

Split Plot Discussion

A surgical glove manufacturer divided 4 shipments of latex pellets into 5 batches each. Each batch was randomly assigned to one of 5 preparation methods. As batches are being processed in a run, the level of coagulant can be changed. One level of coagulant was randomly assigned to the first third of the run, another level of coagulant was assigned to the second third of the run and a third level of coagulant was assigned to the final third of the run. The response variable was the number of gloves with pinhole defects (for each third of a run). When answering the questions below, refer to Example 24.1 in Yandell, which is an alternate formulation of the split plot model that will prove more appropriate here.

1. Identify the blocking (Yandell calls this Location) variable, the whole plot (Yandell calls this Block), the whole plot factor, the split plot and the split plot factor. Which terms are confounded?
2. Which model term would latex preparation method be tested against? Which model term would coagulant concentration be tested against?
3. What would be appropriate SAS or Minitab code for analyzing this experiment?