

ing the weight on the tare beam. Ten grams of butter are weighed into the cup from the sample in the jar. The cup is now heated slowly over the lamp to evaporate the water from the sample. The heating should proceed slowly so as not to char the fat, and while being heated the butter should be agitated by shaking the cup with a rotary motion. Care must be taken that no fat is splashed out of the cup. The evaporation will be accompanied with more or less noise from the sample. As soon as the noise ceases and just as the butter commences to take on a more amber colour, the heating should be discontinued, as all the water will have been evaporated. Should the heating be continued beyond this point, the residue will be charred and the result of the test will be too high. As soon as the heating is concluded, the cup is placed on the scale pan and allowed to cool. The scale does not balance now since the sample is lighter, owing to the evaporation of the water. The weights on the beam are now adjusted so that the scale balances exactly and the percentage of water is read from the beam.

When the hot cup is placed on the scale pan, an upward current of air is set up, due to the cup heating the surrounding air. This upward current of air tends to raise the scale pan. Consequently, if the reading is taken while the cup is still hot, it will be too high, since the weights must be moved farther over on the beam to counteract the effect of the air current.

The high pressure oven described under the "Determination of the Per Cent of Water in Cheese" furnishes a most satisfactory method of evaporating the water from the sample of butter.

A method of heating the sample by using a paraffine bath has also been advocated and widely used. The cup containing the butter to be heated is placed in a second cup which is surrounded by paraffine. A small copper kettle contains the paraffine which is heated to a temperature of 175°C . (347°F .) which temperature is maintained during a period of five to seven minutes. This method avoids danger of over-heating the sample, but lengthens the time required to make the test. Experience has shown that heating directly over the lamp, when carefully done, is quite accurate as compared with chemical analysis.

As with cream testing scales, the scales used for the testing of butter should be kept in a dry place.

DETERMINATION OF THE PER CENT OF SALT IN BUTTER.

The method of determining the per cent of salt in butter is somewhat similar to determining the per cent of acidity in milk and cream.

The method of determining the salt content of butter is based on the fact that salt and silver nitrate neutralize each other in definite proportions. The salt contained in a definite quantity of butter is washed out and dissolved in a definite quantity of water. A definite volume of the salt solution thus obtained is measured out by means of a pipette and the salt in it neutralized by titrating with a silver nitrate solution of known strength, using a potassium chromate solution as an indicator, to determine when the neutral point is reached.

Pipettes of different volumes have been recommended for measuring the salt solution and correspondingly different strengths of silver nitrate solutions. Of the different modifications of the method which have been suggested, that outlined in Circular No. 14 of the University of Wisconsin by J. L. Sammis, seems to be the most adapted to our conditions. In this method, a silver nitrate solution, prepared by dissolving five and one-tenth (5.1) grams of chemically pure silver nitrate in two hundred and fifty cubic centimetres of distilled water, and a potassium chromate solution, prepared by dissolving seven and one-quarter (7.25) grams of potassium chromate in twenty-five (25) cubic centimetres of distilled water are used.