

SOME FILLER CHARACTERISTICS OBSERVED ON THE
HOCKING COUNTY FILLER TEST ROADBY H Z SCHOFIELD, *Director**Research Bureau, National Paving Brick Association*

SYNOPSIS

Added to the results of the planned observations on the Hocking County filler test road is information on the effect of mechanical working on the exuding of asphalt fillers for brick joints

In addition to other benefits a non-exuding filler produces a surface course noticeably more quiet than a surface course with exuded filler

The Hocking County filler test road, both in construction details and in first and second annual inspections of filler conditions, has been reported. As might have been expected in an experiment of this scope, the experience has given indications on certain brick joint filler characteristics in addition to the planned filler condition observations.

In the preliminary laboratory tests designed to find promising fillers for inclusion in the Hocking County filler test road, the only simulated service test for exuding was summer heat application. In making inspections of the test road it was found that exuding of certain asphalt fillers was markedly greater in those areas of the brick surface course overlying base contraction joints and other areas in which traffic might be expected to impart a slight movement to the brick units. The most pronounced example of this effect was observed on the two sections devoted to Ohio Highway Asphalt Filler F1, an asphalt of high exuding properties. One section in which the brick were laid on plain sand cushion exhibited, after one year's service, a filler exudation of heavy proportions. On the other section in which the brick were laid on a mastic cushion (probably more stable than plain sand) the filler exudation was of medium proportions except over each base contraction joint where exuding was heavy. In the laboratory, Bencowitz¹ has demon-

strated that exuding will take place when thin layers of asphalt are subjected to shearing forces. His apparatus consisted of five plates, spaced $\frac{3}{16}$ in apart, and so placed that they moved longitudinally in reference to each other without changing the distance between them. Thus the material filling the spaces between the plates was subjected to a kneading action without compression. Dr Bencowitz, in discussing these results, indicated that thixotropy or breakdown of structure (with its resultant lowering of the viscosity of the asphalt) may account in part for this effect. From these laboratory and service observations it would appear advisable to consider the effect of kneading as well as that of summer temperatures in future laboratory investigations of brick joint fillers.

In enumerating the undesirable features of a heavily exuded filler, most prominently mentioned have been the reduction of anti-skid properties and the progressive loss of the filler itself. It so happens that, on the filler test road, four non-exuded fillers (two types of plasticized sulfur and two blended asphalts) occur together in a pavement length of about one-third mile. Adjoining this is a section of almost one-fifth mile containing exuded F1 asphalt. Thus every opportunity has been given for a comparison with the result that to the other desirable features of a non-exuded filler must be added markedly more quiet and smoother riding quality.

¹ I Bencowitz, Texas Gulf Sulfur Company