



KULSEN & HENNIG Nature's Brilliant Colours

Newsletter No. 4

08/2010

In this Edition

Kulsen & Hennig News

Our New Newsletter Archive for You
Your Questions - Our Answers
From our collection: Fancy White Diamonds

All about Natural Coloured Diamonds

Colour graduation of coloured diamonds
The Closing Date for the HRD Award

Gemmology Corner

Cause of Colour in Grey Diamonds
Volcanoes and Diamonds

Kulsen & Hennig News

Our New Newsletter Archive for You

We are very happy to have such avid readers! We have set up an archive on our homepage for all those who want to read our earlier newsletters again or want to recommend them to others. The newsletters are archived here in German, English and French.

Visit our website www.kulsen-hennig.com and select "Wissen". Or just click [here](#).



Your Questions - Our Answers

"What do I need to be aware of as a as goldsmith when I work with coloured diamonds? Is it possible for the stones to change colour when they are heated for instance?"

We have collated some facts for hands-on people.



[Read more...](#)

From our collection: Fancy White Diamonds

This time we would like to show you several stones in the special colour Fancy White, also known as "Milky" in the trade.

Fancy White diamonds have an opalescent, cool appearance. Microscopically small inclusions lend the diamonds their milky white colour.



Image: pear shape 0.61 ct fancy white

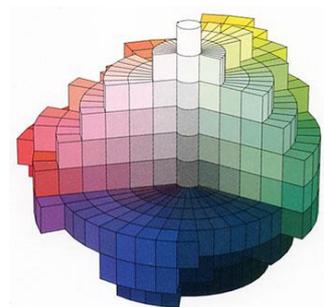
[More fancy white diamonds...](#)

All about Natural Coloured Diamonds

Determining the Colour of Coloured Diamonds

The value of coloured diamonds depends more on the rarity of the colour and its intensity than is the case for colourless diamonds.

How are the diamond colours described in a certificate? What systems are used for the professional colour determination of diamonds? Which laboratories draw up certificates for coloured diamonds? We have summarised the most important facts and addresses connected with this subject.



[Read more...](#)

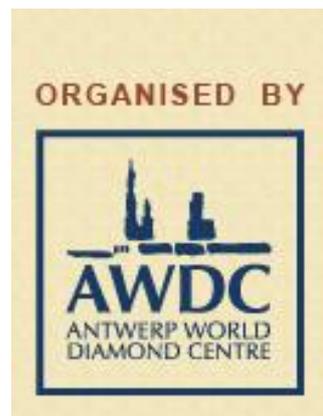
The Closing Date for the HRD Award

An important date for all jewellery designers seeking to enter their diamond jewellery design ideas into the competition:

All participants must have registered and submitted their designs by 15th October 2010.

"You and Me" is the motto of this year's competition that is organised every two years by Hoge Raad vor Diamant in Antwerp.

For more information and prizes, click [here](#).



Gemmology Corner

Cause of Colour in Grey Diamonds

The demand for grey diamonds has grown considerably. Hardly surprising when you think about their unique cool elegance. As a neutral colour, grey is an ideal partner for combining with other colours and metals. There are lots of interesting facts about this beautiful and rare diamond colour.



Image: oval cut 1.52 ct fancy light grey

[Read more...](#)

Volcanoes and Diamonds

The eruption of the Icelandic volcano Eyjafjallajökull interrupted air traffic for weeks, reminding us all of how powerful a natural phenomenon can be. You are probably aware that volcanoes have something to do with diamonds. But what exactly? Take a few moments to find out a bit more.



[Read more...](#)



News from Kulsen & Hennig

Your questions – our answers

What do I need to be aware of when heating natural coloured diamonds?

Natural coloured diamonds can be heated like colourless diamonds carefully and slowly. However they need to be coated with flux to prevent oxygen entering which in turn could burn the diamond or turn it milky. After the heating process, never cool the diamond down in water. Unless it is entirely necessary, diamond jewellery should never be placed in fire and it should be laser-welded rather than soldered.



Do coloured diamonds have more inclusions than colourless ones?

In principle, there are coloured diamonds in all degrees of purity. In most colours, the inclusions are plainly visible. Inclusions may only be difficult to spot in very dark colours. The inclusions in black diamonds are not visible at all which is why they need to be set very carefully. Usually very small particles or inclusions are responsible for the black colour in black diamonds. There is a higher risk of breakage when setting and heating them than for other coloured diamonds.



Is there more inner tension inside brown diamonds than in other types?

Whether a diamond has more inner tension than another one does not necessarily have anything to do with its colour. It is however correct to say that a larger number of diamonds from some diamond areas do have a greater inner tension. These include mines in Australia and Africa. Whilst the largest percentage of brown diamonds is found in Australia, it cannot be said that the brown diamonds automatically have a higher tension. Diamond cutters detect inner tensions in large diamonds using a polarisation filter. This is an optical attachment for microscopes that makes those points visible where the light is diffracted. These points are an indication of tension.



Are stains, ethanol or putty solvents damaging?

No. Coloured diamonds are resistant to these chemicals just like colourless diamonds.



Can colour-treated diamonds change their colour when heated?

Black diamonds whose colour has been improved by heating retain the same black colour even after soldering. Other colour-treated (irradiated) diamonds can be heated up to 400°C – 600°C without changing their colour. Diamonds treated with the colour green may only be heated up to max. 200 or 250 °C, otherwise their colour will change.





Kulsen & Hennig

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Newsletter No. 4

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News from Kulsen & Hennig

From our range: Fancy White Diamonds

Fancy White diamonds have an opalescent, cool appearance. Microscopically small inclusions lend the diamonds their milky white colour.

By the way: Colourless diamonds are often wrongly called white diamonds.

We stock these stones as pavé setting diamonds from around 1.5 mm, and as individual stones from 0.30 ct in diverse cuts.

Some interesting single white stones from our stocks:

| | |
|------------------------|----------------------------|
| Marquise | 0.28 ct |
| Oval cut | 0.36 ct |
| Brilliant cut | 0.41 ct |
| Brilliant cut | 0.43 ct |
| Pear shape | 0.61 ct |
| Marquise | 0.74 ct |
| Brilliant cut | 1.02 ct |
| Oval cut | 1.02 ct |
| Pair of brilliant cuts | 2.09 ct (1.04 and 1.05 ct) |

| | |
|-----------------------|--------------|
| Lots (brilliant cut): | 2.70-3.50 mm |
| | 1.80-2.70 mm |



Marquise 0.74 ct



Pear shape 0.61 ct

If you require more information, please give us a call or send us an e-mail:
info@kulsen-hennig.com



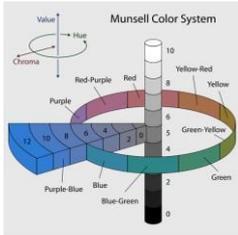
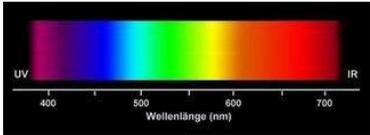
All about Natural Coloured Diamonds

Determining the colour of coloured diamonds

Why determine the colour of natural-coloured diamonds?

During the graduation of colourless diamonds, the *absence* of colour is assessed, whilst in the case of coloured diamonds the *presence* of colour is assessed. Steps must be taken to not only identify the colour but also any secondary colours. Also the colour brightness and colour depth are determined. Colour depth refers to their saturation and intensity.

What methods are used?

| Observation by means of comparison systems | | Measurement of wavelengths | |
|--|---|---|---|
| <p>The colour graduation of a coloured diamond is always determined from its table side. In contrast, colourless, "white" diamonds are colour-graduated with the table facing downwards. Colours are always determined under the same neutral background conditions in the same light (by daylight: facing north. Daylight lamp: 6500 K)</p> | | <p>In principle, colour is light. Every colour has a characteristic number of electromagnetic oscillations per second. These can be measured; this process is applied when measuring colour.</p> | |
| Reference stones | Munsell Color System | Colorimeter | Spectrophotometer |
| <p>Above all, they serve to define colour <i>ranges</i></p>  <p>Example: Reference stones for colour graduation of colourless diamonds</p> | <p>The Munsell System allows any colour within the whole range of colours to be described based on its <i>Colour Brightness Colour depth (saturation and intensity) attributes.</i></p>  <p>The Munsell Book of Colors contains 1605 opaque colour plastic disks that are used to compare against any type of material.</p>  <p>However the possibilities of these systems are limited for the graduation of diamonds. For example, the comparison of translucent gems using opaque colour disks is too inaccurate. Also, the diamond colours produced in nature are not the same as those in the Munsell System which describes all possible visible colours. Therefore a differentiation must be made between the most intensive blue and the most intensive natural blue found in a diamond.</p> | <p>The colorimeter and spectrophotometer are instruments used for measuring the colours of gems.</p> <p>Ultimately it is the overall colour effect of a diamond that is decisive, more precisely its colour effect on the human eye. The assessment of the expert can therefore never be replaced by measuring devices, they can only underscore his opinion.</p> |  |



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What can certificates for colour diamonds offer?

In the trade, certificates are a means of setting prices and serve communication purposes. In addition to determining the colours, secondary colours and the colour depth, certificates also provide information about the origin of the colour diamonds, about their colour distribution and the cause of the colour (natural or colour treated). Only gemological laboratories with the respective equipment and expertise can provide proof of colour treatment.

Due to the fact that different methods are used from laboratory to laboratory, it cannot be ruled out that the colour of the same diamond will receive two different assessments.

Slightly different nuances of colour, especially in the case of rare diamond colours such as pink, blue or yellow, could lead to significant price differences. *Therefore before buying a certified diamond, always look at the diamond yourself first.*

It should be noted that the same colour can be given different designations by different institutes. For instance, HRD has a colour which it calls Fancy Olive, whilst GIA calls the same colour Fancy Greenish Brownish Yellow. In 1995 GIA introduced the differentiation between Fancy Deep and Fancy Vivid for its certificates. HRD does not make this differentiation.

Trade with uncertified diamonds

Producing a certificate for a diamond costs time and money. If a diamond does not have a certificate this does not necessarily mean it is flawed. A certificate can still be drawn up at the customer's request. Important: Champagne-coloured (brown) diamonds are often offered without a certificate because here the prices of the various colour nuances do not vary that much. Generally, the judgment of an experienced diamond trader you trust is adequate when trading with uncertified diamonds.

A selection of gemological laboratories that will draw up certificates for coloured diamonds:

| Name | Subsidiaries | Web Link |
|----------|--|--|
| GIA | New York, Carlsbad (USA) Annahmestellen für Service weltweit durch Rapaport z.B. Antwerpen (Belgium) | www.gia.com |
| HRD | Antwerpen (Belgium) | www.hrdantwerp.be |
| IGI | Antwerpen (Belgium), New York (USA) | www.igiworldwide.com |
| SSEF | Basel (Switzerland) | www.ssef.ch |
| Gübelin | Luzern (Switzerland) | www.gubelinlab.com |
| DPL | Idar-Oberstein (Germany) | www.diamant-prueflabor.de |
| GemLab | Balzers (Liechtenstein) | www.gemlab.net |
| CCIP | Paris (France) | www.diamants.ccip.fr |
| Ö.Gem.G. | Wien (Austria) | www.gemmologie.at |



Gemmology Corner

Cause of Colour in Grey Diamonds

Pure grey diamonds

Really pure grey diamonds without any secondary colours are very rare and therefore very sought-after and valuable. The famous *Aurora Collection*, a collection of 296 natural coloured diamonds, contains seven pure grey diamonds in various sizes and cuts.



Oval Fancy Light Grey 1.52 ct

Grey diamonds with secondary colours

More frequently grey diamonds come with one or several secondary colours. Common secondary colours are: yellow, brown, green. Grey is perceived as warm when it contains yellow or brown, and appears cool when combined with blue or green secondary colours. Blue as a secondary colour to grey increases the value of grey diamonds enormously.

Causes of the colours in grey diamonds

The grey colour of grey diamonds is a result of one of two possibilities:

1. Light scattering through minute (grey) particles, for instance minute graphite concentrations of the carbon in transparent diamonds.
2. Light absorption: certain wavelengths of the (day)light are absorbed in the stone. Deposits of boron and hydrogen atoms are responsible for the absorption of this light.

Important: these impurities are located on the elementary level of the diamonds. They should not be confused with crystal inclusions! Grey diamonds come in all degrees of purity.

Grey as a secondary colour

Secondary colours are those colours that are perceived as less dominant compared to the main colour.

When naming diamond colours, the secondary colour is always stated before the main colour, e.g. *greyish violet*. The value of a coloured diamond may be diminished when grey is the secondary colour.



Princess Fancy Greyish Violet



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Newsletter No. 4

08/2010

Diamonds with a grey appearance

"Naats"

This is a group of basically colourless diamonds whose grey appearance is the result of a quantity of grey or black inclusions. Due to the lack of colour of the basic material, they are also called "White Naats". The exact origin of the word is uncertain. However in Dutch the word "Naat" means joint, seam or seam joint. In connection with diamonds, a "Naat - seam" can be a twin line which is called a 'knot' in English.

One of the benefits of these diamonds is that they are very inexpensive. However when carefully cut and selected, they also have a beautiful anthracite colour and can be very brilliant. When placed flat in a pavé setting, they have an attractive, dynamic and deep colour.

"Silvermist"

The Rio Tinto Diamond Group markets the naats from their Argyle Mine in western Australia under this name. This mine is also known for its champagne coloured diamonds.



Ring: Grey diamonds and 18 carat white gold
www.grupp-tilgner.com



Pendant: Prasiolite, grey diamonds and 18 carat white gold
www.grupp-tilgner.com



Kulsen & Hennig

Nature`s Brilliant Colours

Newsletter No. 4

08/2010

Gemmology Corner

The connection between volcanoes and the creation of diamonds

How is a diamond created?

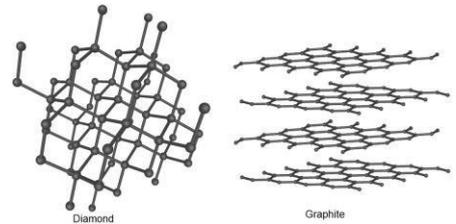
The particularly dense and sturdy arrangement of the carbon atoms in a diamond is created under enormous temperatures and pressure which are only found below the earth's surface at depths of around 150 to 300 km, or in very rare cases, where meteorites have hit the earth.



A diamond in its volcanic bedrock, the kimberlite

What is a diamond?

The diamond material is made almost exclusively of carbon. Its extraordinary strength is due to the arrangement of these carbon atoms in a crystal grid. If one looks at their elementary composition, diamonds and graphite differ primarily in the way the carbon atoms are connected.



Under what circumstances does a diamond change to graphite?

The diamond material can be changed to another type of carbon, namely graphite, in certain circumstances:

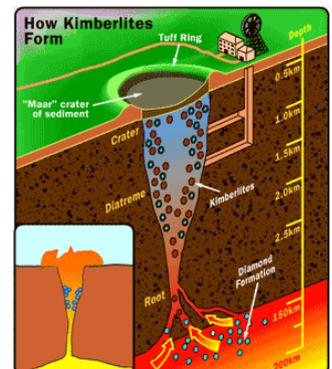
If a diamond is heated in the absence of air to over 1700°C, it changes to graphite. If a diamond is heated in the air to around 800°C and more, it will burn.

If the diamond is removed very slowly from its pressurised state at the depth where it is produced up toward the surface where the pressure levels are different, the dense and symmetrical carbon structure is broken down. The diamond turns to graphite.

Why do diamonds not turn to graphite or burn when they are removed from the depths of the earth toward the earth's surface?

When volcanoes erupt, the stone masses below the surface are ejected upwards very quickly at explosive speeds. In some eruptions, magma from the depths of the diamond layers are transported upwards toward the surface.

The speed with which the diamond is transported upwards in its bedrock prevents the typical diamond structure of the carbon atoms from being changed. Also the bedrock ensures that the diamonds cool down too quickly to change to graphite or to burn.



After the eruption of the Icelandic volcano *Eyjafjallajökull* will diamonds be found?

No. The depth of this volcano fissure nowhere near reaches the depths of where diamonds are created.