

mine the lactometer reading of the milk when skimmed. As each per cent. of fat in milk makes its lactometer reading lower by about eight-tenths (.8) of a degree than it would be if this fat were not present, we obtain the lactometer reading of the skim milk by adding the lactometer reading of the milk and eight-tenths of the percentage of fat together. Next, since each per cent. of solids-not-fat in skim-milk gives it a reading of about four on the lactometer, we obtain the percentage of solids-not-fat in it by dividing its lactometer reading by four.

RULE: To determine the percentage of solids-not-fat (S. N. F.) in milk, add its corrected lactometer reading (L) and eight-tenths (.8) of the per cent. of fat (F) together, and divide by four. Briefly expressed thus:

$$\frac{L + .8 F}{4} = \text{S. N. F. (per cent. of solids-not-fat.)}$$

L = Corrected lactometer reading, or reading at sixty degrees.
F = Per cent. of fat.

The following rule for determining the per cent. of solids-not-fat is sufficiently accurate—excepting when unusually close results are required—and has its simplicity to recommend it:

To determine the per cent. of solids-not-fat in milk add its corrected lactometer reading and per cent. of fat together and divide by four.

$$\frac{L + F}{4} = \text{S. N. F.}$$

EXAMPLE: Let the lactometer reading of a sample of milk at a temperature of 64 degrees be 32, and the per cent. of fat be 3.6. Find the per cent. of solids-not-fat.

Corrected lactometer reading = 32.4.

From the first rule we have,

$$\frac{L + .8F}{4} = \frac{32.4 + .8 \times 3.6}{4} = \frac{32.4 + 2.88}{4} = 8.82 \text{ per cent. S.N.F.}$$

From the second rule we have,

$$\frac{L + F}{4} = \frac{32.4 + 3.6}{4} = 9 \text{ per cent. S.N.F.}$$

Watered Milk.

To find the per cent. of pure milk in a watered sample, multiply the per cent. S.N.F. in it by 100, and divide by the per cent. S.N.F. in the pure milk. This subtracted from 100 will give the per cent. of extraneous water in the watered sample. To take an example:

The per cent. of solids-not-fat in a sample of pure milk is 9; but after being watered the per cent. of solids-not-fat in the watered sample is 7.2. Find the per cent. of pure milk in the watered sample.

$$\text{Per cent. of pure milk in watered sample} = \frac{7.2 \times 100}{9} = 80 \text{ per cent.}$$

Per cent. of extraneous water = 100 - 80 = 20 per cent.

NOTE: When a sample of the pure milk cannot be obtained, use 8.5 in the early part of the season, and 9 in the latter part, for the per cent. S.N.F. in pure milk.

The term "pure milk," as used in the foregoing, may mean either whole or skim milk, as the per cent. of solids-not-fat in milk is not materially affected by skimming.

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