OVERRUN CALCULATIONS

Overrun is the industrial calculation of the air added to frozen dessert products, and it is calculated as the percentage increase in volume that occurred as a result of the air addition. The following examples will show calculations of overrun by volume and by weight, without and with the addition of particulates, and will also show calculations of target package weights. When packages are being filled on a processing line, package weights should be closely monitored. Deviations can be attributed to variations in the fill level of the package (packaging machine adjustment), variations in the ratio of ice cream to particulate addition (ingredient feeder or ripple pump adjustment), or variations in the overrun of the ice cream (freezer barrel adjustment).

Determining Manufacturing Overrun by Volume, No Particulates

The equation for overrun determination of a production run, based on the definition of overrun given above, is as follows:

$$\% \text{ overrun} = \frac{\text{vol. of ice cream produced} - \text{vol. of mix used}}{\text{vol. of mix used}} \times 100\%$$

Example Problem 14. 500 L mix gives 980 L ice cream:

$$\frac{980 - 500}{500} \times 100\% = 96\% \text{ overrun}$$

Any added flavors, such as chocolate syrup, that become homogeneous with the mix can incorporate air and are, therefore, accounted for in the following way.