Recommendations for Disinfection of Microscope Components and Objectives

We are frequently asked what the best way to disinfect microscope components and more specifically objectives is. Before discussing this, it is important to understand the difference between sterilization and disinfection, and most importantly to understand which is needed in each specific situation.

Sterilization describes a process that destroys or eliminates all forms of microbial life and is carried out in health-care facilities by physical or chemical methods.

Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects

In most cases involving research microscopes, disinfection is sufficient. As with any type of cleaning, it is always best to start with the least aggressive disinfecting agent possible to do the job.

Listed below are a few recommendations:

Disinfection:

95% Ethanol:
Commonly found in labs, 95% ethanol is an effective disinfectant for many applications. First gently rinse with distilled water, then use a 10 minute application of ethanol to disinfect surfaces.

Meliseptol by Braun:
Available from Milian USA in the US Meliseptol is anti-bacterial, fungicidal, effective against TB, HBV/HIV and rotaviruses. It is available in the form of liquid or wipes.

3M™ TB Quat Disinfectant Ready-To-Use Cleaner:
Available from Grainger in the USA, TM TB Quat is a one-step disinfecting and cleaning for a variety of surfaces. It is a rinse-free, EPA-registered hospital germicide formula disinfects and cleans and is effective against TB, HBV, HIV-1, MRSA, VRE and other pathogens. Complies with OSHA's Bloodborne Pathogen standard for disinfecting surfaces soiled with blood or other potentially infectious body fluids

Sterilization:

Etylenoxid Gas
Etylenoxid Gas may be used to sterilize out microscopes but should be done only with great care. Noticeable damage to the microscope may occur after some use.

A Note on optical surfaces:

One of the most significant dangers when cleaning, disinfecting or sterilizing optical surfaces is the potential to dissolve the cements used in lens assembly. Great care is taken with each Carl Zeiss objective to ensure that the glass metal junctures are sealed as well as possible, however solvent penetration is possible and great care should be taken to use as little liquid/gas as possible.

Optical components should not be immersed in any solvent, and cleaning cloths should only be moistened, never saturated, with a cleaning solution.

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