after an initial period of incomplete bubble coalescence, 'set' in place. The same foam brushed on a slide at ambient temperature eventually dissipated leaving a clear film. Fig. 2 is a micrograph of several discrete droplets formed by momentary spray application of a coating solution from an airborne spray gun onto a glass slide held at 55 °C.

We have attempted to reduce this type of bridging by a variety of methods. It has been found that the addition of 50 ppm of a silicone antifoam agent (Dow Corning FG-10 emulsion—Dow Corning Corp., Midland, Michigan, USA) to the coating solution does not have a marked effect on the degree of bridging. On the other hand, bridging was reduced by (1) simultaneous lowering of the viscosity and surface tension of the coating solution by the addition of alcohol (>20% v/v ethanol), and (2) the use of spray nozzles capable of finer atomization of the coating solution (see Fig. 3).

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Bridging of the intagliations on film coated tablets

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Accurate definition of terms is essential when describing film defects on coated tablets and comparing data from different sources. In the light of a recent communication (Down 1982) purporting to present an alternative mechanism for bridging of the intagliations on film coated tablets, we feel it is pertinent to redefine our terminology on this defect.

In bridging of the intagliations as previously defined (Rowe & Forse 1980, 1981) the film coating, under the influence of internal stresses due to shrinkage on evaporation of the solvent and differences between the thermal expansion of the coating and substrate, pulls out of the intagliation forming a bridge across the edges of the mark. Fig. 1 shows a scanning electron photomicrograph of a typical bridged intagliation. The film has a normal structure and there is some evidence of small amounts of tablet substrate adhering to the underside of the film indicating that at some time during the coating process the film had actually followed the contours of the intagliation. There is no evidence of solidified foam within the intagliation and the 'bridge' can be easily deformed and pushed back into the intagliation by means of a rounded pin-head. The latter provides a simple confirmatory test for this type of defect.

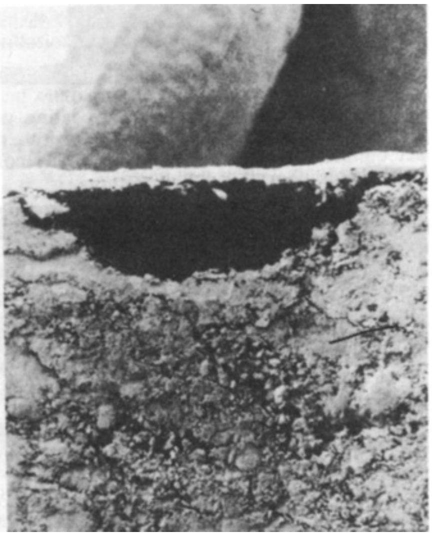

Fig. 1. Scanning electron photomicrograph of a tablet in cross section showing a typical bridged intagliation. Note the presence of small amounts of substrate adhering to the underside of the film.

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This should now be compared with the data presented by Down (1982). In this case the intagliation is filled with a foam structure due to the intagliation forming a protected area free from abrasion thus allowing the foam to accumulate and solidify. It is unlikely that this defect will be specific to certain tablet core formulations, as in the case of true bridging defined above, and hence factors which are known to influence the magnitude of the internal stresses in films, i.e. film thickness, plasticizer type and concentration, pigment type and concentration are unlikely to have any effect on the incidence of this defect.

While it can be seen that, in both cases, the end effect, i.e. that of rendering the intagliations indistinct and illegible thus losing the advantage of using intagliated tablets for product identification, is the same, the defects themselves are totally different in origin. It would appear logical, therefore, to restrict the terminology 'bridging of the intagliations' to that previously defined by Rowe & Forse (1980) and redefine the defect reported by Down (1982) as 'foam infilling of the intagliations'.

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