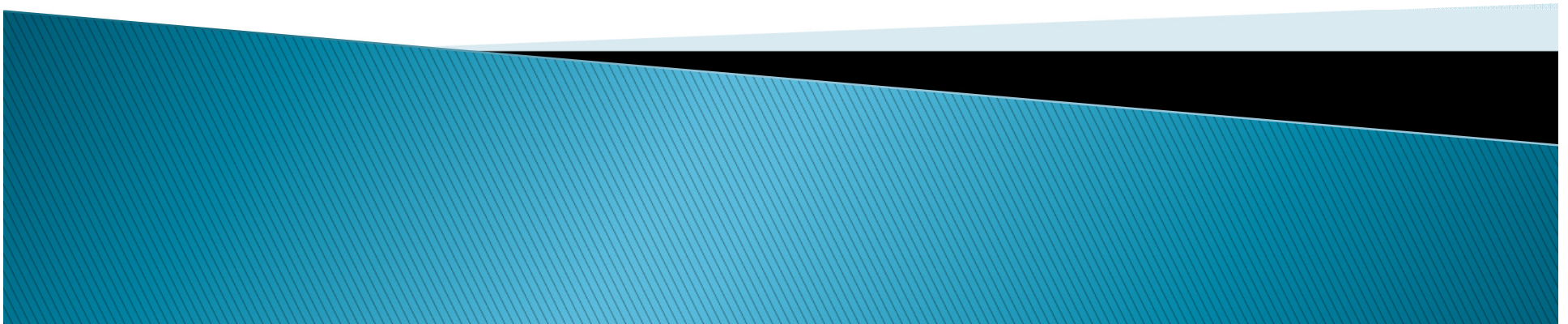


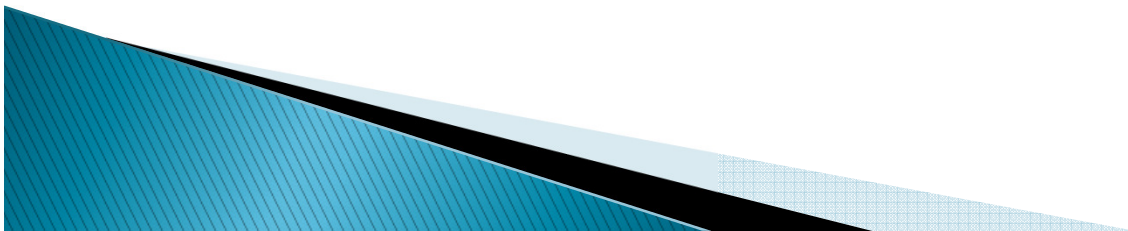
FDE 208 Heat Transfer and Thermal Processes

Sterilization



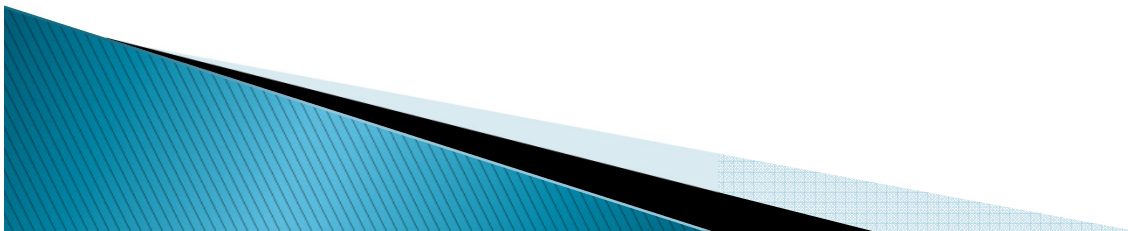
Thermal Processes

- ▶ The inactivation of microorganisms which can cause the spoilage of food products can be named as Thermal Processes.



The aim of thermal processes

- ▶ To inactivate all the pathogen microorganisms in food product.
- ▶ To inactivate the microorganism (not pathogen) which has the capability of causing spoilage in food product.
- ▶ To inactivate the enzymes.
- ▶ To make minimum damage to the food itself.



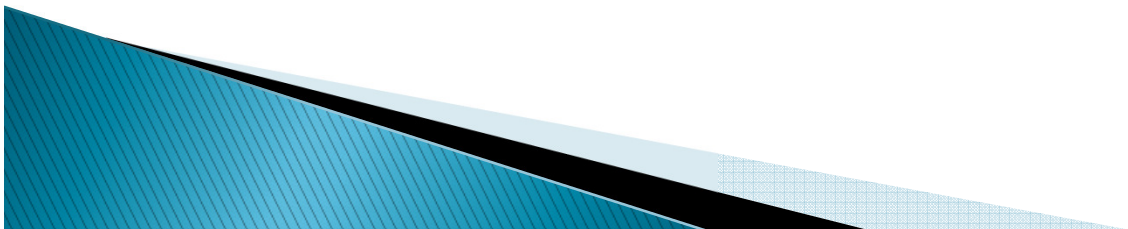
STERILIZATION

- ▶ is a term referring to any process that eliminates (removes) or kills all forms of microbial life,
- ▶ The temperature of the treatment is generally greater than 100 C



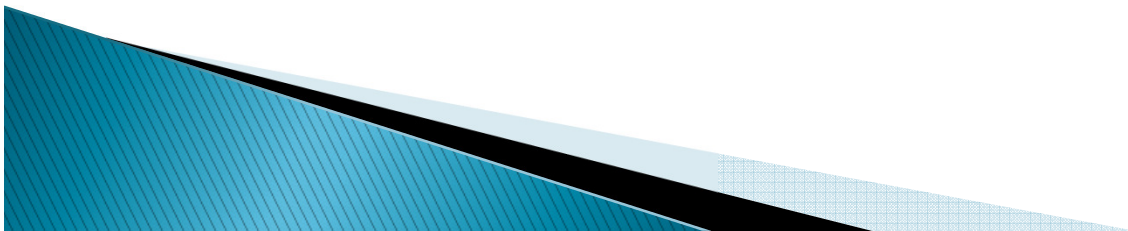
- ▶ The sterilized food products

pH > 4.5

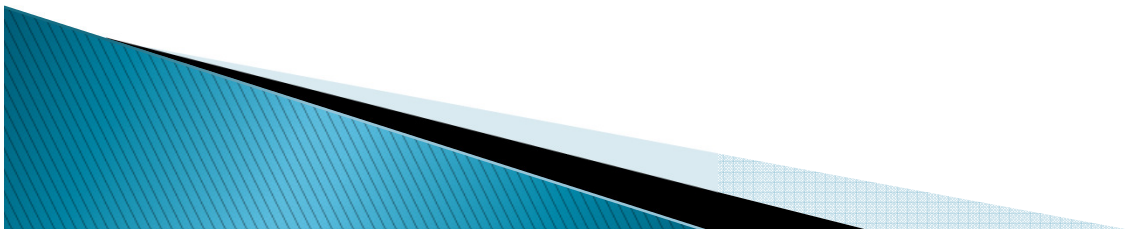


- ▶ **Absolute sterilization:**

When there is no residual alive microorganism.



- ▶ **Commercial sterilization:**
- ▶ All the pathogens and the other m/os which can have spoilage effect to the product can be damaged.
- ▶ The temperature of the treatment is higher than 100 C.
- ▶ Some heat resistant m/os can stay alive but they won't spoil the product.

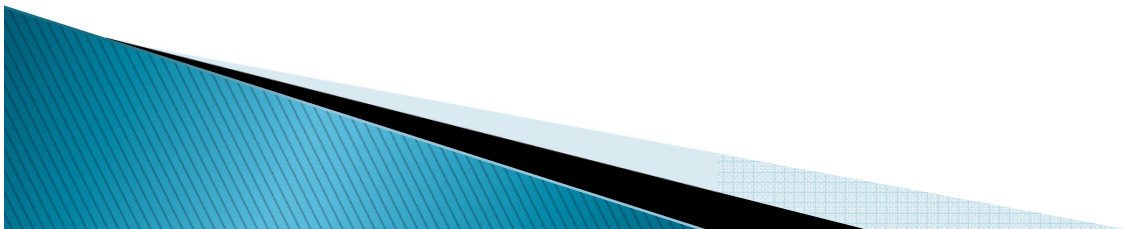


PASTEURISATION

- ▶ Pasteurisation :
- ▶ A heat treatment with a temperature lower than 100 C to inactivate the m/os.
- ▶ The pasteurized foods..



pH < 4.5



UHT, HTST

- ▶ UHT(Ultra High Temperature) :
- ▶ 1 s, 135–150 C
- ▶ HTST (High temperature short time) :
- ▶ 71.7 °C 15–20 s.

