STUDY OF THE RELATION BETWEEN CAN CLOSING TEMPERATURE AND THE RESULTANT VACUUM

Aim: To study the effect of can close temperature on the resultant vacuum produced.

Introduction:

A canned food would keep for a long time i.e. minimum two years of shelf life, stable, only if certain degree of vacuum is created inside the can. Since the absence of oxygen will prevent (a) microorganism to grow and thereby will not bring about changes in flavour and taste. (b) It prevents oxidation of fat (c) it prevent destruction of vitamin C (d) It is also prevent internal corrosion of can during storage period.

Proper exhausting of canned foods before retorting is an important operation. Vacuum in cans may be created, either by heat exhausting, or mechanical methods using vacuum Seamer, or by the steam injection method. In exhausting by heat, the most significant factor is the temperature of the can and it's content just before seaming. The object of this experiment is to study how the vacuum produced in can varies with temperature at closing.

Materials & Equipments:

(1) Empty cans, about 30 Nos. (No.1 Tall). (2) Water for filling to heat at different temperatures. (3) Physical balance for weighing. (4) Double Seaming machine (5) Scale, vacuum gauge, thermometers etc.

Procedures:

Divide the cans into 6 groups of 5 cans each. Note the weight of each empty can. Fill each group with water at different temperature (40^0C, 50^0C. 60^0C) up to a head–space of 10mm. Weigh each can. Note the temperature of water in each can and immediately double seam. Cool all the cans to room temperature (To be noted). Wipe and dry the outside of the cans and reweigh to check spillage if any. Test vacuum produced in each can. Find out-group averages. Open the cans and note temperature of vacuum measurement. Measure headspace also. Tabulate and plot can vacuum against closing temperature.

Observations:

Group	Can No.	Gross Wt. (gm)	Closing Temp. (^{0}C)	Can vacuum at		Head space (mm)	Remarks
				Cms	^{0}C		
A	1.						
	2.						
	3.						
	4.						
	5.						