacterial count	10^5–10^6	moderate infection
bacterial count	10^6 or more	heavy infection

Determination of yeasts and fungi (orange agar)

Growth appearing on the slide may consist either purely of fungi or yeasts or may be caused by both fungi and yeasts forming mixed growth. Fungi give rise to soft and fluffy colonies, while yeast colonies are usually ball shaped and slightly puffed up. Sometimes they are flat and dry. Comparison of yeast growth with the model chart is carried out as with bacteria.
Since fungal colonies may originate from fragments of mycelium or from individual spores, the result obtained by comparison with the model chart is not quantitative, but shows whether there is slight (+), moderate (++) or heavy (+++) infection.
Colonies can be removed from the slide and examined under the microscope. Fungal infection can also be noticed by the naked eye as a coating on the surface of the liquid.

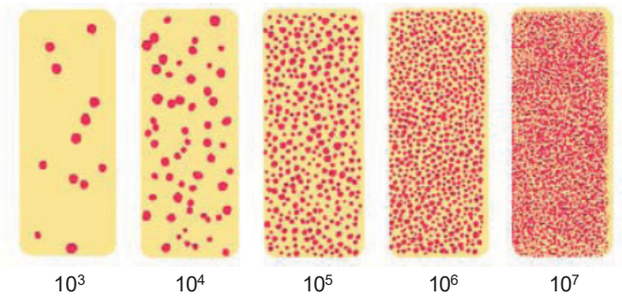
Disposal of used slides

As the incubated slides are bacterial cultures they should be handled carefully. Disposal of used slides can best be achieved by incinerating, by immersing both slide and container in a disinfectant overnight or by autoclaving them after loosening the cap (a pressure cooker can be used for this).

Storage

Unopened Cult-Dip combi tubes should be stored at room temperature (about +20 °C or 68 °F) and protected from light and draught. The expiry date is marked on the package. Cult-Dip combi should not be frozen.
Unused slides showing bacterial growth should be discarded.

Total Bacteria Count Agar (TTC-Agar)
Bacteria



Potato Dextrose – Agar mod.

Yeast

per ml 10^2 10^3 10^4 10^5 10^6

Fungi

\+ slight ++ moderate +++ heavy

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