

DRDO – FICCI Accelerated Technology Assessment and Commercialization Programme

Design for Retort/steriliser processing of Liquid, Semi-solid & Solid food product

Thermal processing of foods in rigid, semi-rigid and flexible packaging system is the most acceptable form of food preservation. It represents a unique combination of package, process and product technologies with potential functional, quality and economic benefits. The increasing consumer awareness and dislike to accept other methods of food preservation like chemical preservation, irradiation, etc., has offered a vast scope for thermal processing of foods. The unique characteristics of thermally processed products in comparison with other conventional methods are: 1. Consumes less energy during processing 2. Enhances the quality attributes 3. Reduces the transportation and storage costs Thermal processing operations require the heating of food products through a pre-determined time and temperature cycle in order to render the contents commercially sterile i.e., free from microorganisms likely to cause food spoilage. There are several distinct types of commercially manufactured retorts are available to meet the National Food Processors Association NFPA requirements of commercial sterilization. All these retorts are very expensive for Indian conditions and suitability for processing thin walled aluminium containers, which require additional facilities, is not established. These retorts operate at higher than 15 Psi pressure in order to counter balance the internal pressure of the container, which may damage the thin walled aluminium containers. Therefore, a major design changes in conventional retorts must be made to process with over pressure. In spite of these distinct advantages, thermal processing has not become popular in India, when compared to other countries like USA, Canada, Japan, etc., mainly due to the high cost of import retorts.

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