

# Structures created during through-air bonding of nonwovens

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**Abstract:** This study investigates the resulting structure after the through-air bonding process in the production of nonwoven textiles. During thermal bonding, hot air passes through the fibrous web. At first, polymer fibers are heated and then melted. Molten polymer creates a bond at the point of contact between any two fibers. The structure of the resulting bond is influenced by several factors that are investigated in this study.

For the experiment, an apparatus is assembled that simulated the process of bonding fibrous web in a hot air chamber. Since it is a lab-scale method, only two fibers per bond are evaluated to get an idea of bond behavior.

Parameters such as contact angle between fibers, fiber diameters, bonding time and temperature are changed. The resulting structures are subsequently analyzed.

The result is a comparison of the influence of contact angle, temperature, time of temperature action and fiber diameter on the structure of bonding point.

**Keywords:** nonwoven, through-air bonding, structure of the bonding, bicomponent fibers, polyester fibers.



Figure 1 Apparatures