

Qualities of marketable extension products

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a comparison about the hair
conditioning of second hair...

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Präambel



stop at men: the allonge wig was downright fashionable for men at that time. In Germany, a wig tax was even levied to ensure that the pompous



making hair appear more pompous in keeping with the times and an expression of elevated social status, because hair extensions have their price. Is this still the case today? More and more, there are also cheaper providers, because hair extensions have become much more affordable in recent years. All the more the question of quality arises. But what does quality mean for extensions? A decisive quality factor is certainly how the hairdresser works the hair on the customer, i.e. the quality with which the hair is modelled. However, the hair itself is usually the decisive factor for the price. How do the hair qualities of the suppliers differ and what significance do the different qualities actually have for the wearer? bpc specialties is specialised in the field of hair analysis. Measuring methods developed in-house and now

Extensions, hair extension, hair thickening, hair filling are terms that stand for a contemporary application of second hair. The beginning of the history of second hair goes back longer than many people think. The oldest wig - you wouldn't think it - is about 5000 years old and comes from Egypt. The second hair, which can be admired in the museum in Cairo, has the shape of the timeless hairstyle of mankind: the pageboy head. The second hair also left a clear imprint in ancient Greece and the Roman Empire. Here it had an awe-inspiring effect of the rich to set themselves apart socially. The history of the wig did not even



remained the preserve of the upper classes. Finally, the allonge wig is still common in the United Kingdom today as a state wig for judges and members of parliament.

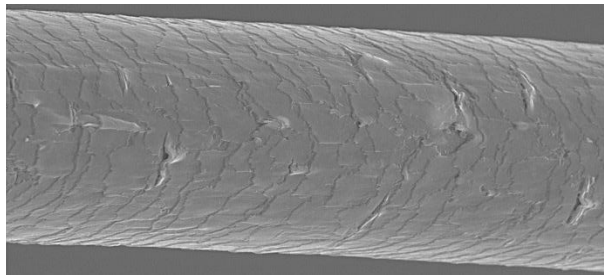
Second hair as a privilege of affluence has survived to the present day - not as wigs, however, but rather as extensions. As hair extensions or hair thickening, it has become a popular means of

recognised worldwide by the industry make it possible to make a tangible and lasting statement about the quality of hair. The testing institution has closely examined the hair quality of 5 companies - from high-end to low-cost providers - and clarifies the current state of affairs in terms of hair quality of extensions:



What is hair quality anyway? With extensions, the first and primarily decisive factor is that the secondary hair cannot be distinguished from your own hair. Furthermore, the secondary hair must be able to be conditioned in the same way as the natural hair, so that the care of the hair has the same effect on both hair types and no differences can be visually recognised. The main characteristics in which the hair can differ are as follows:

- Gloss
- Combing
- Smoothing
- Plasticity
- Surface Structure
- Volume
- Color durability



With these aspects in mind, the hair of the various suppliers was now examined using special measuring methods. For this purpose, the hair was purchased undercover from the suppliers. Two market-leading premium brands for extensions were included, which have been on the market since the beginning of extension marketing. Furthermore, hair was purchased from 2 brands that offer significantly lower prices than the premium brands. Last but not least, hair was purchased from a newcomer premium brand, which can be classified as high-priced and also - like the other two premium brands - advertises top hair quality.

- Provider A: Premium newcomers
- Suppliers B and C: Renowned - established in the market - premium brands
- Suppliers D and E: Discount brands established on the market

In order to be able to make a real comparison of the hair qualities, the properties of "virgin Euro hair" were also determined. This is a hair quality that probably best reflects the characteristics

of a Central European wearer. In each case, 25 strands of comparable shades were purchased. Brown, blonde and red shades were compared.

As an excerpt from the numerous measurement methods carried out, 4 measurement methods are now shown as an impression:

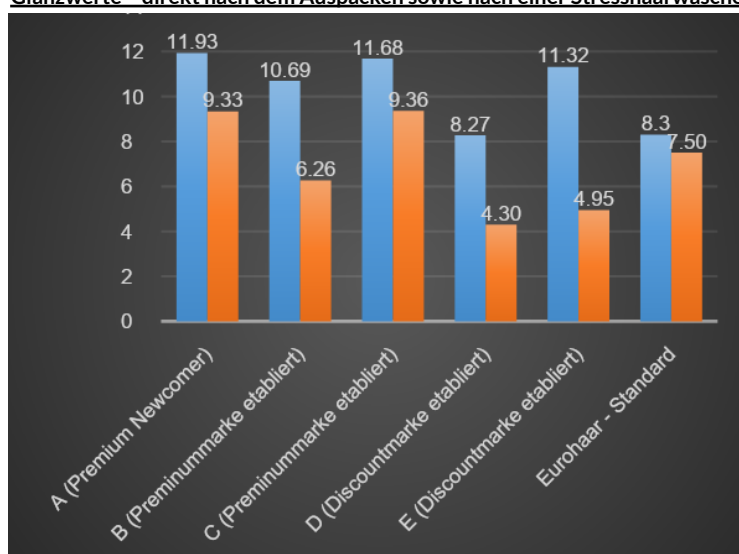
Gloss...

The shine of the hair is measured using a special, globally recognised shine measurement. Here, the light reflection behaviour of the hair is determined. The reflection is recorded as a gloss unit (GU unit). A very good value is around 10 on the hair - the worst is 0 (=no reflection). The value was determined directly after delivery. Subsequently, a stress hair wash was carried out. Here, the hair is washed under defined conditions in an ultrasonic bath to simulate several hair washes. A shine measurement after the stress wash shows how the shine behaviour will be reflected in the wearer's hair after a few weeks. Immediately after delivery, the shine behaviour of all premium brands is excellent and exceeds the shine of Euro hair. There are already differences here among the less expensive suppliers. While supplier E can easily keep up with the premium brands here, the shine of the hair from supplier D can be classified as worse.

After the stress hair wash separates ...

After the stress hair wash, the first clear quality features are now visible, as superficial conditioning of the hair has now been removed. Premium provider C continues to deliver excellent shine values here - the microscopically observable intact cuticle layer is responsible for this. The newcomer premium provider also delivers very good values. With the cheaper suppliers, it is clear to see that the shine drops to its knees after a few washes of the hair. The shine is only half as good. Surprisingly and unexpectedly, the shine of premium provider B also decreases significantly after several hair washes.

Glanzwerte - direkt nach dem Auspacken sowie nach einer Stresshaarwäsche:

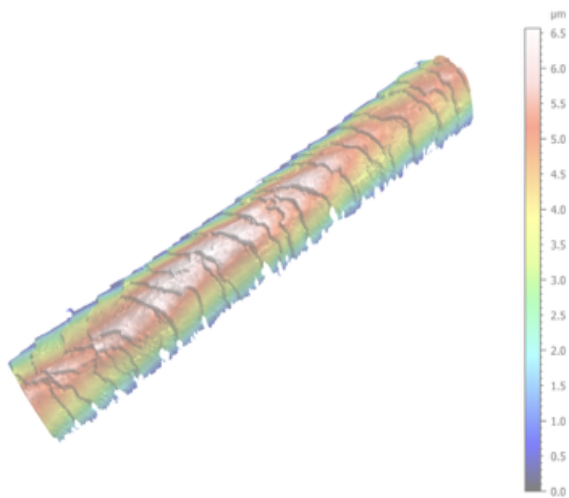


Blue: gloss value after unpacking; Orange: gloss value after stress cleaning

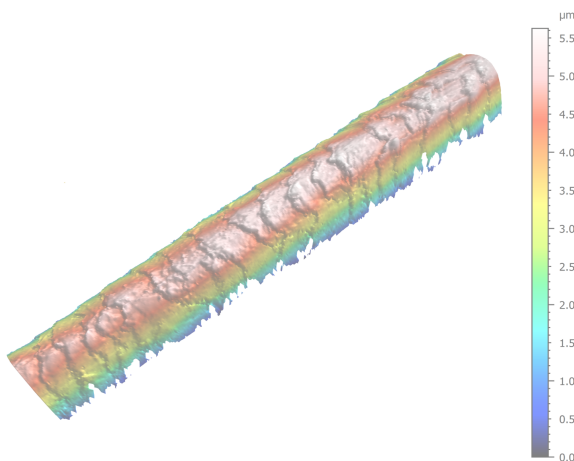
Hair surface...

To get more to the bottom of the shine results, the hair surface was microscoped using a special 3D technique called confocal microscopy. After microscoping 35 hairs of each ordered hair type, a clear picture of representative surface images of the individual suppliers emerged. Premium supplier C as well as the premium newcomer show an intact cuticle very similar to Eurohair.

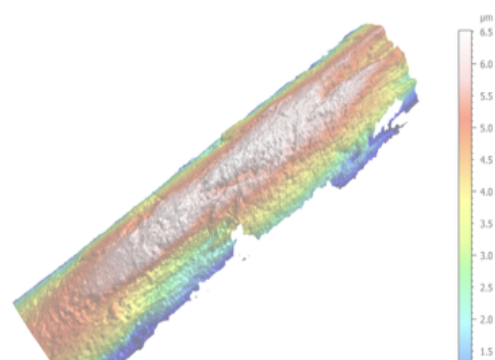
Eurohair:

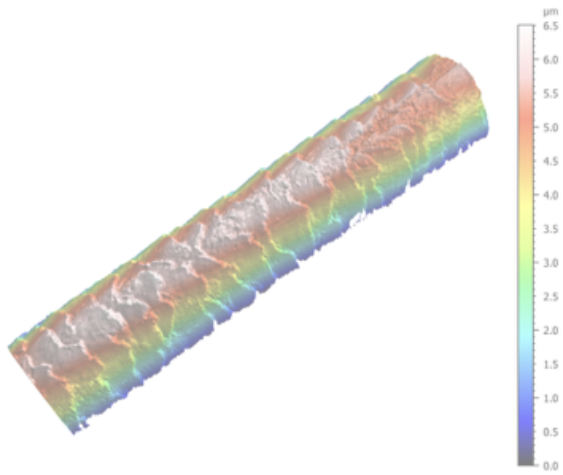


Premium Newcomer A:

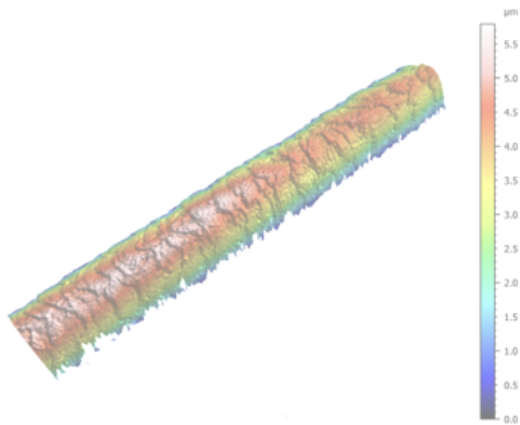


Premium Provider B:

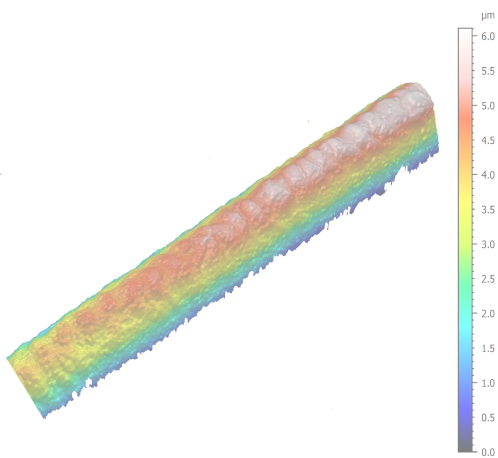




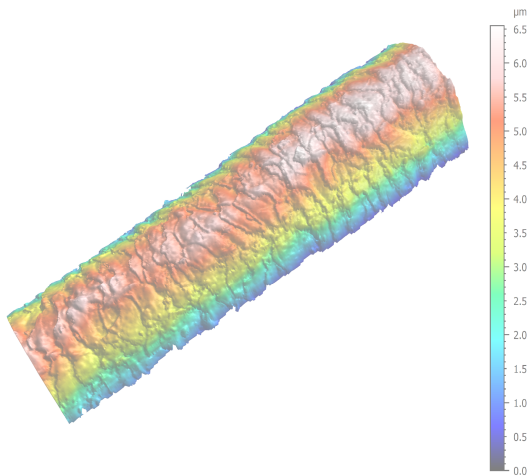
Premium Provider C:



Discount provider D:



Discount Provider E:



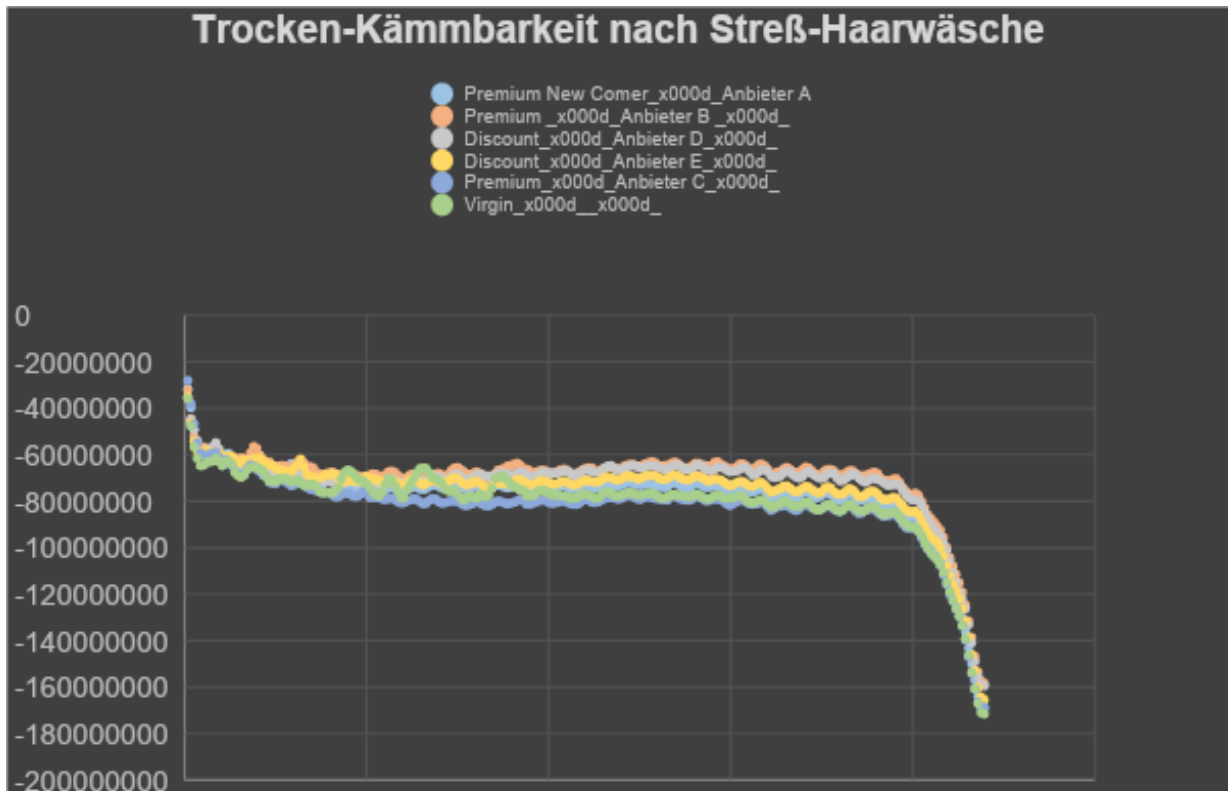
Surprise regarding premium provider B...

Hier ließen sich 2 unterschiedliche Haarstrukturen nachweisen. Zu ca. 70% war eine intakte Schuppenschicht gegeben. Ca. 30% der mikroskopierten Haare wiesen hier jedoch keine erkennbare Schuppenschicht mehr auf. Da die Schuppenschicht ein wesentliches Merkmal für die Eigenschaften des Haares ist, ist dies eine erhebliche Einschränkung im Premiumbereich.

Ebenfalls lässt sich bei Discount-Anbieter E nahezu keine Schuppenschicht mehr nachweisen. Bei Anbieter D ist eine Schuppenschicht klar zu erkennen, jedoch ist eine gewisse Schädigung zu erkennen, die Schuppenschicht erschien gequollen. Eine möglichst intakte Schuppenschicht ist ein maßgeblicher Faktor für langanhaltenden Glanz – ein Garant, was im Premiumbereich nicht immer gegeben ist.

Combability...

After the stress hair wash, the combability of the hair has been measured. This is done through a special acoustic measurement. Here, the friction noises are recorded, which occur during a standard combing of the hair.



	Newcomer - Premium-Anbieter A	Premium-Anbieter B	Premium-Anbieter C	Discount-Anbieter D	Discount-Anbieter E
CDI:	2,74	100,10	8,18	81,21	20,84

Here, the newcomer clearly delivers the best result - closely followed by premium provider C.

Once again, premium provider B...

The more noise is generated, the worse the combability of the hair is and the higher the course of the frequency curve, which reflects the noise development during combing. A combability index (CDI) can be calculated from the values, which reflects how similar the combability behaviour of the individual extensions is to Euro hair. The smaller the CDI, the more similar the combability is to Euro hair.

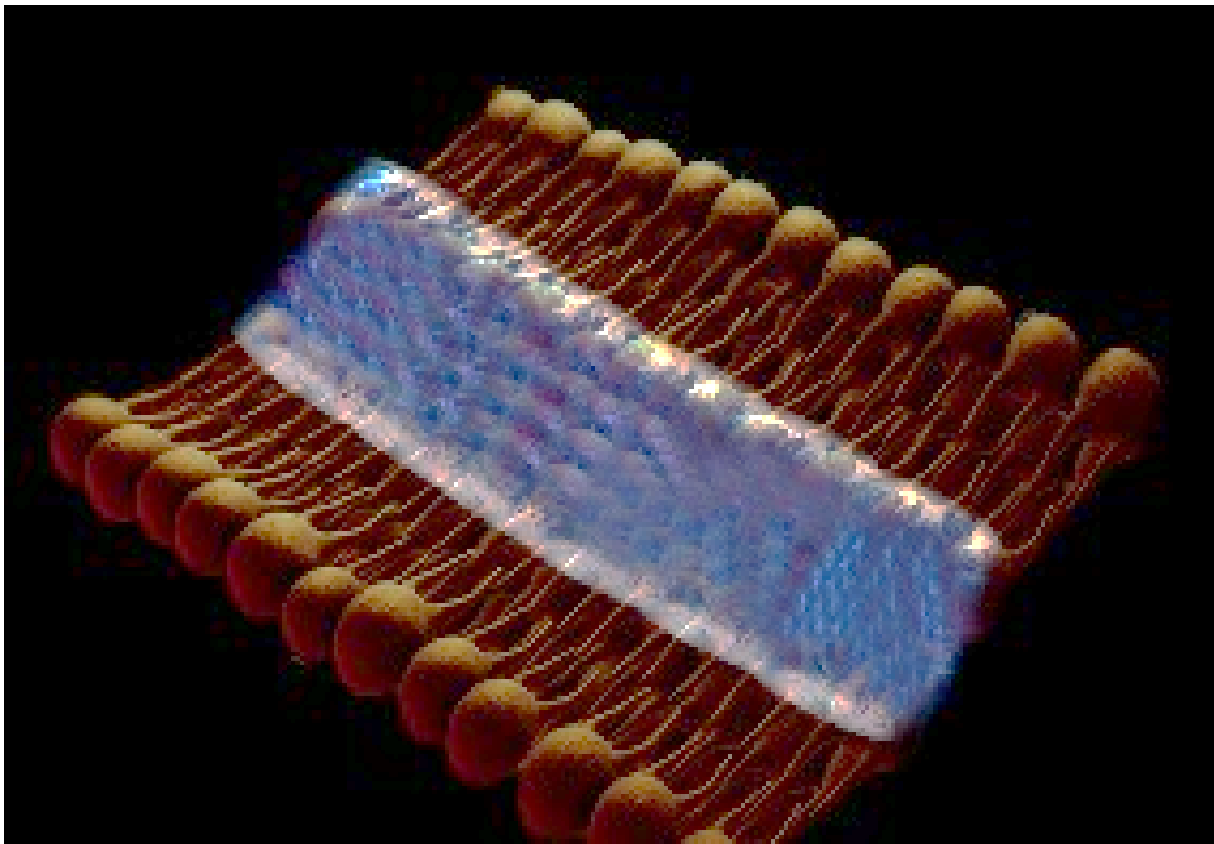
Presumably due to the 2 different hair structures, combability after a stress hair wash is critical with premium provider B.

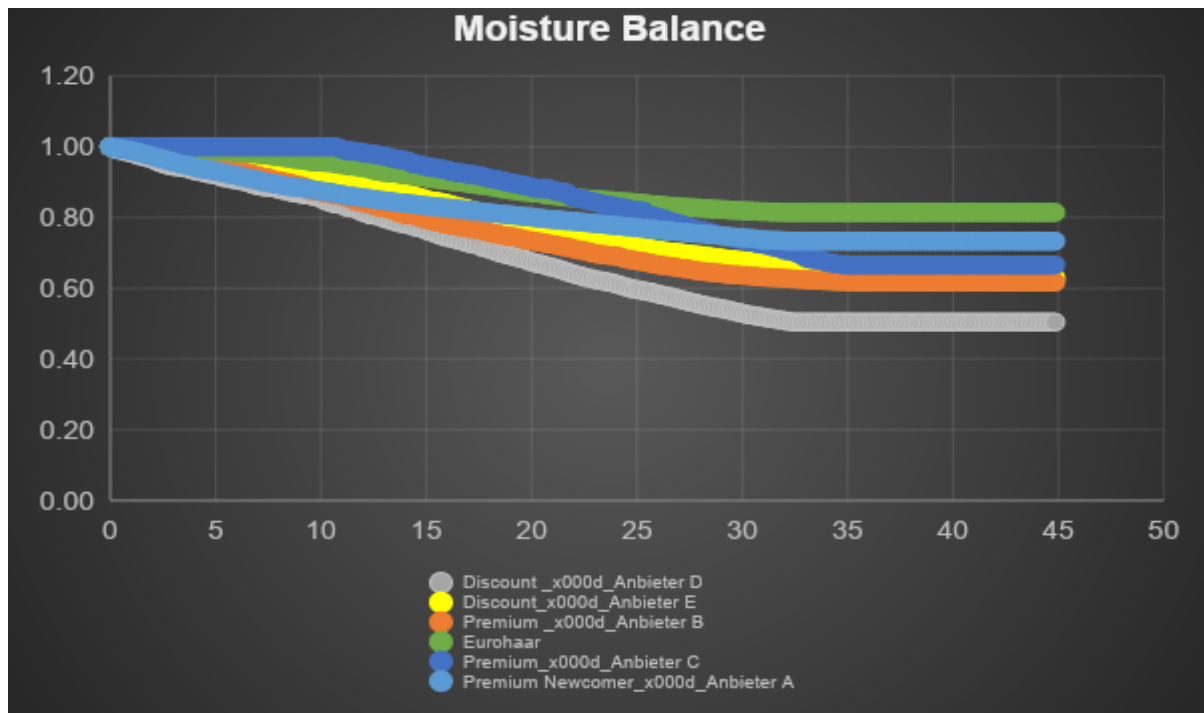
There are striking differences in the low-cost sector...

However, there are also clear differences in the inexpensive segment. Vendors D and E differ significantly - but the ease of combing in the premium sector is by no means achieved.

Moisture Balance...

One of the most interesting factors of a hair is its moisture balance. This is a decisive factor for the "health" of the hair. The key to the hair's moisture balance is a type of putty found between the fibre strands and the hair cuticle, the so-called cell membrane complex. This has the property of binding water. The more water that can be bound, the healthier the hair and the more plastic and shiny it appears. The bound water is shown in the following diagram. The less the curve falls, the better the moisture balance of the hair.





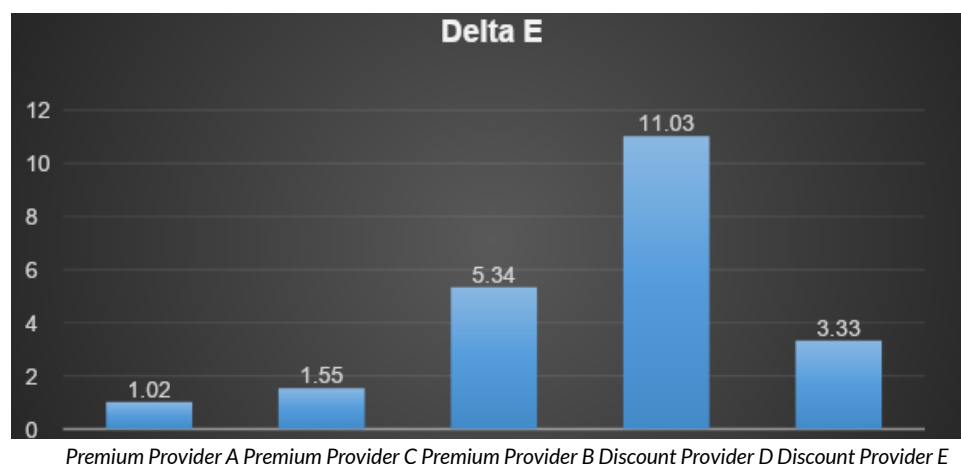
Newcomer A and premium provider C are most similar to Euro-Haar in terms of Moisture Balance and are to be favoured here. The Moisture Balance of discount provider E is surprisingly positive.

Different hair qualities in the hair bundle influence the hair quality...

Again, it is noticeable that premium provider B has a critical moisture balance. Here, the 30% of hairs that were identified without a cuticle lower the quality. Discount provider D confirms the less positive quality.

Colour retention

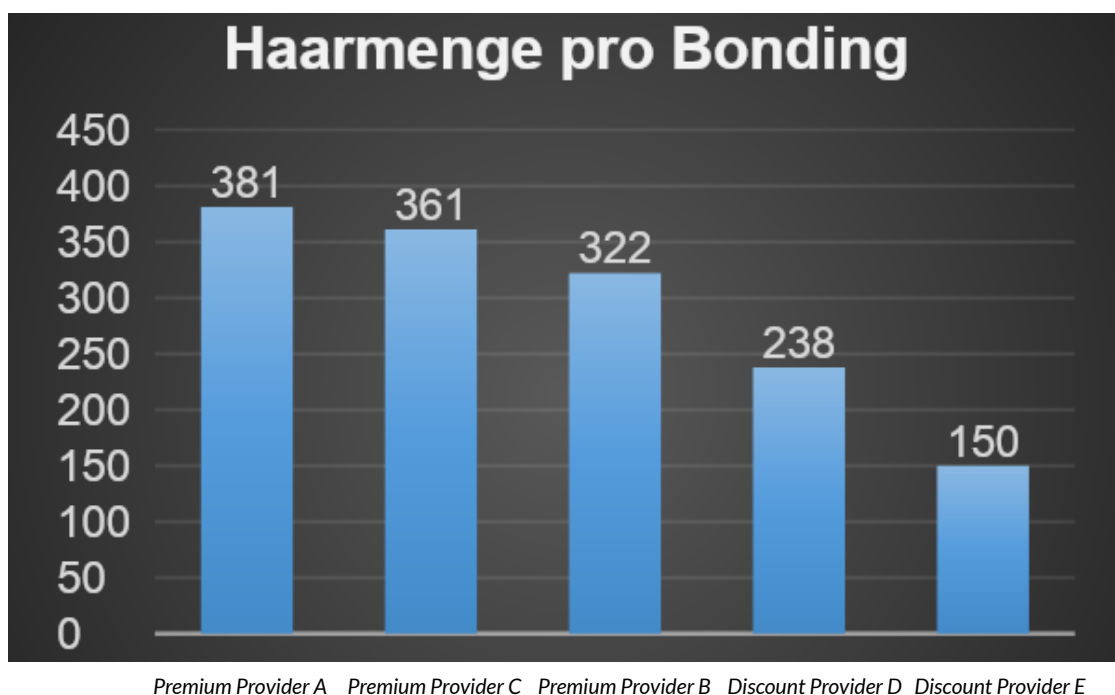
To assess the colour retention of the hair, light blonde extensions were dyed with an oxidative hair colour (7-0) and then subjected to a stress hair wash. The extent to which colour differences occur before and after hair washing is measured. This is determined by the so-called colour difference Delta E. If the value is small, the difference is small - if the value is large, the colour difference is also large.



Here, all premium suppliers show that they live up to premium standards - the premium brands deliver the best values. Discount provider E. surprises positively again.

Hair density of the bondings

Another quality feature is the average amount of hair processed per bonding. For this purpose, 35 bondings from all providers were counted and a statistical average was determined. The premium providers process significantly more hair than the discount providers. Discount provider E processes on average less than 50% of the amount of hair that is found in the premium price sector.



Conclusion: Premium is not necessarily premium ...

Low-cost providers can deliver acceptable quality...

After the overall test, which included many more methods, one thing is certain: a premium presentation does not always equate to premium hair quality. Here, clear conspicuousness was shown by the use of different hair qualities in the same bonding, whose properties are expansively different. Here, the hairdresser should let the quality actually be proven by more than words and image brochures. The quality of the hair decreases in particular if not all of the hair used has an intact cuticle layer, as this significantly determines the natural properties of the hair.

Overall rating

The following table provides an overall assessment of the hair quality:

- Provider A: Premium newcomers
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Provider:	A	B	C	D	E
Combing	5	1	2	3	4
Gloss I	5	2	4	3	1
Gloss II	4	3	5	2	1
Sebum I	5	3	4	1	2
Sebum II	4	4	4	3	5
Moisture Balance	5	2	4	3	1
Mikroskopy I	5	1	4	3	2
Mikroskopy II	5	1	3	4	2
DSC I	5	3	4	2	1
Fingergrip	4	4	5	5	4
Wash resistance I	4	2	5	3	1
Wash resistance II	5	4	2	1	3
DSC II	4	4	5	5	5
Hairquality	5	4	3	2	1
Ranking:	65	38	54	40	31