THE PREPARATION AND RELEASE PROPERTIES OF MICROCAPSULES

J.R. Nixon, Pharmacy Department, Chelsea College, London University, Manresa Road, London SW3 6LX

Microcapsules do not normally contain just one drug particle, though this ideal can be obtained by adjusting the preparative conditions. The outer coat of the gelatin or gelatin-acacia microcapsules tends to follow the shape of the core, but may be indented due to the collapse of vaccuoles or may contain crystals derived from the precipitating liquid in the case of simple coacervates.

Both these types of microcapsules have a continuous coat which does not normally show pores penetrating through the core, but with a cellulose coat pores are visible through the coating.

The usual mean size of coacervate microcapsules is 70 μm and varies between 1 and 150 μm and quite large changes in stirring speed are required to cause variations outside this range. With cellulose microcapsules the mean size is much larger for a given stirring speed.

The delay caused by microencapsulation on the release characteristics of microcapsules and 'tabletted' microcapsules may be divided into two parts. A fairly rapid release of up to 60% of core content usually occurs from unprocessed microcapsules even when no pores or cracks are visible. This will always be slower than the rate of solubility of the raw drug and will depend on the core to wall ratio. The remainder of the drug comes out as a sustained release dosage form. The effect of compression is seen to be a slowing down of the release.