



KULSEN & HENNIG Nature's Brilliant Colours

Newsletter No. 2

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Kulsen & Hennig News

***inhorgenta europe 2010*: We look forward to seeing you in Munich!**

Welcome to the second edition of our newsletter!

We are pleased with the positive feedback from our first newsletter, especially from our readers who sent us such inspiring and enthusiastic responses. Thank you!

Once more we will be exhibiting at ***inhorgenta europe 2010*** and are pleased to have the opportunity again to meet you all in person at the show. This is the thirteenth year we've participated in this trade fair, and we will display our collection of Natural Fancy Coloured Diamonds in their entire splendour and in many unique colours, cuts, and sizes.

We cordially invite you to come visit us at our **new** booth location:

Hall C1 / Booth 308

To see the hall map [click here](#)

Sincerely

Your Kulsen & Hennig Team



www.inhorgenta.com

Our New Colour Grading Card for Champagne Diamonds

In the 1980s, the company Argyle Diamonds created a colour classification system to describe the different tones of Champagne Diamonds. The grading system has seven classifications - C1 to C7 - and today is internationally recognized in the trade.

We have professionally photographed seven reference diamonds and designed a practical colour classification card for Champagne Diamonds. The front of our colour grading card shows the colour scale, with each grade representing a variation or shade from C1 (Light Champagne) through C3/C4 (Medium Champagne) to C7 (Cognac). This system allows for easy communication when ordering Champagne Diamonds over the phone or electronically as well as when describing the various hues and tints of Champagne Diamond to clients in your stores.

On the back of our colour grading card you will find information about the particular causes of each unique colouration and the sundry countries of origin of different types of Champagne Diamonds.

Dominik Kulsen (Switzerland)

Kulsen & Hennig (Germany)

Champagnerfarbene Diamanten / Champagne Diamonds / Diamants de Couleur Champagne



Naturfarbene Diamanten | Natural Fancy Coloured Diamonds | Diamants de Couleur Naturelle

In February, we are launching the Champagne Diamond colour grading card at the **inhorgenta europe** trade fair. This represents the first of a series colour grading cards we are developing for Natural Fancy Coloured Diamonds. Please pick up your own colour grading card from our booth in Munich

From Our Collection: 0.81 ct Emerald Cut Fancy Pink

This natural Fancy Pink diamond comes from the renowned Argyle Diamond Mine and is an especially rare and valuable diamond due to its prized hue.

The sleek emerald-cut shape of this unique diamond lends it a quiet elegance. The barely visible crystal inclusion is located under the edge of the table facet, creating the charming effect of a small Marilyn Monroe beauty spot.

The GIA diamond report places the natural coloured diamond in the Fancy Pink colour range. [Please click here](#) to see the GIA diamond report for more details.

Please do not hesitate to contact us for further information about this diamond.



All About Natural Coloured Diamonds

The *Hope Diamond* and the *Wittelsbach-Graff* at the Smithsonian Institution

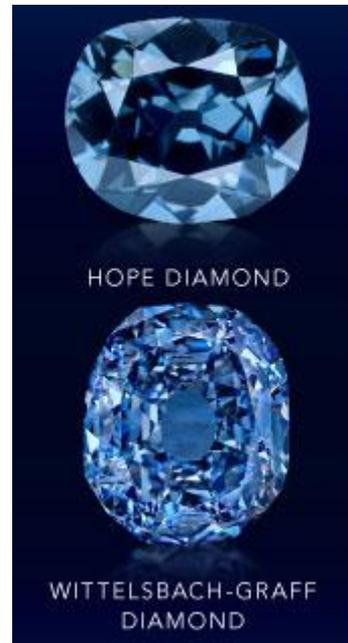
The two most famous (and probably the most expensive) natural blue diamonds in the world will be on exhibit together for the first time at the Smithsonian Institution in Washington, D.C. The event has stirred speculation that the two diamonds may originate from the same diamond rough.

The *Hope Diamond* recently made headlines due to the creation of a new necklace for the famous blue diamond. The new piece commemorates the 50th anniversary of the *Hope's* donation to the Smithsonian. Last fall, the public was asked to vote for its favourite of three designs by Harry Winston, and the winner - *Embracing Hope* - is presently being hand crafted in their atelier. In the meantime, the *Hope Diamond* is on display unset, and this historic - and historical - event has captured the attention of jewel aficionados and scientists around the world.

The *Wittelsbach-Graff* is named after its prior owners, members of the noble Wittelsbach family (of the Bavarian royalty), and its current owner, Lawrence Graff, the famous London jeweler. Graff bought the blue diamond at Christie's Auction for approximately EUR 18,000,000 and had it carefully re-cut.

Remarkable Similarities

After the re-cutting, the 31.06 ct Wittelsbach-Graff was recently graded by the Gemological Institute of America (GIA) as Fancy Deep Blue and Internally Flawless. Prior to its re-cutting, the *Wittelsbach-Graff* was graded Fancy Deep Grayish Blue - the same as the *Hope Diamond*! The *Hope Diamond* weighs 45.52 ct, and was graded as Fancy Deep Grayish Blue, with a clarity grade of VS1, in 1997.



Both diamonds can likely be traced back to the same country of origin: India. In the 17th century, the well-known traveler and gemstone dealer Jean Baptiste Tavernier brought back a blue diamond from India which was later known as the *Hope Diamond*. It is highly possible that Tavernier also procured the *Wittelsbach-Graff* from India. A diamond is mentioned in Tavernier's travel reports: a beautiful "violet diamond" weighing 112 carats. Could this be the rough diamond from which the two very famous and similar diamonds emerged?

Scientific Research Hopefully Sets the Record Straight

"The two diamonds had until now never been studied and compared together" said Jeffrey Post, curator of the National Gem Collection. "Now we have the unique opportunity to compare gemmological data." And so, for the first time, their phosphorescence will be directly compared. Their spectrums will also be evaluated to see if they are related.

Will scientists be able to show that the similarities of the *Hope Diamond* and the *Wittelsbach-Graff* are not a coincidence? Will they be able to prove that they originate from the same rough crystal? We will follow these developments with great interest and keep you informed.

Preliminary Research Results

Just before publishing our newsletter, GIA's Gems & Gemology eBrief newsletter announced some results from preliminary tests conducted on the two famous blue diamonds by the Smithsonian Institution's gemmologists. Although both diamonds have many optical and physical similarities, certain key test results sufficiently differed to create some doubt about the possible relation between the *Hope* and the *Wittelsbach-Graff*. Although testing has not been yet concluded, it is unlikely that the *Hope* diamond and the *Wittelsbach-Graff* were cut from the same diamond rough.

The Argyle Diamond Mine

Exploration

The commercial launch of the renowned *Argyle Diamond Mine* in 1985 was preceded by many years of exploration and a series of initial discoveries in the Western Kimberley region of Western Australia in the 1970s. Several diamonds and indicator minerals found along waterway beds led to the discovery of a series of pipes in the Ellendale area (near Derby, also in Western Australia). Although 12,000 diamonds were recovered from 230,000 tonnes of lamproite (the diamond-bearing ore), it was determined that the quality was not high enough to warrant the establishment of a mine.

Open Pit Mining

In 1979, a geologist found a small diamond in an anthill. This discovery eventually resulted in the exploration of the main Argyle mine pipe in use today – the *Argyle Kimberly 1*, also known as the AK1. Construction of the Argyle mine began in 1983 as a result of the discovery of the main diamond pipe and a three year period of assessing the deposit. Alluvial mining continued in the area while the mine was under construction.

The Argyle's open pit was mistakenly named Argyle Kimberlite 1 (referred to as AK1) by geologists who initially thought the diamond-bearing rock was kimberlite, the traditional diamond-bearing rock. By the time the rock was discovered to be lamproite, the diamond-bearing pipes of ore in the area had already been identified and numbered sequentially.

The AK1 open pit is two kilometres long and one kilometre wide. It covers an area of almost 300 hectares. Approximately 30 million carats of diamonds are annually produced by the AK1 mine alone.

The owners of the AK1 and the company responsible for its discovery and production, *Rio Tinto Ltd.* (one of the largest mining companies in the world), foresaw that the *Argyle Diamond Mine* would eventually cease to be an economically viable source of diamonds as an open-pit mine. They hoped to continue extracting diamonds through underground mining and began conducting feasibility studies to investigate the possibility of doing so.

Underground Mining

Developing an underground mining operation below the existing open pit of the *Argyle Diamond Mine* required careful analysis and some ingenuity. An exploratory decline was built to gather information for the feasibility studies. The decline is 2.5 kilometres long and intersects with the lamproite ore 85 metres below the AK1 open pit. The results from the exploratory decline were positive.



Foto George Bosshart

To create an economically viable underground mine, *Rio Tinto* needed to employ the safest and lowest cost underground mining method available. This method is called block-caving. Block-caving undercuts the ore body and allows it to break-up or "cave" under its own weight, thus removing the need for blasting.

Formal approval from the Australian government and other entities was granted and the *Rio Tinto* Board decided to move forward with underground mining operations in 2005. Construction and development of the new Argyle Underground Project has been ongoing and is projected to extend the mine's productive life until 2018. Unfortunately, in 2009 the *Argyle Underground Project* was slowed down due to the global economic recession.

Champagne and Pink Diamonds

The diamonds produced by the *Argyle Diamond Mine* can be colourless, yellow, brown, and the most prized colour: pink.

Today, the majority of brown diamonds come from the *Argyle Diamond Mine*. Approximately USD 150 million (GBP 90 million) of rough Champagne Diamonds are produced there each year. These diamonds are sorted and sold as rough through a sales office in Antwerp, Belgium. They are marketed throughout the world as Champagne Diamonds. The *Argyle Diamond Mine* is also the world's primary source of pink diamonds. On average, rare pink diamonds are sold

for 20 times the price of an equivalent colourless diamond.

The Vivid Pink – Auction Results

In our last newsletter, we reported that *The Vivid Pink* – a 5-carat cushion-shaped natural coloured diamond set in a Graff ring and graded Fancy Vivid Pink, with a clarity grade of VS1, potentially Flawless – was up for auction at Christie's in Hong Kong. The pre-sale estimate was set at USD 5.1 million to 7.1 million (approx. GBP 3.1 to 4.4 million).

On December 1, 2009, *The Vivid Pink* fetched a sale price of USD 10,776,660 (USD 2,155,332 per carat!), nearly GBP 6,450,000 (or GBP 1,300,000 per carat), breaking Christie's previous record of USD 7.4 million, almost GBP 4.5 million, which was paid for a 19.66-carat pink diamond in 1994.

Gemmology Corner

The Cause of Colour in Brown Diamonds

Brown Diamonds

The wonderfully warm hues of brown (or "champagne") diamonds have become a favourite among designers and jewellers. Though they once had the stigma of being lower-quality (or even "industrial") diamonds, brown diamonds have emerged as a new classic among natural fancy coloured diamonds. The unique gradations among brown diamonds are often described as "honey," "champagne," "caramel," "chocolate" and "cognac" – all food descriptions consumers can easily relate to. The scientific explanation of these delicious colours in diamonds is less obvious. It is necessary to look at these diamonds at an atomic level to understand their unique colourations.

What causes colour in natural coloured diamonds?

The two main factors which cause colour in natural coloured diamonds are trace elements and diamond lattice structure.

Trace elements (Impurities)

Diamonds are made almost purely of carbon atoms crystallized in a very specific way, which gives them their unique optical and physical properties, such as the hardness for which they are renowned. But there may be traces of other elements, like nitrogen or boron, inside diamonds, which can affect their colour.

Diamond Structure (Defects)

Diamonds are made of carbon atoms arranged in regular repeating patterns, which is known as the diamond lattice. In the example above, some carbon atoms are replaced with trace nitrogen atoms. But what happens if a carbon atom is simply missing from the pattern? What if the pattern is distorted? The manner in which the atoms are arranged can also create colour in a diamond.

Cause of Colour in Brown Diamonds

The majority of brown diamonds get their colour from a deformation of the crystal structure caused by extreme pressures and temperatures beneath the earth's crust during the diamonds' formation. This results in the absorption of certain wavelengths, leaving us to admire the brown spectral colours.

Although it is quite rare, another cause for colour in brown diamonds (without crystal deformation) may be trace elements. For example, oxygen-rich diamonds may exhibit brown tones. Brown colour diamonds can also be Type Ia with nitrogen and hydrogen trace elements, generally resulting in a deep yellow-brown colour.

What are diamond types?

Diamond types are categories based on the relative presence or absence of nitrogen (N) and/or boron (B) trace elements and their arrangement within the diamond lattice. Type I natural diamonds contain N levels large enough to be measured by infrared spectroscopy, whereas Type II natural diamonds do not.

Type I

Type I natural diamonds are further separated into the following sub-categories: Type Ia, Type IaA, Type IaB, Type IaAB, and Type Ib. This classification depends on the state of the N atoms and whether they are isolated or aggregated. To keep things simple, let's stay with Type Ia (aggregated N) and Ib (isolated N) diamonds.

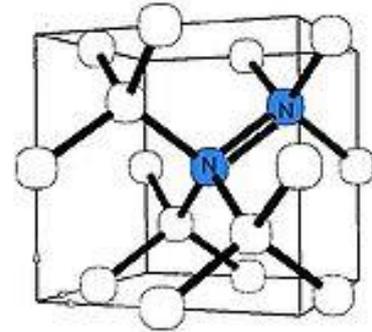


Figure Type Ia

Type Ia diamonds represent the vast majority of natural diamonds on the market (approximately 97%), and contain aggregates of nitrogen atoms. Type Ib diamonds contain single isolated nitrogen atoms and represent around 1% of the natural diamonds on the market today.

Type II

Type II diamonds are divided into Type IIa and IIb. Type IIa diamonds do not contain enough nitrogen for the element to be easily detected. Type IIb diamonds contain traces of boron.

Most brown diamonds are Type Ia diamonds, but they can be Type IIa as well, although that is relatively rare. Brown Type IIa diamonds may be HPHT (High-Pressure, High-Temperature) treated to obtain colourless diamonds. Type Ib and IIb brown diamonds are extremely rare.

Country of Origin

Today, the majority of champagne diamonds come from the Argyle Diamond Mine in Western Australia. You can read more about The Argyle Diamond Mine in our article above.

Two other important brown diamond producing countries are South Africa, and the Democratic Republic of Congo. Other nations where brown diamonds are regularly produced include Angola, Borneo, Brazil, Central African Republic, Ivory Coast, Russia, and Venezuela.

Famous Diamonds

The world's largest natural faceted diamond weighs 545.67 carats and initially was called *The Unnamed Brown*. Discovered in South Africa's Premier Mine in 1985, the diamond rough weighed 755.50 carats.



With its numerous stress fractures and damaged surface, *The Unnamed Brown* was seen as an ugly duckling - until it fell into the magically talented hands of Gabi Tolkowsky. The diamond was then used to test some new cutting tools (the same tools which would later be used to great effect on the *Centenary* - another extraordinary diamond discovered in 1986 at the same mine and graded as colourless D-Flawless).

After three years of planning, cutting, and polishing, *The Unnamed Brown* became a spectacular Yellow-Brown fire-rose cushion cut diamond. Presented to the King of Thailand, Bhumibol Adulyadej, to celebrate the 50th anniversary of his coronation, the King renamed the diamond *The Golden Jubilee*. It is currently at the Thai Palace as part of the crown jewels.