



Basotect®

## Sound insulation in wind tunnel at the University of Stuttgart

The Institute of Aerodynamics and Gas Dynamics at the University of Stuttgart, Germany can now test components for acoustic emissions. This is possible because sound-absorbing molded parts made of Basotect®, the melamine resin foam from BASF, have been installed in the institute's laminar wind tunnel. In the laminar wind tunnel model components of aircraft wings or wind turbines are tested and optimized with respect to their aero-dynamic performance by using air streams. Because of the wind tunnel's unusual shape, the insulation manufacturer WKTProduktion, Germany made customized Basotect® molded parts for it. The company Faist Anlagenbau, Germany was responsible for the engineering, the acoustic design and the installation of the parts.

Around 45m in length, the wind tunnel sucks in air from the outside and speeds it up at the entry part of the wind tunnel. Then follows a closed measurement section where the components are studied. In order to improve the quality of the aero-acoustic measuring the wind tunnel had to be additionally sound-insulated: This was necessary as the blower system generates noise that spreads through the measurement section and thus interferes with the measuring. An insulation material was required that combines very good sound absorption with high strength and flexible processing capacities – a product profile that conventional materials have not been able to fulfill so far.

Basotect® has superb acoustic properties. Due to its open-cell, fine foam structure, it shows very good sound absorption in the medium and high frequency ranges. The good processing capacities of the flame-retardant BASF foam were also crucial in the decision to acoustically retrofit the wind tunnel. The flexible material can easily fit different shapes and is free of fibers when cut. Thus, absorption panels of different thicknesses could be made to fit snugly against the conical walls of the wind tunnel. The Basotect® panels used vary in thickness from 3 cm to 100 cm. They are lined with a thin, black polyurethane skin that protects them from dirt and moisture.



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Absorption panels of different thicknesses could be made to fit snugly against the conical walls of the wind tunnel. The Basotect® panels are lined with a thin, black polyurethane skin that protects them from dirt and moisture. Photo: BASF, 2011