Technology

DIAMONDS

Synthetics' impact not clear-cut

Diamond jewellery market could be next to feel pressure from artificial products

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The economics of the natural diamond supply chain are being scrutinised more closely than ever by the investor community and other capital providers.

One of the uncertainties commonly raised by investors is the impact of synthetic diamonds on natural diamonds. The term synthetic is arguably misleading. These are actual diamonds produced under controlled conditions by human-engineered processes, rather than through geographical forces. It's perhaps more accurate to call them 'lab-grown' or 'man-made'. Such stones are chemically identical to their natural counterparts. Specialist equipment is required to distinguish between them.

Lab-grown diamonds already comprise over 99% of the industrial sector, according to the 2014 Bain Global Diamond Report, thanks to their cost advantage, production capacity and strong distribution channels. De Beers' Element Six division is the leading player.

Penetration by lab-grown diamonds into the gem market has been limited so far. In 2015, an estimated 1Mct of lab-grown gem-quality stones will be sold, representing 1-2% of the 55Mct jewellery market, according to estimates by industry analyst, Paul Zimnisky.

With such limited market share, lab-grown diamonds are very much in their infancy. So why are they seen as a risk? For two reasons. First, industry players are concerned that lab-grown diamonds could be passed off as natural diamonds and fraudulently enter the market. This risks damaging the integrity of the supply chain, leading to an erosion of consumer confidence in natural diamonds.

Secondly, it remains unclear whether (or to what degree) lab-grown diamonds could cannibalise demand for natural diamonds.

Gemstones and pearls: room for both man-made and natural

The experiences of related product sectors, such as pearls, rubies and other coloured gemstones, could provide useful learnings for the diamond industry. High quality lab-grown rubies and sapphires have been available for many years, without decreasing demand for their natural counterparts. Lab-grown emeralds compete with lower end natural goods by offering a better-looking alternative for the same money, but top-tier natural emeralds are more expensive than ever. It's a similar story with pearls. The uniqueness of natural pearls means they now command significantly higher prices than the cultured equivalents.

And, if so, how it could impact the commercial viability of the natural diamond industry.

One thing is certainly clear: the diamond mining community has the most at stake. Miners invest the greatest amounts of upfront capital, on the basis of the longest payback timeframe. In comparison, other supply chain participants, such as processors and retailers, could switch from natural to lab-grown materials if the market moves this way. It wouldn't be painless, but it is easy to envisage how they might redeploy their resources.

To date, the diamond industry has focused on stemming the flow of undisclosed lab-grown diamonds into the natural diamond pipeline.

This is an escalated issue within the industry. According to Pure Grown, lab-grown diamonds are up to 30% cheaper to produce than their comparable natural counterparts, and will probably get cheaper over time. Players operating in the middle of the supply chain face considerable margin pressure, so it might be tempting for unscrupulous dealers to attempt to pass off lab-grown stones as natural.

Contamination of the pipeline could generate confusion, undermining consumer confidence in natural diamonds. A negative outcome would be that consumers shy away from the category generally, choosing instead to buy products whose provenance is more certain. The extent to which this is an issue has not been fully tested. But it's clearly vital that the diamond industry takes steps to address the risk.

Recently, the world's largest diamond producers formed a Diamond Producers Association, where undisclosed lab-grown diamonds reportedly sit at the top of the agenda. Marketing initiatives that incorporate commitments to supply chain integrity have also been developed. These include De Beers' Forevermark and Dominion Diamond Corporation's CanadaMark. Rigorous disclosure and self-regulation protocols sit at the heart of these programmes.

Technology also plays a part. De Beers has led the way in developing screening devices. It has invested US$65 million in research over the past 30 years, developing detection technology that can identify all types of gem synthetics. The technology arguably still needs to be perfected for some smaller stones and jewellery, but it's getting there.

Additionally, stones that pass through a recognised gemmological laboratory, such as the Gemological Institute of America (GIA), or International Gemological Institute (IGI), are routinely checked to see whether or not they are natural. These are typically larger polished diamonds. It is estimated by Gemdax that the gem labs see around 20% of global polished production.

While certification gives more valuable stones a high degree of protection, detection is more of an issue with smaller, uncertified diamonds. These make up the bulk of the market by volume. The good news is that detection technology has progressed in recent years to make screening smaller stones easier.

The Swiss Gemmological Institute (SSEF) has developed an Automated Spectral Diamond Inspection machine, which screens colourless melée diamonds at a rate of 3,000-4,000/hr. De Beers' Automatic Melée Screening device, which was piloted in 2013, can test both colourless and near colourless melée at a rate of 360 stones/hr. Adoption of these technologies is limited, but growing.

Finally, last year, De Beers issued guidelines for customers on how they can effectively and efficiently guard against the contamination of undisclosed lab-grown diamonds. They instruct third-party auditors to check that these guidelines are adhered to.

While industry practices and technology still have a way to go before the threat of undisclosed lab-grown diamonds is fully addressed, significant progress has been made. More initiatives will be introduced in the coming years, to help contain the problem. The industry can be cautiously optimistic about the long-term outlook, provided it can manage the short term. There is no room for complacency.

The issue of disclosed lab-grown diamonds poses a different challenge. It's clear that producers in this sector want to develop their own consumer market. The only question is whether it will grow independently of natural diamonds.