

ABOUT STERILIZATION

THINGS TO REMEMBER



STERILIZATION

completely removing or killing all forms of microorganisms on an object, a surface or in a substance.

GENERAL PRINCIPLES

- can be done using heat, radiation or chemicals
- thorough cleaning before sterilizing is essential
- sterilizing agent must reach all surfaces -> bottles, containers valves etc. must be open
- indicators must be used to check adequate results (mechanical, chemical and biological)
- correct packing is essential
 - heavy items at the bottom
 - not too densely
 - no air-pockets
- adherence to plan of test cycles and safety routines important

STEAM STERILIZATION

- gold standard in low resource settings
- uses moist heat in form of saturated steam
 - non toxic
 - inexpensive
 - quickly permeates items and fabrics
- needs an autoclave
- sterilizing temperatures between 121° and 140° Celsius
- cycle times around 45 minutes
- not adequate sterilizing for powders, oils and wood and other heat sensitive objects



ALTERNATIVE METHODS

- gas sterilization
 - relatively toxic, special machine needed
 - Ethylene Oxide Gas Sterilization (ETO)
 - Formaldehyde gas sterilization
- radiation sterilization
 - special machines and trained personnel needed, very expensive
 - infrared
 - microwave
 - ultraviolet
 - ionizing radiation (e.g. gamma rays)
- dry heat
 - temperature over 150° Celsius, takes very long time, relatively cheap

