A NOTE ON TEMPERATURE MEASUREMENT IN THE BABCOCK TEST CENTRIFUGE

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Many publications recommend a definite temperature range for the Babcock centrifuge, but do not state how this temperature should be measured. A thermometer placed in the shell of the centrifuge may show a temperature very different from that in the area wherein the bottles are placed. An ordinary six-inch stem, mercury type, maximum recording, 0–220°F thermometer, suitably counterbalanced, can be placed in the centrifuge cup to measure the maximum temperature reached during the test. Examples are given of temperature measurements made by this method, or a suitable counterbalance may be used. A thermometer placed in the shell usually has an opening through which a thermometer may be inserted. This opening probably is about one inch long and one-half inch in diameter. When the centrifuge is in operation, this thermometer showed a reading of 145°F. This thermometer was removed while the machine was in operation and a dial-type thermometer with a four-inch stem was inserted. This instrument gave a reading of 152°F. Maximum recording thermometers that had been placed in the centrifuge cups showed a temperature of 170°F. The thermostat on the centrifuge was adjusted so that the maximum recording thermometers showed a temperature of 145°F when the centrifuge was in operation. The thermometer supplied with the centrifuge was replaced by a glass "floating dairy-type" thermometer which showed a temperature of 145°F while the machine was in operation, corresponding to the temperature registered by the thermometers in the centrifuge cups. Although accurately calibrated thermometers were used in this work, the Babcock test permits of some latitude in temperature, and thermometers of ordinary laboratory accuracy may be used.

Since the procedure is simple and direct, it is suggested that Babcock centrifuge temperature be checked by placing two maximum recording thermometers in opposite cups of the centrifuge and the reading made after the machine has reached temperature equilibrium or when the tests are removed from the machine. The method described will show the maximum temperature reached by the test, whether a few samples or a full centrifuge load are being run at the time. The thermometer placed in the shell of the centrifuge should indicate substantially the same temperature. This procedure would make for better uniformity in the test, especially for control and investigational work.

REFERENCES