

Tips & Technology

For Bosch business partners

Current topics for successful workshops No. 03/2016

Brake Technology



BOSCH
Invented for life

It's all about the mixture: Bosch brake-pad mixtures

Brake pads: perfect solutions

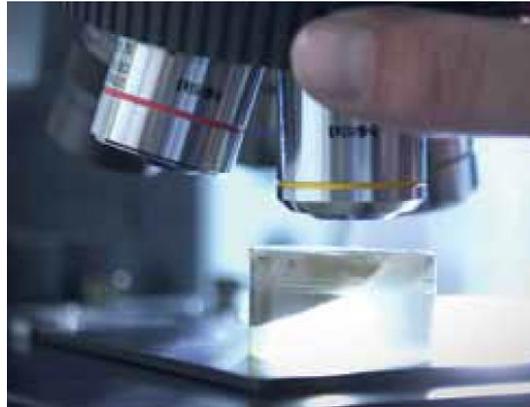
At the brake development, each vehicle model requires individual solutions. For this purpose, the development guideline at Bosch is based on original-equipment specifications and country-specific requirements. This results in sophisticated optimization tasks requiring the realization of even contradictive requirements in the best possible manner for the customer. Therefore, several pad mixtures are developed. Out of those, the one featuring the optimum balance between friction-coefficient, comfort and wear behavior is selected.



25 different basic materials for the mixture

Test laboratory: testing raw materials

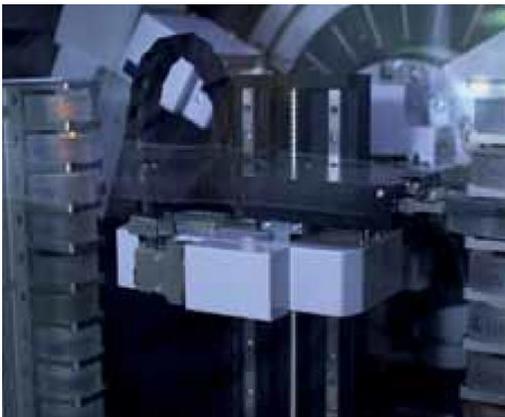
A decisive factor for the quality and the performance of brake pads is the composition of their brake-pad mixture consisting of approximately 25 different raw materials. The composition is thus optimized over and over again. Prior to its combination, its chemical composition and its physical characteristics – such as porosity and density – are measured. Since the sum of the raw materials' characteristics has a big influence on the brake pads' performance, the measured values are also taken into consideration for the formulation of the mixture. Reactions, such as the amount of heat released or mass lost during the heating, are analyzed by means of DSC (Differential Scanning Calorimetry). An additional quality check is performed at the microscope: The previous measurement results are rechecked and the decisive structure of the fibers is analyzed.



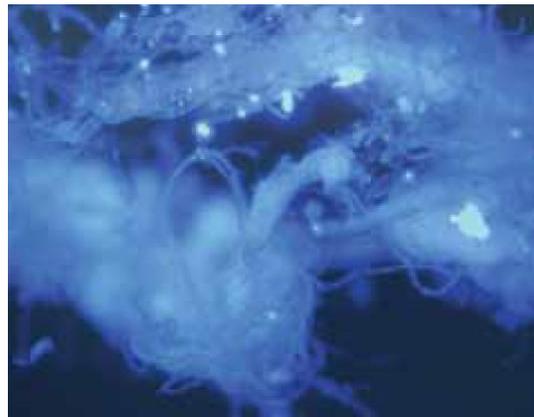
Fiber-structure analysis at the microscope

X-rays: transparent structures

Raw materials of mineral origin often contain contaminants. Pressed into pills, the raw-material powder is excited to its characteristic fluorescence by means of an x-ray unit. At an additional subsequent x-ray analysis, the crystalline structures of mineral and metallic raw materials are itemized.



Checking for contaminants at the x-ray unit



Fluorescent radiation of a crystalline structure

Technology, experience, success

Expert knowledge and experience are the basis for the production of premium brake pads. In order to achieve comparable product features as originalequipment brake pads, a special focus is placed on the top quality and the environmental friendliness of the raw materials used.

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