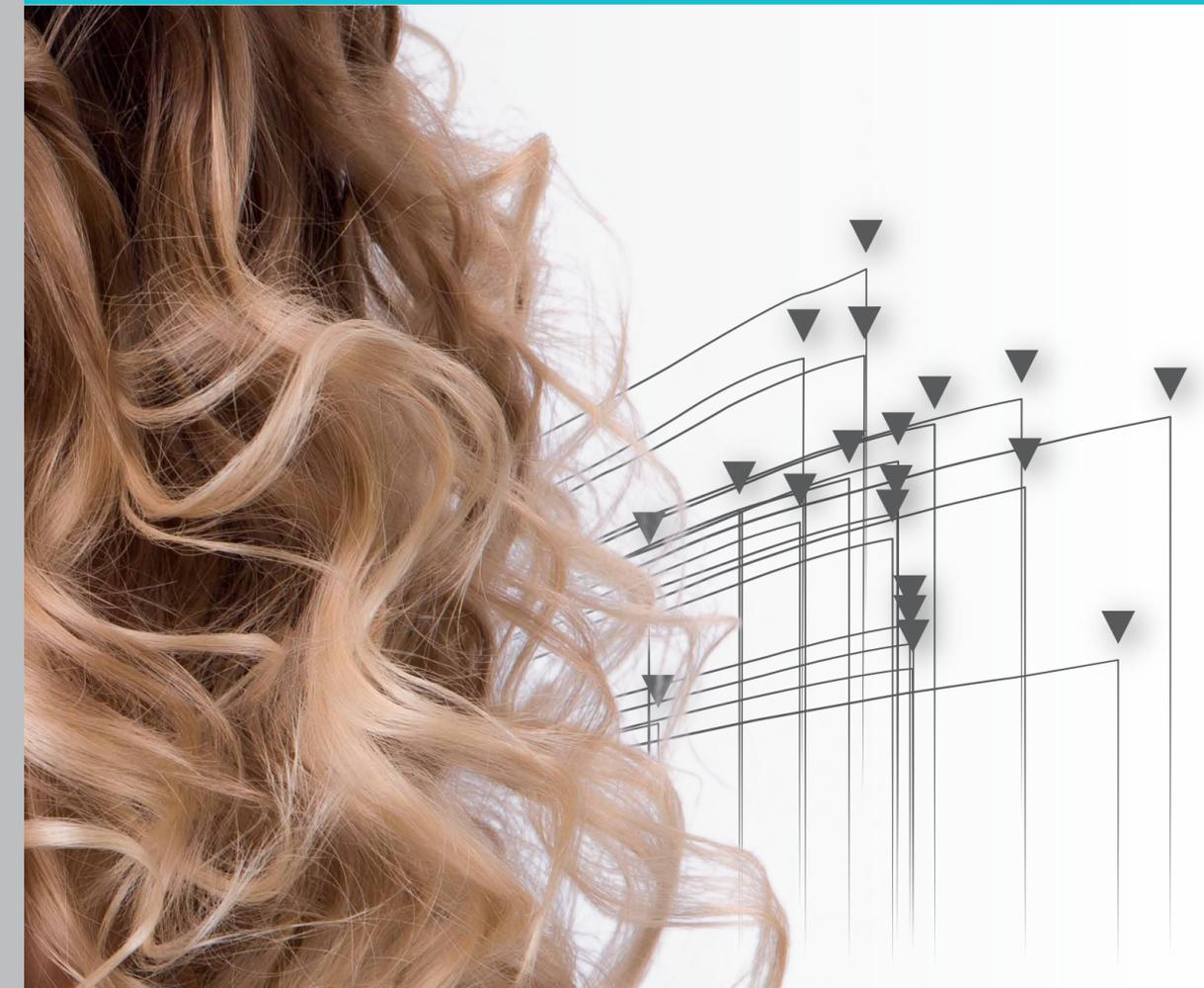


## HAIR ANALYSIS FOR THE COSMETICS INDUSTRY

COMPREHENSIVE ANALYSIS AND SCIENTIFIC SUPPORT



## WE OFFER

- Customized hair analysis
- Scientific consultation and support
- Strategies for analyzing samples
- Chemical and physical treatment of hair samples (Targeted damaging of the hair to investigate the effects of the hair care product)
- Sample preparation
- Analysis under standardized conditions
- Comprehensive keratin fiber analysis:
  - Mechanical, physical characterization
  - Biochemical analysis
  - Molecular structure
- Customized analytical methods or a combination of methods and support in finding a suitable method

## IDENTIFICATION OF

- Hair diameter
- Mechanical properties (tensile strength)
- Surface charge for conditioners
- Adhesion and stiffness of keratin fibers
- Gloss
- Hair structure
- Thermal properties (e. g. heat resistance)
- Durability of hair care products on the fiber
- Chemical composition of hair
- Wettability

## CONTACT

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# ALL METHODS AND SERVICES FROM A SINGLE SOURCE

Comprehensive hair analysis is essential for the development of new hair care products.

Characterizing the hair's biophysical and chemical properties is the foundation for creating innovative products and for gaining scientific insights.

By altering the physical and chemical properties of hair, we obtain knowledge about the molecular effects of hair care products.

## METHODS AND EQUIPMENT

### Mechanical Methods

Mechanical analysis is conducted in a climatized environment that is equipped with additional stress-strain, pressure and bend devices for all forms of custom analyses.

- Diastron workstation in a climatized room (T 23°C, RH 55 % (+ RH 100 %))
- Analysis of hair diameter and stress-strain measurements

### Optical Methods

In addition to modern light and (confocal) fluorescence microscopy, we use electron microscopy and a FastScan AFM to investigate parameters like topography, adhesion, and stiffness of keratin fibers.

- Microscopy
- Light microscopy
- Fluorescence microscopy
- Electron microscopy (TEM, SEM)
- Atomic force microscopy
- Gloss analysis

### Structural Analysis

Various methods for determining structure are used which follow standard protocols or customized protocols. We develop methods that allow us to analyze samples in solution or investigate processes based on diffusion.

- NMR
- SAXS
- CHNS – Elemental analysis
- Mass spectrometry
- IR

### Physical Analytics

We investigate thermal properties and apply surface analytical methods. Based on our experience in membrane research, measuring diffusion processes on thin films is also possible.

- DSC
- TGA
- DMA
- XPS
- Surface tension/wettability
- Membrane diffusion measurements

### Biochemical Characterization

The Fraunhofer IAP maintains well-equipped S1 and S2 labs for a range of biological research. We are experienced in molecular biology, biochemistry, fermentation, and cell culture.

- SDS-PAGE
- 2D-Gel electrophoresis
- Western blotting
- Cell culture

### Hair Treatment

Fibers can be treated by the customer or in our labs. We offer climatized rooms, suitable labs and the right equipment.

- Application of novel formulations that follow standardized protocols or protocols provided by the customer
- Chemical/physical methods (H<sub>2</sub>O<sub>2</sub>, UV treatment, plasma)

