

STONY GROUND

Laboratory grown diamonds have the exact same composition as their naturally mined counterparts. Panna Munyal examines the value of these stones – in emotional and monetary terms

Nature does not want diamonds to form any longer.” Thus begins my initiation into the controversial world of lab-grown diamonds. Fortunately, continues Vishal Mehta, the chief executive of the Singapore-based IIA Technologies, while the supply of naturally forming diamonds may eventually run out, it is now possible to “grow” gem-quality diamonds that have exactly the same composition as their natural counterparts.

Laboratory grown diamonds are as real – optically, physically and chemically – as the crystallised carbon creations found inside the Earth, which can take centuries to form and millions of dirhams to extract. “Growing diamonds works a bit like a greenhouse. We start by planting diamond seeds, which are simply carbon fragments of pre-existing diamonds, inside a growth chamber. The conditions are replicated for the seeds to undergo natural crystallisation, with the same heat, pressure and other elements found under the Earth’s surface, resulting in coloured or colourless type IIA diamonds. The whole process takes up to 12 weeks.”

Type IIA is the rarest and purest grade of diamond. The Koh-i-Noor, Cullinan and Elizabeth Taylor (formerly Krupp) diamonds are some of the most famous examples of type IIA or Golconda diamonds – a categorisation that counts towards their high value and that is based on their rarity and a low presence of nitrogen impurities. “The diamond mines no longer produce type IIA diamonds, which are said to constitute only 2 per cent of total diamonds produced by mines across the world,” says Mehta.

IIA Technologies, which is the world’s largest manufacturer of laboratory grown diamonds, has developed and patented a formula to culture only type IIA diamonds from each “crop” grown behind its doors. “Since these are the purest diamonds in existence at the atomic level, they are highly desirable for research and industrial use. When it comes to jewellery, however, ‘flaws’ are measured based on cut, colour, clarity and carat weight. While our engineers painstakingly monitor and maintain the conditions within the diamond greenhouse, once the growth begins, nature takes over and one cannot predict, control or guarantee the four Cs. Each rough stone is unique, just as in

nature, and has its own colour and clarity, factors that are then valued by gemological institutions, just as with mined diamonds,” explains Mehta.

This is not to say that there are no differences between natural and man-made stones; the major point of contrast lies in the cost – both to your pocket and to the environment. At a rough estimate, you would pay Dh40,000 for a one-carat natural type IIA diamond – if you could ever find one – while a rock of the same size, colour, clarity and composition grown in the lab would cost about Dh12,000. Monetarily, then, lab-grown diamonds are a whopping 30 per cent cheaper.

Geologically speaking, the *Environmental Impact Analysis: Production of Rough Diamonds* report, published by Frost & Sullivan last year, found the harmful carbon emissions produced by mined diamonds to be 57,000 grams per carat. Grown diamonds, on the other hand, emit 0.028 grams per carat.

Plus, the very real, very tragic issue of conflict stones, or blood diamonds, does not come into play at all when you are dealing with lab-made diamonds.

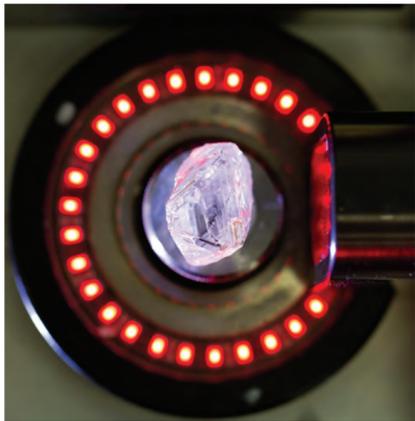
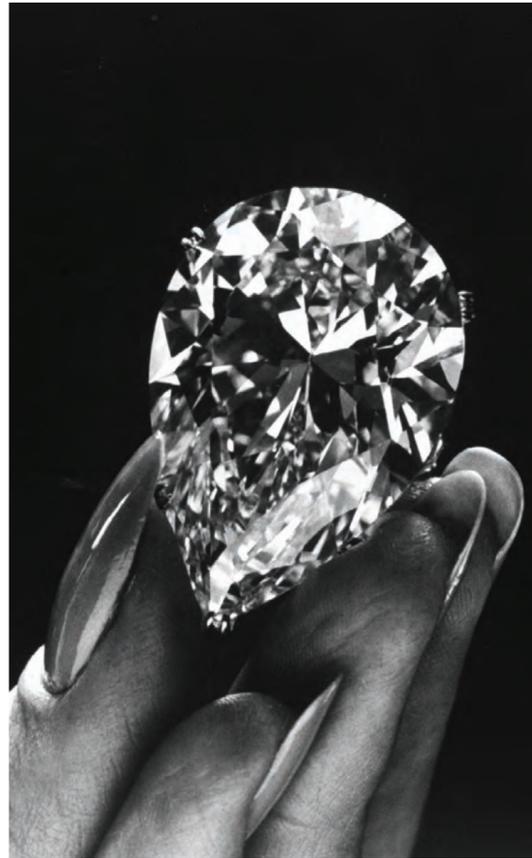
“More consumers across the world are aspiring to be socially responsible. They are apprehensive because of the conflict issue as well as the harmful ecological impact of the mining process,” says Lisa Bissell, director of the United States-based Pure Grown Diamonds, the retail wing of IIA Technologies. “Our diamonds are certified as lab-grown, which means they have a guaranteed origin and are cultivated in a controlled environment with a smaller carbon footprint.”

“Due to human-rights issues with diamond mining in Africa, knowing the provenance of a diamond is important to many buyers,” agrees Paul Zimmisky, an independent diamond-industry analyst based in New York. “The Canadian diamond industry, for example, distinguishes its stones with microscopic identifying inscriptions. De Beers is doing the same with their higher quality diamonds. So, yes, the guaranteed conflict-free status is one of the most attractive aspects of what I call ‘synthetic’ diamonds. That and the fact that they are chemically and aesthetically identical to natural stones, plus more competitively priced.”

Cost and conflict aside, another distinction between natural and man-made diamonds is the time it takes

IN THE ROUGH

As with naturally mined stones, laboratory-grown diamonds are sorted and graded by certified gemological institutions to determine the cut, colour, clarity and carat weight.



REALITY CHECK
The diamond-mining process releases environmentally damaging carbon emissions at the rate of 57,000 grams per carat, as opposed to 0.028 grams per carat for laboratory-grown diamonds.

PURE PERFECTION
The 33.19-carat, type IIa Elizabeth Taylor diamond, which was bought from Cartier. Type IIa is the rarest and purest diamond type and accounts for only 2 per cent of all naturally occurring diamonds in the world.

for them to come into being. And therein lies the major dilemma. For how can an object that takes three months to form be compared with one that can take up to three billion years? Diamonds are, after all, the ultimate form of conspicuous consumption – they are precious because they are rare, and detractors are vehement in their opposition to the unromantic connotations of diamonds formed by a machine.

“The term lab-grown is a turn-off on its own. To me, it sums up images of Dolly the cloned sheep or, on an extreme level, a kind of Frankenstein creation. Buying luxury is about stories, heritage and history, and diamonds have all of that. Admittedly, the history is somewhat chequered, but then so is that of most things of value,” says Stephen Webster, the British jewellery designer, who has created wedding rings for Madonna and Guy Ritchie as well as standout pieces for Kate Moss, Johnny Depp, Cameron Diaz, Kate Beckinsale, Charlize Theron and Elizabeth Taylor. “We cannot and should not halt the progress of science, otherwise we would still be hunter-gatherers rather than Instagrammers. However, there are some applications where progress could put a spoiler on things. There can be no question that an element of the awe and desirability of diamonds is drawn from the fact that they are formed and discovered over years and years in, or under, far-flung and exotic places.”

While not quite as vocal as Webster, Jon King, the executive vice president of Tiffany & Co, states simply but firmly: “We believe that a diamond represents a very important purchase in one’s life and has a significant emotional meaning. And we believe that the story and identity of a diamond is linked to how it has been formed over millions of years. We imagine that people will still make that association – it is about the permanence, if you will, the long history of what it takes for a diamond to form, the conditions of the Earth, and the gravitas involved in that.”

When asked if lab-grown diamonds might eventually prove to be an area of concern for companies such

as Tiffany, King acknowledges: “We are not naive, our head is not in the sand, and we closely monitor the progress of the industry. Young consumers, in particular, are very interested in the larger universe and the impact of the purchases they make, and we’ll say at this moment that the process of manufacturing diamonds is not necessarily consistent with a clean environment and other such factors.”

“But,” he adds, “while we understand that there could possibly be a time when a manufactured diamond could be accessible to many, we still believe that there will be that distinction of what a natural diamond is, and how it came to be.”

Many consumers also agree that the allure of a diamond formed inside the belly of our planet cannot be replicated by one grown in the lab next door. However, the marked-down cost, chemical similarities and low ecological impact have their own appeal, and reactions range from practical to preachy. For Holly McIndoe, a consultant with the Food & Drug Administration in Chicago, eco-friendly is the way forward. “It’s like buying faux fur, and these are not even fake diamonds. I’m normally very big on buying handmade and natural, and eschewing machine and mass-made. But not at the cost of the environment or human rights, just so I can think I have a high-value stone.”

According to Priya Kapoor, a Dubai-based investment banker: “A woman can never have too many diamonds, and if I can add to my collection with a piece that is cheaper, I would definitely buy it.” But she also, paradoxically perhaps, admits that she would be “disappointed to receive an engagement ring with a man-made diamond”.

The ethical issue – that of full disclosure – needs some consideration. While insisting upon proper certification for either diamond type ought to be a given, Zimmisky adds, only half-jokingly: “If a man buys a woman a synthetic diamond strictly for the purpose of saving money and doesn’t disclose that

it’s a synthetic to the woman, I think it could cause a problem down the road.”

The fear that diamond-growing technology will reduce the exalted status these gemstones currently enjoy is another point of contention. If one crop of diamonds can be created every 12 weeks by a single company, won’t the market be flooded with such stones, taking them from mystical to mass-produced in no time? Mehta argues that it’s not quite as simple as that. “Growing diamonds is a complex, capital-intensive technology, which is painstaking to develop and maintain. Despite our decades of research, growing diamonds cannot be accelerated or mutated externally. We invest very heavily in each crop, but the success rate or yield per crop is never 100 per cent.”

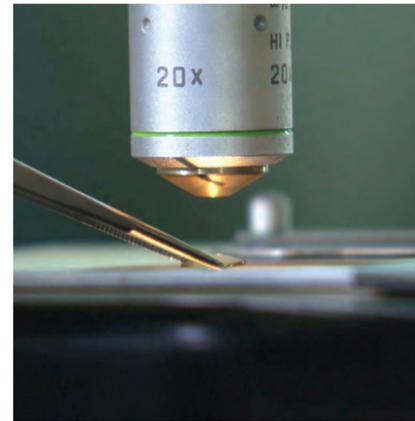
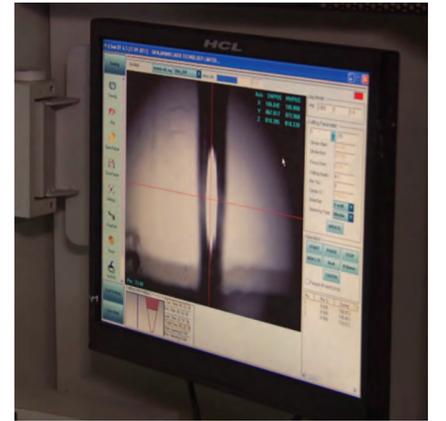
Why, then, are these diamonds so much cheaper and what, if any, is their resale value? “The price is related to mined-diamond rates because it’s important to give buyers the right incentive,” Mehta says of the current marketing strategy. “However, the value for money is better since they get a real diamond for a lower cost.” Webster tends to disagree, as he thinks that the value of a diamond lies in its sensual story and “there is nothing sexy about lab-grown”.

While it’s too soon to predict the resale value of lab diamonds, it’s safe to assume that as technology advances, the economics of growing the stones will improve, leading to a drop in the price. Zimmisky says: “A synthetic bought today will likely be worth less in five years, but I would not say the same about natural diamonds, which are getting rarer. That said, it’s worth noting that whether a diamond is grown or natural, it needs to be cut, polished and retailed, which can account for as much as 80 per cent of the final cost.”

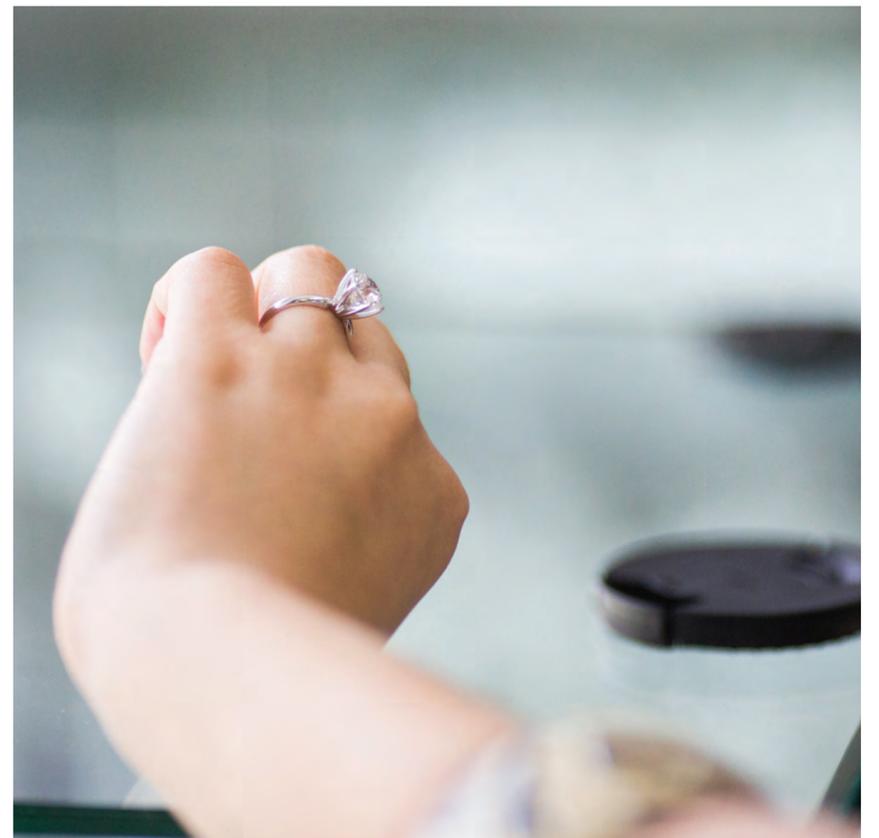
To add a final twist in the tale, last year’s Frost & Sullivan report confirmed what industry insiders had long suspected: that the demand for diamonds is increasing at such an astronomical rate that it will be impossible for the rapidly diminishing supply to keep up. The supply of naturally occurring diamonds is estimated to drop to a mere 13 million carats in 2050 from the projected 133 million carats in 2014. And while Mehta and Bissell put the lab-grown diamond supply at 150 million carats in 2050, they say “only a part will be available for luxury purposes. The major chunk will have to be dedicated to high-technology commercial applications. The demand for the stones for ornamentation purpose is going to outshine the supply, and diamonds, whether grown or mined, will continue to be rare.”

For now, two schools of thought exist. Proponents of the first, including most high-jewellery brands and designers such as Webster, insist that “the industry has done a lot to clean up its act and most reputed jewellers only work with diamonds that carry an element of responsibility regarding their source. Why, then, would people want diamonds made by men in white coats?”

Others, though, believe that while the story behind the stone is undeniably alluring, factors such as environmental impact and prohibitive prices rank far higher. “After all,” concludes McIndoe, “these stones may have been created yesterday, but they will still last forever.” ◊



CREAM OF THE CROP
Growing diamonds in laboratory-based greenhouses is a highly controlled and capital-intensive process. There is no way of knowing the size of the final stones in each crop. Below, the largest lab-grown diamond – at just over three carats – was created by the Singapore-based Ila Technologies last month.



BLOOMBERG (3); GETTY IMAGES/ILA TECHNOLOGIES (4)