Ziehl-Neelsen Staining solution

Staining of mycobacteria with carbol fuchsine
Prod. No. A0886

Description

Ready-to-use Ziehl-Neelsen staining solution, containing ethanol and phenol.

The Ziehl-Neelsen - solution is especially suitable for the detection of tuberculosis pathogens. These mycobacteria are characterized by an exceptionally high amount of fat. Accordingly, the dying process had to be adapted in order to allow the penetration of the dye. Swabs are heated for a few minutes in carbol fuchsine (fuchsine in 5% aqueous phenol) until steaming. The sample is de-stained in acid ethanol. During the de-staining process most bacteria lose their coloration within a few seconds, while acid-fast (acid-resistant) organisms keep the color much longer. In contrast to the tubercles, other acid-fast organisms are stained without phenol in the staining solution (e.g. Nocardiae species, which color and discolor faster than mycobacteria).

Storage:	RT, protected from light
Stability:	In case that precipitates form on the sides of the bottle, the solution should not be used anymore!
Additionally required:	
acidic alkohol	depending on the protocol 0,5 % to 3 % hydrochloric acid (HCL) in 95 % ethanol
Methylen blue solution	0,25 % methylen blue in 1 % acetic acid or 0,25 % methylen blue in 25 % ethanol

Ziehl-Neelsen acid-fast staining method:

1. Cells may be fixed onto the microscope slide by heating.
2. The carbol fuchsin staining solution is added.
3. The slide is heated until evaporation. This process may take a few minutes to 5 minutes.
4. The remaining carbol fuchsine solution is poured off.
5. The slide is washed thoroughly with water.
6. It is then decolorized with acid alcohol for about 5 minutes.
7. The slide is washed thoroughly with water again.
8. It is counter-stained with methylene blue for about 1 minute.
9. The slide is washed with water.
10. Excess water is removed and the slide is dried by hand over the Bunsen burner flame.

Result: Acid-resistant bacteria are stained red, tissue slightly bluish.