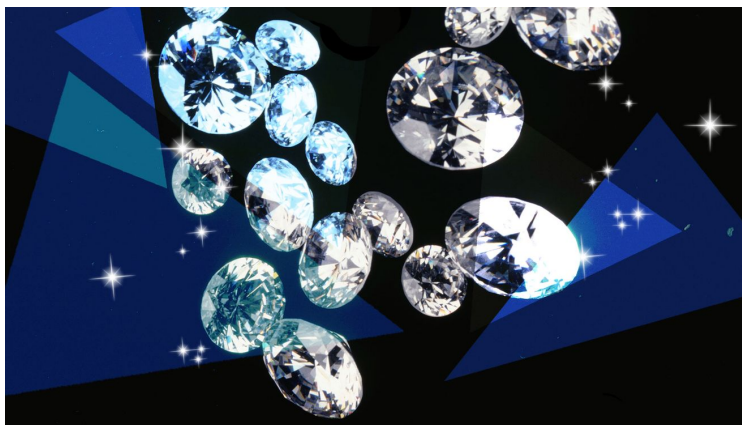


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A Lab-Grown Diamond Is Forever

Photo: Getty
Images/Brittany Holloway-
Brown

Can synthetic stones solve the jewelry industry's problems?

BY CHAVIE LIEBER | JUN 14, 2016, 11:00AM EDT

Every morning for decades, the scene on 47th Street between between Fifth and Sixth Avenues in Manhattan has pretty much looked the same. At around 9 a.m., clusters of Hasidic Jews with their long black coats and white beards walk briskly towards their offices, black leather suitcases in hand, past jewelry storefronts that are slowly starting to open for business.

Seen through store windows, employees take out diamond rings, bracelets, earrings, and pendants from the plastic boxes they've been safely stored in for the night. Armed policemen patrol around and some stores have security teams of their own — big muscle in dark suits guarding doors and checking the IDs of diamond cutters, polishers, gemologists, and salesmen before anyone enters a building. There are also inconspicuously-dressed bystanders pacing the area, giving the impression that the whole area is being carefully surveilled by undercover cops.

Dozens of solicitors — men wearing baseball caps and sunglasses, often with foreign accents — hit the sidewalks, handing out fliers that promise the best price for gold while competing hustlers walk straight up to passersby, muttering deal pitches in their ears.

It's just another day in the Diamond District.

Except, there's an unusual number of shoppers huddling near a particular window one spring morning. Several women who are looking to buy earrings are astonished to see a strange sign that reads, "Lab-Grown Diamonds!"

"Why would anyone buy such a thing?" Sharon, a mother of four living in Brooklyn, asks. The friends she's with, all of whom declined to share their names, nod in agreement. Still, they can't help but admit that the so-called "lab-grown" stones on display look exactly like the rest of the

diamonds in the case. The women walk away, but not before writing down the name of the company: American Grown Diamonds.

Inside the store and down the stairs, Ariel Baruch, a 26-year-old whose family has been in the jewelry business for three generations and owns American Grown Diamonds, is sitting in his office, looking at some product under a loupe, a small magnification tool used to study jewelry.

American Grown, which has exclusive rights to buy diamonds from several undisclosed labs in the US, started selling synthetics (a scientific term loathed by the lab-grown industry, but routinely used in the greater jewelry world) a little over three years ago and now wholesales stones to some 250 stores around the country. Four months ago, the Baruchs decided to promote their business more widely in New York City, and so they put up the sign that attracted Sharon and plenty of others.

Baruch takes a 1.5-carat synthetic diamond that's set in a ring and holds it under a lamp. The clear, smooth facets sparkle in the light. The stone is beautiful.

"There's no way to look at it and know it's not natural," Baruch says. "Not with the naked eye, not with a loupe, and not with a standard microscope. Only special technology can tell the difference. Right now I believe we're the only ones selling lab-grown diamonds around here, but I want to say in two to three years more people are going to be carrying them. There are just no negatives to it."

When he says "around here," he means 47th Street, but American Grown is just one of several dozen lab-grown diamond companies that have cropped up over the last few years. Though lab-growns have been around for a while, it was only recently that the science of creating colorless, nearly flawless diamonds was finally perfected. (And, for the record, not everyone agrees that there are "no negatives to it" — but more on that later.)

With technology advancing, and with younger shoppers drawn to synthetic options, the question of whether or not lab-grown diamonds will invade the market is now a matter of when, not if.



Photo: Getty Images/Brittany Holloway-Brown

A diamond is grown when a gas cloud of carbon rovers over a tiny diamond seed in a heated vacuum chamber, adding

Diamonds have long been considered extraordinarily valuable, and have been traded as a commodity for thousands of years. According to the Gemological Institute of America, the stones first gained commercial popularity in India, where diamond trading began as early as the 4th century BC. During the Middle Ages, caravans that unearthed diamonds in India's rivers traded them with Western Europe, where they became coveted by the upper class. The world's diamond capital moved

ayers of crystal onto the seed.

from India to Brazil in the 1700s, and then to South Africa, when a giant diamond mine was discovered in the city of Kimberley in 1866. In 1888, British businessman Cecil Rhodes established his mining company, [De Beers](#), in the country, and effectively founded the diamond industry as we now know it.

A century before this, however, scientists began their quest to make diamonds in a lab. Ignited by Antoine Lavoisier's discovery that diamonds were merely a crystalline form of carbon, the result of pressure deep within the earth, in the late 1700s, little progress was made for nearly 200 years.

Then came General Electric. Physical chemist H. Tracy Hall joined its "Project Superpressure," and in 1954, after nearly four years of synthetic diamond experimentation, Hall led his team to a breakthrough. They were able to create small diamonds after heating carbon to 5,000 degrees Fahrenheit and applying extreme pressure with a heavy hydraulic press — a method referred to as high pressure and temperature, or HPHT. According to the [New York Times](#), Hall's knees buckled when he realized he had cracked the code.

While the stones Hall's method created had the same chemical makeup as natural diamonds, they were brown in color and so were put to industrial use. A diamond's exceptional properties (it is one of the hardest natural material on the planet, the most effective heat conductor, and largely unaffected by most acids) make it ideal for drilling, grinding, and cutting.

But GE wasn't the only one on the synthetic scene. In 1952, a scientist named William Eversole, who was working for the Union Carbide Corporation, a Texas-based chemical company, also created lab-grown diamonds by employing a method called chemical vapor deposition, or CVD, in which a diamond is grown when a gas cloud of carbon hovers over a tiny diamond seed in a heated vacuum chamber, adding layers of crystal onto the seed. Union Carbide initially didn't go to market with its new discovery, while GE got a patent for its method and began selling lab-growns in 1958, turning out 750,000 carats in a single year.



Diamonds growing inside a Pure Grown microwave chamber. Photo: Pure Grown/Brittany Holloway-Brown

The oil, mining, and space industries, which were using industrial diamond scraps from mines at the time, instantly saw the value of a new source for the material. Companies immediately bought lab-grown diamonds to incorporate into machinery and drill bits. Thanks to these innovations, diamonds now play a vital role in countless industries: electronics, construction, dentistry, weapons, even skincare.

Germany, France, and Sweden began investigating how to grow diamonds, as did the Soviet Union. Even De Beers, the largest global player in mined diamonds then and now, started a lab in Johannesburg. As *Barron's* explained in 1960, "De Beers is impaled on the horns of a dilemma. Left to its own devices, it would prefer to keep its process in the laboratory stage, since large-scale production of synthetics inevitably will jeopardize present prices ... However, in view of GE's climbing output, De Beers yet may conclude that it cannot afford to leave the field of synthetics entirely to the American concern."

Although advancements were made to growing methods, lab diamonds were still marred by brown and yellow tints, and so they remained solely for industrial use until 1971, when GE was able to create the first synthetic stones that were high enough quality to be used in jewelry. GE's issue was that these stones, made through the HPHT method, were extremely expensive to grow,

says Russell Shor, a senior industry analyst with the GIA: "They used a colossal amount of energy and ending up not being commercially feasible because they cost more money to make than to sell."

Scientists spent another several decades trying to hack the technique. As technology became "better, faster, cheaper," Shor says, more and more companies picked up the practice. Eventually it was discovered that brown diamonds could grow as yellow diamonds, as well as be treated to turn pink. By 2007, colorful lab-grown stones were being sold as an affordable jewelry alternative.

But as pretty as the pink and yellow stones were, companies were eager to soldier on towards the ultimate goal: creating colorless diamonds. "Colored, natural diamonds auction for outstanding prices, but in people's minds, diamonds are clear," explains Shor.

It's debatable which company was the first to perfect the lab-grown process, but the one that caught the most attention, at least initially, was Gemesis Diamond Company, which announced in 2012 that it was able to create a colorless diamond in a lab. And not just any diamond: a Type IIa diamond, a stone so rare it makes up no more than two percent of the world's mined diamonds. Queen Elizabeth and Elizabeth Taylor are among the select few who have owned one.

In 2014, Gemesis changed its name to Pure Grown Diamonds, and its former CEO Lisa Bissell, whose contract ended just a few weeks ago, says she spent the last few years rebranding the company. Pure Grown, which has stones in more than 350 retail stores around the country, gets its diamonds from its sister company IIa Technologies, which is based in Singapore.

IIa Technologies, according to a report from the online jewelry trading network Polygon, is "the world's largest diamond 'greenhouse.'" It has 200 machines that work around the clock to grow diamonds, using a more advanced kind of CVD called microwave plasma chemical vapor deposition, or MPCVD. Pure Grown's diamonds have "a high bling factor," says Joel Kagan, the owner of Chicago's Smart Jewelers, which started selling Pure Grown stones 18 months ago. "They are beautiful to look at, and you save 20 to 30 percent while you're getting something every bit as nice, if not even nicer."

It's worth noting that shoppers have had access to diamond alternatives for years, and cost has always been their main appeal. Cubic zirconia, made of zirconium oxide, and moissanite, made of silicon carbide, began selling in the 1970s and 1990s respectively, after they were successfully created in labs. But moissanite and cubic zirconia are chemically different than diamonds, and don't quite look the same as a result; cubic zirconia has less brilliance, or sparkle, than diamonds and moissanite produces a blurred effect called a double refraction.

Conversely, lab-grown diamonds are identical in structure and appearance to natural ones. They are, however, much cheaper. Baruch says savings may be as high as 40 percent in some cases;

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Photo: Getty Images/Brittany Holloway-Brown

this is especially appealing to savvy millennial shoppers.

"We are making diamond earrings with a client," Kagan continues, "who's copying a pair from her mother that went to her sister. We're using 3-carat lab-grown diamonds and she's saving over \$30,000 by using them."

Starting a diamond lab isn't particularly easy. Even if "the quality, ubiquity, and scale of production of synthetic stones" is "unprecedented" these days, as the Polygon report puts it, a single machine can cost up to half a million dollars. Companies must also invest in materials and a highly skilled workforce that includes physicists and chemists.

Still, the number of labs is growing. In addition to Pure Grown's Iia Technologies, there's [Scio Diamonds](#) in South Carolina, [WD Lab Grown Diamonds](#) near D.C., [New Diamond Technology](#) in Russia, [Takara Diamonds](#) in Washington state, and [Chatham](#) in California. There are several others,

particularly in India and China, that are more tightlipped about their operations.

The industry has also piqued the interest of Silicon Valley. Last year, former solar panel entrepreneurs started [Diamond Foundry](#), a company which says it's advanced the lab-growing technology so it can grow stones in as little as two weeks, as opposed to the standard six to 10. The company, which grows 2,000 carats a month, has backing from investors like Facebook co-founder Andrew McCollum, Twitter co-founder Evan Williams, Zynga co-founder Mark Pincus, former eBay President Jeff Skoll, and former Facebook COO Owen Van Natta. It also got attention in Hollywood circles last year when Leonardo DiCaprio [announced his own investment](#) in Diamond Foundry; the actor helped bring the issue of conflict diamonds — stones sold to fund rebel groups in African countries — into public consciousness with his 2006 drama *Blood Diamond*.

"When I first started here," Bissell says of Pure Grown, "I wasn't sure if consumers would respond, but after speaking to so many people, I've realized that everybody who sells mined diamonds will probably sell lab diamonds too. It's just a matter of time. The diamonds are beautiful, and often the quality is finer than a lot of the diamonds fashion jewelry uses."

While the category is growing, lab-grown diamonds currently represent less than 1 percent of the overall diamond industry, says Edahn Golan, a diamond industry [analyst](#) based in Israel. According to Golan, who has been working with retail measuring firm NPD Group to assess the [industry's finances](#), approximately \$1 billion worth of lab-grown diamonds are said to be sold worldwide annually, as compared to the [\\$22 billion mined diamonds bring in at wholesale price](#). Golan says 40 percent of global

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diamond sales come from the US: "The potential is huge."

Official numbers are hard to come by, though there have been some speculating reports. According to [Bloomberg](#), 360,000 carats of lab-growns were made in 2014; [research firm Frost & Sullivan](#) believes the demand will jump to 20 million carats by 2026.

In addition to synthetic diamonds' lower price point, some consumers are drawn to the stones for ethical reasons. Accusations of [exploitation](#) and [inhumane working conditions](#) in mines cast a dark shadow over the diamond industry. Mining is also said to be [devastating to the environment](#), due to the amount of energy it requires, the potential for chemical leaks, and the harmful effects that removing large amounts of earth has on local ecosystems.

Even with the implementation of a system like the [Kimberley Process](#), a certification program established in 2003 that requires governments to verify that the diamonds they export are conflict-free, Diamond Foundry founder and CEO Martin Roscheisen says the mined diamond industry is one that has almost zero accountability.



Former Pure Grown CEO Lisa Bissell wears a synthetic diamond ring. Photo: Getty Images/Brittany Holloway Brown

"From the mine to the finger, a diamond sees four dozen owners," he says. "It's dug in Sierra Leone, traded a dozen times in Africa, is then sent to dealers in Antwerp, and then travels 20,000 miles around the world. Meanwhile, we know everything about a \$20 bottle of wine — this is like having a bottle of red wine whose grapes, we're told, come from somewhere in Europe. It's hard to institute traceability to diamonds because the industry, which has a huge amount of corruption, amongst other things, doesn't want their skeletons to be discovered."

Industry experts also believe diamond mines won't be sustainable for much longer. Diamonds come mainly from nine countries: South Africa, Botswana, Angola, the Democratic Republic of

the Congo, Namibia, Zimbabwe, Australia, Russia, and Canada. [According to Polygon](#), "dwindling production at most major mines in these countries is forcing extraction companies to dig deeper, driving up production costs and shortening the lifespan of the mines." Frost & Sullivan reports that global production of rough diamonds is declining, from 176.7 million carats in 2006, to 131 million carats in 2013. Excavation plans for new mines, [Polygon notes](#), are being drawn with expectations that they won't last more than 20 years because the industry will quickly suck them dry.

The lab-grown sector certainly has a leg up in this regard. On a brochure American Grown Diamonds hands out on 47th Street, the company's tagline reads: "Saving the earth, one diamond at a time."

"You have two diamonds: one comes from a clean laboratory, where everything is done precisely, and the other involves a lot of digging into the earth and has workers in not the best environments," says Baruch. "The lab-grown is the safer option. It's eco-friendly and there are no negative connotations in the background."

These ethical and environmental implications are what compelled [Oaks Jewelers](#), a 68-year-old family business in the San Francisco Bay Area, to sell synthetics.

"We're a really small store — a mom-and-pop shop — and we sell two a week, which is a lot," says sales manager Melissa Accornero. "In a place like Berkeley, people are very eco-conscious and constantly ask about the origins of a stone. Initially there was hesitation because there's this connotation that lab-grown means fake, but then we show them that the stones are identical, optically."

Small-scale operations aren't the only ones hopping on the lab-grown bandwagon — jewelry giants are getting in on the action as well. In December, [Stuller](#), one of America's largest jewelry manufacturers, started to sell lab-grown diamonds from several different suppliers, including Pure Grown. Stanley Zale, Stuller's diamonds and gemstones vice president (who also happens to be the grandson of the founder of Zales, which was sold to [Signet](#) in 2014), isn't entirely bullish on the stones.

"Our objective is to give retail jewelers choices, and we recognized that they have an appeal to some customers," he says. "There's been a lot of hype surrounding lab-grown diamonds, and I think the hype is exceeding the demand. I'm not sure how big it is going to get, but we're in it."

Swarovski, another massive player in the jewelry market, has also stepped up to the plate. About six weeks ago, it launched a jewelry line called [Diama](#), made entirely with lab-grown diamonds. The stones come from several different undisclosed labs, says Daniel Cohen, one of Swarovski's principal owners. Chaim Even-Zohar, a diamond industry analyst who broke the story about Swarovski's recent move, [reported](#) that Swarovski is sourcing them from either Chinese sources

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or from Iia Technologies.

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According to Even-Zohar, Swarovski was initially in talks with De Beers to buy diamonds from the company's synthetic lab, [Element Six](#) — even though De Beers, which would not comment on this speculation, has vowed that its lab-grown diamonds will remain for industrial use and research purposes only. As a company representative [told Bloomberg](#) last year, "De Beers' focus is on natural diamonds. We would not do anything that would cannibalize that industry."

Swarovski also declined to comment about these discussions, but Even-Zohar maintains that "De Beers' long-awaited participation in the gem-quality synthetics market can no longer be far off." In an email to Racked, De Beers denied it will start selling lab-grown diamonds for jewelry at any point in the future, writing that according to company research, "consumers do not see synthetic diamonds as potential substitutes for diamonds" and that De Beers believes lab-growns will soon be "purchased as costume jewelry."

If you're wondering why you haven't heard about Swarovski's lab-grown venture, it's because the company has stayed deliberately mum about the project. Diama's site doesn't disclose that it is under the crystal company's umbrella, and it organized "a soft launch a few weeks ago," Cohen says, to quietly test shopper reactions. So far, Diama is only available online and in a small selection of national jewelry chains. As of now, it won't be sold in Swarovski stores — not until the company fully understands how customers embrace the new product.

"Lab-grown diamonds have been on our radar for quite some time, so we finally decided to test consumer acceptance," says Cohen. "Our target audience for Diama is the fashion-aware, self-purchasing woman, and we certainly think there's significant potential behind this."

Other jewelers are far more skeptical. One store owner on 47th Street says that those who have high-profile clients would never sell lab-growns because it "would hurt the reputation of the business, and the caliber of our products"; he did not want to disclose his name in case he ever had to resort to selling "a freak product," as he calls it. Another jeweler on 47th likened synthetic companies to "cheaters."

Such a sentiment does not surprise Pure Grown vet Bissell.

"You have to remember that people in jewelry have millions and millions of dollars worth of mined diamonds in their inventory," she says. "If you have a vault full of stuff while there's an option that is prettier, less expensive, and has a better story than a blood diamond, that's pretty intimidating. They are frightened."

For Stuller, Zale says, sitting on the sidelines is no longer an

"It's not a question of whether or not I like lab-grown diamonds — the technology and knowledge is here, so what are we going to do about it?"

option: "It's not a question of whether or not I like lab-grown diamonds — the technology and knowledge is here, so what are we going to do about it?"

"Do you see that? Here, I'll focus a little closer. We are looking for any growths or shadows that indicate how this diamond could have been formed."

Brian Driscoll, a 56-year-old gemology instructor is hunched over a microscope at GIA's New York City headquarters. It is, of course, on 47th Street, and the building employs some very serious security measures — visitors must get their fingerprints taken before they are escorted through a metal detector. Driscoll, who started his career as a diamond grader, has been teaching at the GIA for 14 years. As lab-grown diamonds have become more sophisticated, part of the GIA's job is to teach jewelers how to differentiate them from natural diamonds.

"This stone has a shape in it, a bow-tie shape. It goes wide at the left, and narrow in the middle, wide at the right," he says, peering through a microscope, looking at a bright diamond that is just under one carat. "In this case, it tells us that the crystal grew in a way that nature cannot."

Driscoll says the GIA has caught lab-grown diamonds being passed off as mined ones. While some synthetic diamonds, like the one Driscoll is studying, have visible shapes that show it's been grown in a lab (and some labs, like IIA Technologies, inscribe a serial number on stones so jewelers can instantly tell they are not mined), other stones are heavily treated so their growth patterns can't be detected as easily. Lab-grown stones have become so sophisticated that even experts like Driscoll can't always tell the difference. At this point, the only way to confirm the difference is through spectroscopy, which utilizes either X-ray or infrared technology to recognize nitrogen defects in synthetics.

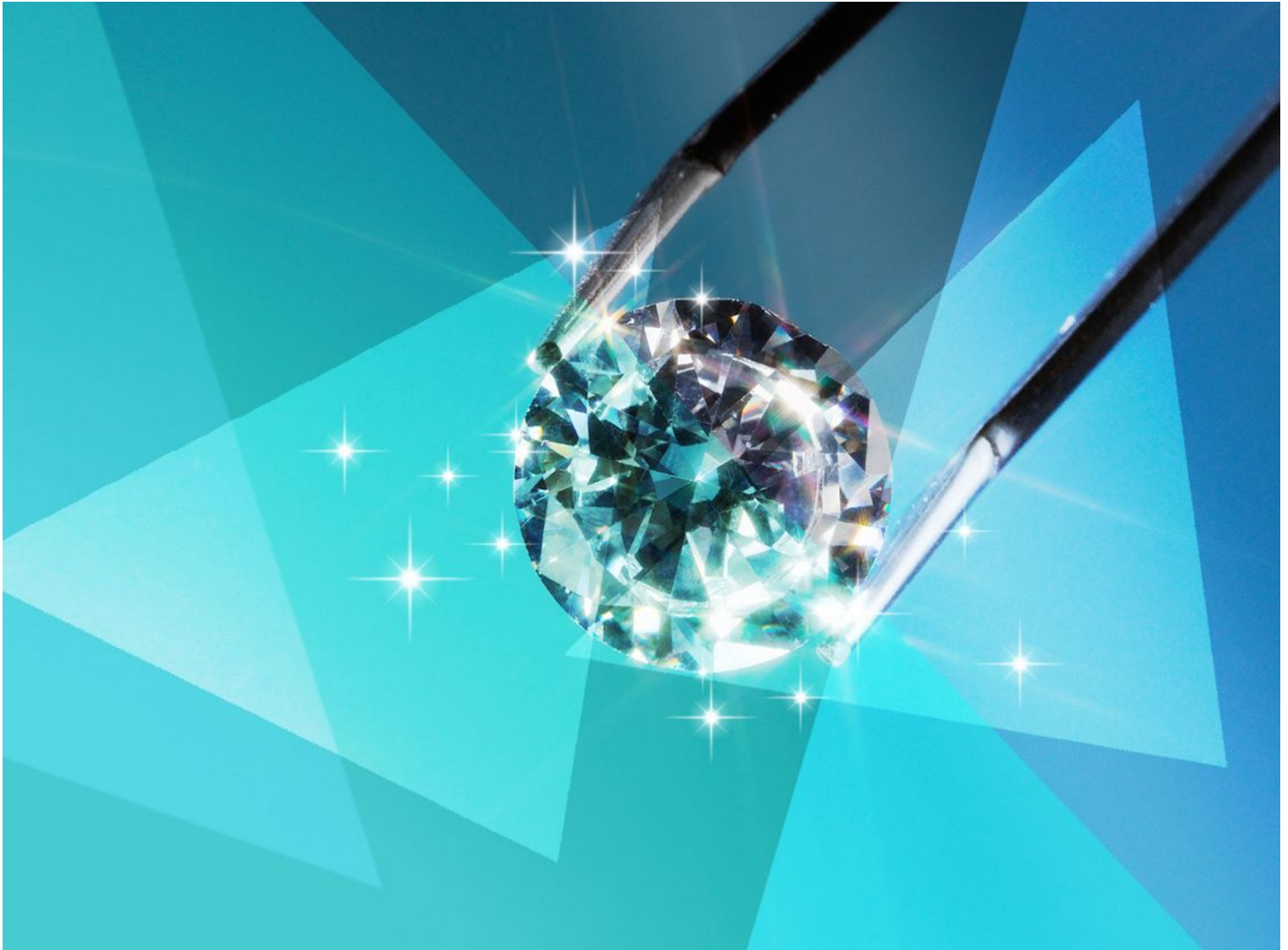


Photo: Getty Images/Brittany Holloway-Brown

As the industry grows, so does the concern that lab-grown diamonds will be sold dishonestly. The tactic of mixing mined diamonds and lab-growns in parcels and selling them all as natural stones — a practice known as peppering — is happening in China and Russia, says Golan, the Israeli jewelry analyst. Peppering is also an ongoing problem in India's gem-cutting center Surat, according to the *Times of India*.

Jewelers are now starting to catch onto fraud. This past February, diamond analyst Even-Zohar alerted the industry that a Delhi-based company called International Trading Corporation was selling lab-grown diamonds along with what they claimed were GIA certificates proclaiming them as natural stones on e-commerce site Alibaba (these stones, the GIA says, were never submitted to its labs).

Alibaba, the Chinese retail titan which has been called out by fashion brands for not enforcing rules against counterfeiting and was recently kicked off the International AntiCounterfeiting Coalition after brands like Michael Kors and Gucci quit the group in opposition of its membership, even endorsed these fraudulent listings in promotional emails. Marc Geller, a loose

[diamond wholesaler](#) in Chicago, says such instances of abuse could ultimately bring the jewelry industry to its knees.

"The diamond industry is a business that is based on honesty, so there needs to be a strong trust factor," says Geller. "If you lose the trust of the public, you lose everything."

It's for this reason that four months ago, several lab-grown diamond companies teamed up to form the [International Grown Diamond Association](#), the lab-grown industry's first unifying organization. A North Carolina-based nonprofit, the IGDA has over 20 members who aim to educate the public and promote honesty in the industry.

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"We felt it was important for people in the market to be fully transparent, to promote their material as truly lab-grown, and to be differentiated from the mined diamonds," says Richard S. Garard, secretary general of the IGDA and CEO of [Microwave Enterprises](#), which makes CVD technology to grow lab diamonds.

Another reason the IGDA was created, Garard says, was to make sure lab-grown businesses are treated fairly. While people at the GIA like Driscoll and Shor maintain they aren't opposed to synthetics, Garard and many others in the lab-grown industry say the GIA treats these companies as inferior. For example, the GIA regularly uses the term "synthetic" in its reports when referring to lab-grown diamonds — a word Garard says is "totally deceitful" because it can lead shoppers to think the diamond is fake.

"They refuse to use the proper terminology for lab-growns, which is confusing to the consumer," says Garard. "Synthetic is the terminology used for cubic zirconia and moissanite, which are not diamonds at all."

"The scientific definition of synthetic in gemology is a manmade stone which has organic physical and optical properties as a natural stone," says Shor. "A lot of people equate the word synthetic with fake, so I personally can understand their reluctance, but we go with the science."

The GIA also doesn't classify lab-grown diamonds the same way it does natural diamonds in its grading reports. It won't state the exact color of a diamond, for example, just giving it a category range (D-F, G-J), which is why companies like American Grown will often get certificates from lesser-known research and grading institutions like the [International Gemological Institute](#).

"Part of this is consumer protection," Shor explains. "If synthetic diamonds are graded the same way, reports could end up online, being sold as natural diamonds."

This is the diamond industry, though — an industry that is inundated with suspicious rumor-mongering. Roscheisen, Diamond Foundry's CEO, claims the GIA employs such tactics at the request of De Beers; the GIA denies this accusation, stating it's "a third-party nonprofit organization with no financial interest in the stones it evaluates."

Garard says he hopes efforts from the IGDA will get the industry leaders like the GIA to rally around lab-growns.

"We've heard of lab-grown diamonds being pushed as natural, but all of our members sign a pledge to be totally transparent, so don't pick on us!" he exclaims. "We don't think that's right, and it's not in our best interest either to have somebody out there trying to sell lab-grown as real. We're in the same market and we should coexist."

Martin Rapaport, the chairman of [the Rapaport Group](#) and a diamond industry kingpin, is one of the most outspoken forces against lab-growns. He's turned the conversation, as trade industry magazine [JCK](#) reports, into a "war." In an April editorial on his site, titled "[Synthetic Diamond Scam](#)," Rapaport claims that shoppers are being misled about the worth of lab-growns.

"Natural diamonds have consistently served as a store of value for hundreds of years and consumers mistakenly believe the same of synthetics," he writes. "Consumers have a right to know what they are buying. Do they know that the value of synthetics is unsustainable and that the price they paid will fall sharply in the years ahead? Would they buy synthetic diamonds at anywhere near natural diamond prices if they knew the facts? ... The woman expects the man to give her something valuable that retains value just like their relationship. Snapchat Millennials or not, getting engaged to be married is not about creating a snap-relationship with a snap-synthetic diamond that does not retain value."

Rapaport also believes lab-grown companies are unfairly playing the ethics card in order to get ahead, at the expense of some of the world's poorest countries — a sentiment he drove home in an [open letter](#) to DiCaprio. That bad-mouthing the diamond industry could hurt Africa's economy is a concern that's been held by leaders like former Botswanan president [Festus Mogae](#) and Nelson Mandela, who [worked with De Beers](#) to communicate his apprehension when *Blood Diamond* hit theaters. At the time, even DiCaprio [told press](#) that "ultimately, diamonds are a source of social and economic stability in Africa, so this movie isn't to say people shouldn't buy diamonds." However, the actor seems to have changed his tune since then, which Rapaport takes issue with.

"One and a half million diggers support an additional seven million people by digging for diamonds," writes Rapaport. "These diggers are among the poorest people in the world, earning as little as one dollar per day. Their primary daily concern is getting food to feed their children ... Instead of using your fame and fortune to help these diamond diggers and their families, you and your company are falsely claiming that it is more ethical to buy your synthetic diamonds than their natural diamonds. You are literally taking bread out of the mouths of the poorest people on earth. And you are calling it ethical. That is super wrong."

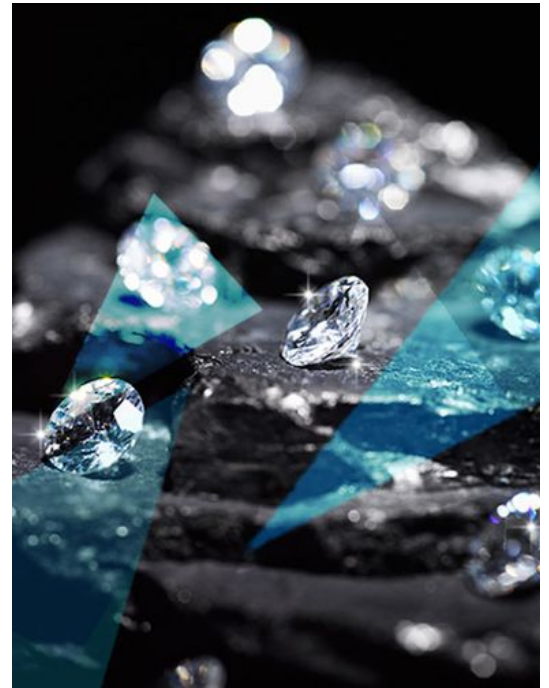


Photo: Getty Images/Brittany Holloway-Brown

This is a sentiment Roscheisen calls "bullshit."

"These guys are really trying everything," Roscheisen scoffs. "But that is the most disingenuous argument in the history of mankind. Industrial mining happens at a scale unlike any other human activity; it is the most profitable industry in the world. The mining industry enslaves people while the profits all go to government officials, who keep miners in poverty. It's pretty stunning that anyone would try to make that argument."

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Still, there is room for other critiques. Nancy Orem Lyman, vice president of the Diamond Empowerment Fund, says lab-grown marketing completely ignores all the strides diamond companies have made to make the industry better.

"The vast majority of diamonds are mined in places where responsible business practices have been put in place for the workers," she says. "These practices include building and supporting communities around many of the mines where families can thrive with schools, infrastructure, hospitals, and

access to healthcare. Our supporters are working diligently to improve the situations and conditions of others around the world through many different types of initiatives. Many are privately funded, many work in concert with governments and NGOs. Not enough is said about these positive impacts."

Hedda Schupak, a market analyst and editor of [the Centurion Newsletter](#), is skeptical that lab-grown companies are actually as sustainable as they claim to be. While Diamond Foundry boasts that its machines are powered through hydropower and solar power, others don't disclose the details of their production. This is a concern [publications like JCK](#) have raised before.

Two years ago, Jewelers Vigilance Committee president and CEO Cecilia Gardner told *JCK* that lab-grown companies using the term "eco-friendly" might be in violation of FTC standards because there's no proof that these factories (minus Diamond Foundry, which has let reporters from publications like [Quartz](#) see its operation to prove its machines are solar-powered) are green at all. And as *JCK* editor Rob Bates [notes](#), lab-grown diamonds aren't replacing mined ones — they're just being created in addition to them.

"Unless they claim to be using solar or wind power, they are not carbon-neutral," Schupak says. "And it takes a lot of energy to do what needs to be done to make a diamond."

So far, little research has been done on what actually goes on in these labs. According to one report in the [Stanford University alumni magazine](#) that uses Canada's Ekati mine as an example, "replacing this one mine's annual diamond production with synthetic diamonds created in a lab could save the equivalent of about 483 million miles' worth of auto emissions." But University of Vermont professor Saleem Ali writes in his report ["Ecological Comparison of Synthetic versus Mined Diamonds"](#) that "this data may be misleading because we do not have any accurate metrics of the raw material used to make the synthetic diamonds" since lab procedures are

labeled proprietary and are not shared with the public. The industry's lack of disclosure leaves people like Michelle Graff, who covers the industry for the trade site [National Jeweler](#), dubious.

"There's a certain irony in the lab-grown biz. They keep trading on how it's so ethical, and cleaner, but then what are they all hiding?" she asks. "The mined industry is constantly under scrutiny to share and disclose, why shouldn't they do the same?"

It goes without saying that lab-growing will only become more sophisticated and cheaper in the coming years, and that accountability will have to follow. But what happens when synthetic diamonds flood the market? Will natural diamonds still retain their value? The unsatisfying answer is: nobody knows.

Natural diamonds companies, for their part, are taking preventative measures to ensure they don't get edged out. Last week at the jewelry trade show JCK Las Vegas, synthetics were a hot topic — and not just because so many lab-grown companies attended the event. On the first day of the show, a newly-formed alliance of natural diamond companies called the Diamond Producers Association unveiled a new marketing slogan: "Real is Rare." The campaign, which goes live in September, targets young shoppers who crave real products "in a world of superficial interactions," according to a [press release](#) the DPA put out. There's no mention of synthetics in the release, but it's clear the tagline implies that lab-grown diamonds aren't "real."

And then there are the jewelers, waiting with bated breath to see if seemingly ambivalent shoppers in fact prefer one type of diamond to the other. For every customer browsing 47th Street who seems intrigued, there are several who scoff at the idea. Even someone like Eric Zamura, an accountant window-shopping for engagement rings who initially said his decision would come down to price, was quick to soften his stance on lab-growns: "I guess I'd have to run it by my girlfriend first." ■

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