

A pair of boots in less than 90 seconds

Soles and moulds

Bekina, based in the Belgian town of Kluisbergen, is a well-known manufacturer of Wellington boots. They're made from polyurethane, a type of plastic that is not only known for its durability but also for its insulating properties. And each year Bekina produces approximately 450,000 pairs of boots, worn by professionals working in agriculture and the food processing sector.

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1 There are four different production plant lines in Bekina's factory. Six pairs of boots, in different sizes or different models, can be produced per cycle and as many as 3,000 pairs of boots can be made in 24 hours.

2 A very thin silicone film is laid onto the mould to prevent the boot from sticking to the mould during the production process. Then the operator brings the lining of the boot on to the last – the name for the model used to build the boot around. Depending on the safety level required, a steel top and perhaps a steel sole can be attached. A small 'carousel' with socks, steel tops and steel soles revolves with the boot carousel, so that the operator always fits the correct components to the correct boot.

3 The mould closes and a high-speed screw mixes the two ingredients for polyurethane at a temperature of 50°C. Mixing the components produces a chemical reaction that causes little bubbles to form and this foam reaction takes just 20 seconds.

4 During the mixing process colour is added to the polyurethane, depending on the final colour of the boot. There are five standard colours for the sole and six for the leg. The sole-leg colour combination used depends the model.

5 Three minutes along the production line and the mould is sprayed by a second spray unit. The sole has a better grip, a higher density and often a different colour from the leg. When the foam is finally set, the boot is taken out of the mould.

6 The surplus material – overflow from the mould – is cut away from the sole and the leg. The boots are then placed on a mobile rack and sorted, according to size and model, to give the polyurethane sufficient time to react.

7 The boots rest on the rack for 24 hours, sorted according to size and model. Bekina produces five models, for leisure, agriculture, industry and for extreme cold. Most models are produced in sizes 35 to 49. After 24 hours, any remaining surplus material is removed from the boots.

8 After the boots have been checked over for one final time by a quality control officer for any production faults, the maker's name and the safety specifications that the boots satisfy are stamped on the inside and the outside of the boot using a stamping machine. Each pair of boots is provided with quality inner soles and a hanging tag. Finally the boots are packed and labelled in pairs.

