

Investigating Hair Properties Relevant for Hair “Handle”

Part I:

Hair Diameter, Bending and Frictional Properties

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Dedicated to the memory of our revered teacher, colleague and friend Prof.Dr.Dres.h.c. Helmut Zahn

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Synopsis

The expert working group “Hair Care Products” of the DGK currently conducts a broad study in order to contribute to the understanding of how single hair fibre as well as hair collective properties contribute towards hair “handle” and “feel”. During the first stage of this study four hair types were selected from a large group of individual European hair braids, according to either similar or widely different panel ratings for handle. Against the background of the panel test as well as the state of the literature the working group readily identified the bending properties of single fibres interacting in the tress as a fibre collective and fibre friction as being of central relevance for hair “handle” and “feel”. Fibre diameters of the hair types were determined by OFDA and by weighing. From these data mean ellipticity and bending stiffness distributions were calculated. Single fibre friction was determined by the capstan method in the root, middle, and tip regions. Significant differences were determined between the hair types in diameters, ellipticity, bending stiffness and friction. The results lead to conclude that “handle” is perceived as inferior when the hair is thick and bending stiffness thus high. For such hair differences in handle rating are related to differences in friction, namely, in the tip region. For thin and thus “soft” hair fibre friction seems to play only a minor role.

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