proDERM Institute for Applied Dermatological Research

Experienced and innovative partner for clinical studies in dermatology | ophthalmology | allergology | oral hygiene

www.proDERM.de
Mature Hair, a new trend in Cosmetics: what specific tests to support anti aging hair claims?
Agenda

• New trend in cosmetics: example of products dedicated to Mature Hair

• What is mature or aged hair?
• What is the consumer perception?
• Which claims can be supported?

• The two approaches to test cosmetics on mature hair
• The proDERM Anti Aging Hair package
• Summary and conclusions
COLLECTION INFORMATION

AGE
ANTI AGING HAIR PRODUCTS
FOR MATURE HAIR

Restore mature hair and help fine hair resist aging
See younger-looking hair
Touch strength and smoothness
Sense premium fine fragrances
KÉRASTASE
Densifique Serum Jeunesse
125ml
£49.00

This item is coming soon to The Urban Retreat Beautique.

Enter your name and email to sign up to our newsletter and be the first to hear when this item is available to purchase. We will email you as soon as we have the stock available!

First Name: 
Last Name: 
Email Address: 

ABOUT
Completing the Kérastase DENSIFYING REGIME, Serum Densifique creates hair that looks and feels younger with the appearance of increased Density, Volume, Shine and Manageability.

Discover younger-looking hair with this easy to apply targeted spray. After the very first application, hair looks denser, more volumised, shinier and feels softer.
Anti Aging Hair Product - example

NEW ROUX

ANTI-AGING
INSTANTLY YOUNGER-LOOKING HAIR
Greying, the most visible sign

- Hair follicles stop to produce melanin

- The hair becomes white (not grey!) : the percentage of greying is reflecting the mixture of white and normally pigmented hair

- Grey hairs are ~10 µm thicker and coarser
  
  D Van Neste, Thickness, medullation and growth rate of female scalp hair are subject to significant variation according to pigmentation and scalp location during ageing, Eur. J. Dermatol., 14, 28-32 (2004).

- Onset of greying
  
  (DJ Tobin, R Paus, Graying: Gerontobiology of the hair follicle pigmentary unit, Experimental Gerontol, 36, 29-54 (2001).)

  Caucasians  ~35 years
  Asians    ~40 years
  African  ~45 years
Mature hair is thinner: The effects of androgens

- Post menopausal women have...
  - Lower hair fiber diameters on frontal scalp
  - Lower frontal scalp hair density
  - Lower hair growth rate


- Men starts to get thinner hairs after the teenage years

Hair and scalp are drier

- Hair lipids come from sebum (most fatty acids, triglycerides, wax esters and squalene) and from the hair matrix cells (cholesterol, ceramides).

Decrease of hair lipids in female with age

Mature hair fiber is more breakable

The content of disulfide cross links (-SS-) decreases with age

Akio Kuzuhara, Nobuki Fujiwara, Teruo Hori
Published online 11 July 2007 in Wiley InterScience (www.interscience.wiley.com). DOI 10.1002/bip.20805

Glycation end products (AGEs) are increasing in human hair over age and reduce their breaking strength

Mature hair - Consumer perception

Impact on the Quality and the Appearance of Hair

- **Fiber Diameter Reduction & Alteration**
  - More breakage
  - Brittle hair
  - Loss of volume
  - Thinner hair

- **Melanine production stop**
  - Grey Hair
  - Decreased Shine

- **Sebum/Lipids reduction**
  - Drier Hair & Scalp
  - Rougher texture
  - Decreased Suppleness

- **Impact on the Quality and Appearance of Hair**
  - More breakage
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  - Drier Hair & Scalp
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  - Decreased Suppleness
Which claims for mature / aged hair could be justified? Some examples

- Greying: „Brings back the natural color of the hair“

- Combing related hair damage / breakage: „Protects from hair damage / breakage of brittle mature hair“

- Reduced luster: „Increases luster and shine of dull grey hair“

- Thin hair related loss of volume: „Visible increase of volume for mature hair“

- „Dry“ hair (reduced hair lipids): „Mature hair regains its smoothness and suppleness“
The two approaches to test cosmetics on mature hair
Advantages and disadvantages

1. Research is performed on hair samples from aged donors
   - Higher credibility because exactly the target material
     BUT
   - High variability of hair samples (genetic differences, status of bleaching and washing unknown)

2. Research is performed on natural standard hair tresses
   = proDERM approach
   - Commercially available mixed standard human hair of older donors
   - Defined grey hair percentage
   - Different hair tresses of one batch are well comparable
   - Aging aspects can be further enhanced by standardized bleaching and/or repeated washing of the hair tresses
Grey coverage: Colorimetric measurement of hair tresses
Comparison of results on dyed grey hairs and normally pigmented hairs

For measurement with high precision, tresses are aligned in a rail. A light trap in the bottom of the rail (not visible here) avoids light reflection from the rail material.
Combing related hair damage/breakage: Multiple combing
Product to demonstrate reduction of hair breakage

The tresses are combed repeatedly 3000 to 10000 times
The broken material and the tresses are weighed before and after combing
Results of a multiple combing experiment
Product (B) shows a clear reduction of hair breakage versus untreated (A)

Ten tresses each were combed repeatedly 3000 times
The change of weight of the tresses and their variation are displayed
Reduced luster: Hair shine is assessed by trained raters
Paired comparison of sets of two tresses

A “gloss box” with defined light to create a gloss reflection pattern is used
25 trained raters rank each pair of tresses for gloss intensity
Results of gloss assessment for 3 products and untreated
Product (D) shows a clear improvement of luster versus untreated (A)

Box-Plots for Sum Scores (n=25)

Five hair tresses per product were prepared on specific rolls
The higher the sum score the better the hair shine
Thin hair related loss of volume: Measurement of shadow images by image analysis

tresses are installed in front of a light table
From shadow images of different rotations the volume is calculated
Results of volume assessment for two products
Product (A) increases volume while product (B) makes the hair heavy

Eight hair tresses per treatment were prepared
The higher the mean area the higher the hair volume
Dry hair, reduced hair lipids: Measurement of suppleness

Hair tresses are pulled across polished metal bars

The tress is mounted to a testing machine for stress strain experiments. The dynamic bending of the tress is relevant to assess suppleness.
Results of suppleness assessment for two products
Product (A) has no effect while (B) reduces pulling force / increases suppleness

Five hair tresses per treatment were prepared
Reduced pulling force means increase in suppleness
Dry hair, reduced hair lipids: Measurement of surface roughness
Counting of cuticula defects in the knot test (REM)

The percentage of detached cuticula is determined by interactive image analysis
Results of surface roughness assessment for two products
Products (A) and (B) show a good cuticula «repair» but not (C)
Summary

- There is evidence that mature or aged hair...
  - ... becomes increasingly grey from ~35 years (on caucasian)
  - ... is thinner and more brittle (but grey hair might be coarse)
  - ... has reduced volume and suppleness
  - ... is less shiny and has a rougher surface

- Claims related to mature hair can be substantiated based on ...
  - ... grey hair color coverage
  - ... reduced hair breakability
  - ... increased shine, volume, suppleness
  - ... reduced surface roughness
Conclusions

• Regarding the growth of the cosmetic market in the field of „Best Agers“ the topic „mature or aged hair“ is a new interesting field

• Biophysical measurement techniques on hair tresses are established and enable claims support based on a scientific proof of efficacy (« proDERM Anti Aging Hair Package) 

• Cosmetic hair products with credible, relevant and well supported claims have a good chance to succeed in the market.

Thank you for your attention.
Anti Aging Hair
Biophysical Measurements to Support Anti Aging Hair Claims
See you on booth

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