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## MICRO SURFACINGS

### History

The origin of micro surfacings goes back to the late 1920s. In 1928 in Germany, Dr. Oberbach described a product called Schlamm displaying the unusual property of being capable of encapsulating a wet sand in an 80/100 bitumen at a temperature of 145°C. This product was intended for treating old pavements and for sealing off cracks.

The schlamm process as described above ceased to be used with the advent of slow breaking emulsions.

The first emulsions were anionic, leading to a curing time that depended considerably on the weather conditions, since the emulsions broke through the evaporation of the water. These emulsions enabled the preparation of slurry that could be stored in drums and applied in the same way as schlamm. The slurry was a material which was suitable for the maintenance of pavements in regions where the climate was favourable.

Subsequently, machines capable of continuously producing and applying this product were developed. These "integrated" machines did not appear in practical form until the 1960s. At the same time, they were capable of proportioning the different components, that is the aggregates, the emulsion, the water and any additives and were capable of accomplishing most of the functions of the modern equipment today.

It was not until about 1963 that cationic emulsions were successfully used in the form of slurry seals. They provided better control of the breaking rate, were less dependent on the weather conditions and slurry seals prepared with these emulsions could be reopened to traffic within a very short delay. During this period, the slurry seals were

imported into France from the United States and developed considerably. This process which was applied in a layer 3 to 5mm thick was only intended to seal existing pavements surfaced with aged mixes which had become permeable. The materials used consisted of a mix of sand, partly crushed or rolled, with a grading of 0/3 and/or 0/5.

It quickly became apparent that these mixes did not ensure sufficient roughness and were not particularly durable. In addition, many pavements were constructed by people who were not specialists in this field, resulting in resounding failures. For this reasons, the slurry seal technique was practically abandoned in France in the 1970s. Only in the United States, Spain and Germany did the process continue to develop and undergo improvement.

In 1978, a new product appeared in Germany and was then imported into France under the acronym *ECF* (meaning micro surfacing). This material, which was intended as a seal which could also provide the necessary roughness, subsequently formed part of the techniques commonly used for maintenance of pavements in France (**photo 1**).



▲ **Photo 1**  
*Micro surfacings on a French Departmental road*