2. Milk Fat
(Gerber Method)

Principle:

The milk is mixed with H2SO4 and amyl alcohol in a special Gerber tube permitting solution of the protein present and release of the fat. The tubes are centrifuged and the fat rising into the calibrated part of the tube is measured as a percentage of the sample. The method is suitable as a routine or screening test.

Apparatus:

1. Gerber butyrometer tubes, with lock-stoppers and a key.
2. Gerber centrifuge, 50-cm diameter.
3. Milk pipette 10.75 ml. (See "Interpretation" section below.)

Reagents:

1. Sulphuric acid Sp. gr. 1.815 ± 0.003 (about 90% m/m).
2. Amyl alcohol.

Procedure:

1. Measure 10 ml of sulphuric acid into a Gerber tube, preferably by use of an automatic dispenser, without wetting the neck of the tube.
2. Mix the milk sample gently but thoroughly and fill the milk pipette above the graduation line.
3. Wipe the outside of the pipettes and allow the milk level to fall so that the top of the meniscus is level with the mark.
4. Run the milk into the Gerber tube without wetting the neck, leave to drain 3 seconds and touch the pipette tip against the base of the neck of the Gerber tube.
5. Add 1 ml amyl alcohol.
6. Close with a stopper, shake until homogeneous, inverting to complete admixture of the acid.
7. Centrifuge for 4 minutes after the centrifuge has reached 1100 rpm.
8. Allow the centrifuge to come to rest, remove the Gerber tubes and place in a water-bath at 65^0C.
9. Read off the percentage of fat after three minutes, adjusting the height in the tube as necessary by movement of the lock-stopper with the key.
10. The Gerber tubes must always be emptied without delay and the highly acid waste disposed of appropriately.
11. The tubes may be cleaned with chromic acid.

References: ISO, 2446 – 78 and 488 – 93. Marth, E.H., 1978. Standard Methods for the Examination of Dairy Products, American Public Health Association.