NEW TYPE THERMOCOUPLE SEAL FOR TIN CONTAINERS

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To determine accurately the rate of heat penetration during the processing of canned foods it is necessary to seal the thermocouple into the can. This may be accomplished with the use of special equipment described by Bigelow, Bohart, Richardson, and Ball (1920).

The specialized fittings of Bigelow, et al, have been simplified and improved in recent years.1/ This improved equipment now in general use consists of the following:

1. A flanged tube which has both internal and external threads
2. Two composition rubber gaskets
3. A lock nut
4. A special threaded bakelite thermocouple with plug receptacle

In practice, the gasketed flanged tube is inserted into a 1/2-inch diameter hole in the side of the can, the second gasket and the lock nut are threaded onto the outer or protruding portion of the tube until tight, and the bakelite thermocouple is threaded into this aforementioned tube or bushing. The result is a convenient vacuum-tight thermocouple seal that can be installed in a very few minutes.

Prepared thermocouple sealing equipment should be used for this purpose; however, it is not always available. Another procedure was devised to solve the problem of sealing a glass or metal thermocouple tube into a tin container when the prepared equipment was lacking. This alternate method was achieved with tools

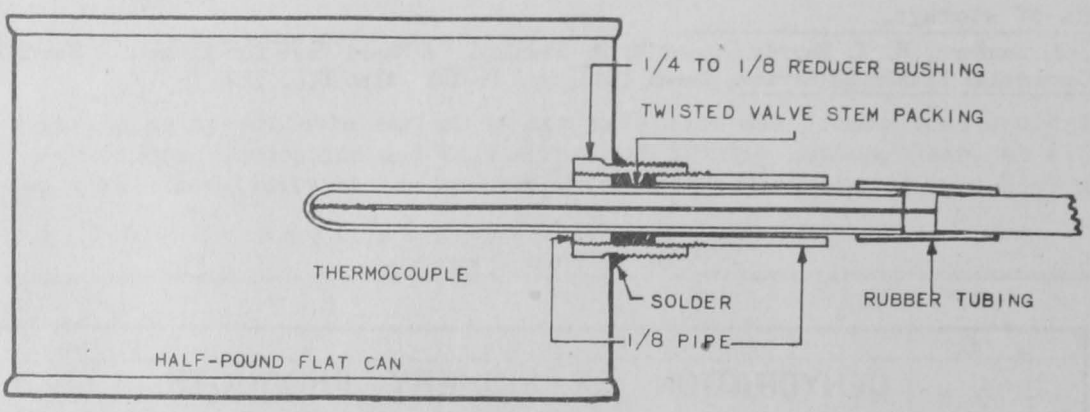

FIGURE 1 - METHOD USED TO SEAL THERMOCOUPLE

and equipment commonly found in the laboratory or pilot plant workshop. Figure 1 is a diagram of this simple method of producing a glass or metal thermocouple tube seal without special fittings.

Directions for making the seal are as follows:

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1/See References Cited

Prepare a 1/4-to 1/8-inch pipe reducer bushing by tapping and threading the small end to receive a 1-inch length of 1/8-inch pipe. Thread another short length of 1/8-inch pipe into the opposite or reducer end of this bushing and cut it off flush with the hexagonal face as shown in Figure 1. Both short lengths of 1/8-inch pipe should be reamed with a round file to accommodate the 6-millimeter outside diameter glass or metal thermocouple tube. Drill a 1/2-inch diameter hole into the side of the can with the aid of a drill press and insert and solder this prepared reducer bushing into the hole in the can so that the hexagonally shaped shoulder remains inside the container.

Insert the glass or metal thermocouple tube into the inch length of 1/8-inch pipe; move this pipe along the glass tube until it is back out of the way. Insert the thermocouple tube into the reducer bushing; locate this tube so that its tip is at the center of the can. Force a single strand of twisted valve stem packing around the glass tube inside of the reducer bushing. Thread the 1-inch length of 1/8-inch pipe into the reducer bushing and draw up tight with a pair of pliers to compress the packing to form a pressure tight seal. This length of pipe serves as a packing gland nut. Place the product to be processed into the can carefully in order to avoid damage to the thermocouple tube, double seam the container, make the necessary electrical connections through a gland in the cover of the retort, and all is in order for the determination of heat penetration data.

REFERENCES CITED

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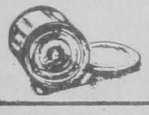

REFREEZING PACKAGES DEFROSTED IN TRANSIT

There are occasional instances in which frozen packages of seafoods become partially or totally defrosted during transit or even while in storage. When this has occurred it is necessary to exercise considerable care in the handling, or the loss due to spoilage may be excessive. The first step in making an examination of such a shipment is a careful inspection of each package in each carton. The packages should be separated into two groups, those only partially defrosted and those which are completely defrosted. The first lot, the partially defrosted cartons, can be placed in a quick or sharp freezer and handled in the same manner as that which was used in the original freezing operation. After they are refrozen the individual packages can be repacked in the shipping carton for storage. If attempts are made to refreeze in the original shipping carton it is likely that excessive losses by spoilage will be experienced. This is explained by the fact that the carton is a fair insulator, and, should the packages be placed in it before they are solidly frozen, several days would probably be required for freezing those in the center of it. During this lapse of time, spoilage could occur and then the packages in the center would be unfit for food.

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