

Innovation goes full circle

Based in Kettering, Frank Toseland and Sons was founded in 1935 to supply the local Northamptonshire boot and shoe industry with the waxes, dyes, polishes and lacquers used in manufacture and renovation work. The UK company thrived alongside the local shoemaking industry which, at its height during the middle of the last century, was a major production centre for footwear.

The rapid decline of the industry during the 1980s hit the family firm hard. George Toseland, grandson of the founder, re-launched the company in 1992 under the name Premier Finishes to seek other industry sectors in which the firm could use its expertise. Although the company continued to supply the UK's remaining shoe manufacturers with traditional products, a new range of lacquers and wood stains for the furniture and shopfitting industries rapidly took over as the main business. A novel innovation developed for this sector has now found an application in modern shoe manufacture, bringing Premier Finishes full circle back to its roots.

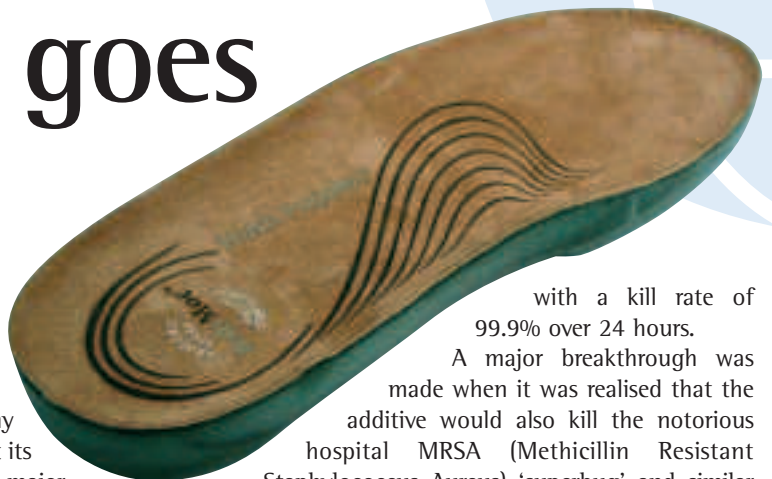
Discovering a clever idea

Managing director George Toseland explains, "Premier Finishes were looking for a way in which we could differentiate our furniture lacquer products from competitors. Something that would enable us to sell on technical performance rather than just price. Several of our customers were designing and building bespoke kitchens and we thought of incorporating an additive into our lacquers which would act like a biocide to combat food poisoning bacteria such as listeria and salmonella."

An additive was found which, while non-toxic and safe to use in food preparation environments, would kill off bacteria on the surface of the lacquer. It achieves this by interrupting the passage of nutrients through the cell walls of the bacteria and, in effect, quickly starving them to death. Technical director Mark Gardner developed a process by which the additive could be finely and evenly dispersed into lacquers at very low concentration without affecting the other qualities of the surface finish. This led to Premier's Hygienilac range and independent testing by Law Laboratories certified that

this coating could deal with all normal food poisoning bacteria

Photos: Hush Puppies



with a kill rate of 99.9% over 24 hours.

A major breakthrough was made when it was realised that the additive would also kill the notorious hospital MRSA (Methicillin Resistant Staphylococcus Aureus) 'superbug' and similar

organisms that were causing major concerns in the UK health services. Once this was confirmed by independent testing, the finishes were rapidly taken up by manufacturers of furniture and fittings for hospitals and care homes, as another weapon in the fight against the bacteria.

Further development work showed that the Hygienilac additive could also be incorporated into many types of thermo-moulded plastics such as PVC, polystyrene and polyethylene. It also showed that components incorporating the additive would retain their bacteria-killing properties throughout their useful life. Premier now began to supply the additive for addition to master batches of moulding compounds for use in components such as armrests, door push panels, electrical switch covers, etc. The further applications of this technology in the medical and health sectors are still being explored, but the potential is enormous.

Footwear applications

The well-known Hush Puppies brand—a division of the international Wolverine group—had its origins in the now defunct British Shoe Corporation, which was a Toseland customer twenty years ago. Although Hush Puppies no longer manufactures in the UK, it was referred to Premier last year for help with some problems in shoe finishing and so Premier began to supply finishing lacquers to Hush Puppies' manufacturing plants in Lithuania.

During a technical meeting, the question was asked whether the Hygienilac additive might prove effective against the Athlete's Foot organism Trichophyton Mentagrophytes. Laboratory tests showed that it was just as effective against Athlete's Foot as it was against salmonella, listeria and MRSA. Furthermore, it was also likely to kill all odour-producing bacteria found in shoes.

A method was devised to impregnate Hush Puppies' traditional pig skin suede linings with Hygienilac and also to add it to the contoured EVA mouldings of some BodyMoc footbeds. Further testing of manufactured components confirmed the performance of the additive and so Hush Puppies decided to introduce Hygienilac—initially into its men's leather BodyMoc range. Its manufacturing plants have been licensed by Premier Finishes to use the additive system and an ultra-violet tracker has been incorporated into the additive so that its use can be verified during the quality control inspection of finished shoes. 