DRUG DEVELOPMENT AND INDUSTRIAL PHARMACY, 11(4), 963-964 (1985)

ERRATUM

Optimization of Preblending in Random Mixing, by J.T.Carstensen and C.T.Rhodes

Equations 3 and 4 were erroneously omitted in this article and page 1017 of volume 10, Number 7, 1984, should, therefore, be replaced by the following:

Blending is a subject which is of importance pharmaceutically, and which has received a small to fair amount of attention in the pharmaceutical literature (1-4). The efficiency of a mix is judged by the standard deviation, s, of the assays of samples taken from various spots in the mixer and when s is plotted as a function of time, the following relation will hold in many cases:

$$\ln((s-s')/(s_o-s")) = -kt \qquad \text{Eq. 1}$$

where s' and s_o are the standard deviation at infinite time and zero time respectively. The time, t_Q, to achieve "Q% blending" is given by

$$\ln(1-(Q/100)) = -k\ t_Q \qquad \text{Eq. 2}$$

e.g. the time to achieve 95% blending is given by

$$\ln 0.05 = -3.0 = -k\, t_{95} \qquad \text{Eq. 3}$$

and similarly for 97.5% blending

$$\ln 0.025 = -3.69 = -k\, t_{97.5} \qquad \text{Eq. 4}$$

In general when small amounts of drug (e.g. 5% or less) are mixed with excipient (at 95% and more), then preblending is resorted to. The writing to follow will address the optimization of preblending based on presently assumed concepts of random blending. It should be pointed out at the onset, that the considerations to follow do not apply to ordered blending.

Only a case of binary mixing will be considered, i.e. the mix contains a fraction, X, of drug (denoted A in the following) and (1-X) of excipient (denoted B in the following). With this nomenclature, the premixing process consists of