



The Singapore Assay Office uses special X-ray machines to screen gold jewellery before it certifies pieces that meet its benchmark. ST PHOTO: CHONG JUN LIANG



Testing of gold jewellery being conducted at Singapore Precious Metals Exchange at a LeFrero facility on Sept 7, 2022. ST PHOTO: LIM YAGHUI



By focusing the X-ray beam directly on this gold ring, the Singapore Assay Office can get an immediate reading on its gold purity. ST PHOTO: CHONG JUN LIANG

When gold jewellery does not contain enough gold

Goldsmiths who ensure items are authenticated offer peace of mind

Tan Ooi Boon
Invest Editor

It's true enough that all that glitters is not gold, but it can be far harder to know just when you are buying when you do splash out on the precious yellow metal. We can judge on appearance and weight, but neither tells you how much gold there is until you use X-ray scanners or get a refinery to extract the precious metal.

The result can be rather disconcerting because most people won't bother to check the authenticity of their jewellery until they need to sell it.

That was the distressing situation Madam Chen, a retiree in her 70s, found herself in when she traded about 20 pieces of her 916 gold jewellery that had been accumulated over many years.

While 916 refers to the purity of each piece - 91.6 per cent - they can also be known as 22K gold, which is the common standard for such jewellery sold in shops here. Like many people, Madam Chen exchanged the items for cash at the Singapore Precious Metals Exchange (SPMX). When SPMX sent the pieces to Singapore Assay Office (SAO) for testing, Madam

Chen's gold pieces were found to have an average purity of 88 per cent, not the 91.6 per cent benchmark. But if you want assurance that you are getting your money's worth, look for those SAO hallmarks, because the tests are rigorous that any pieces that miss out on even a fraction of the passing benchmark will be marked as 'failed'.

There are items that are exempted from hallmarking, due to weight or thickness limitations, and you can request reports that certify their purity. The SAO also offers a screening service to verify consumers' articles for a small fee.

It is common for parents to give gold jewellery at their children's wedding, so it is essential that they do not say jewellery that is "sub-standard".

Senior Counsel Englin Toh says: "I would suggest that the parents purchasing the gold jewellery should insist on a certificate of purchase certifying that the gold purity is 91.6 per cent. This is important to assure buyers that they are getting what they pay for and as evidence in case of a legal suit."

If the goldsmith cannot issue such a certificate, they can try to bargain the price since they do not get an assurance that there is no discrepancy in quality, their sale would cost more than a

cheaper metal, but a very similar density to gold. As sound waves travel faster through tungsten than gold, the scan will pick up tungsten bars and is resulting in a "failed" reading.

This apparently happened to some of the customer's gold bars. As a result, he was advised to send the bars back to the refinery and ask for a refund. A full refund was paid but the refinery disputed allegations that the bars had impurities.

However, Mr Foo stands by his test. In a demonstration to Invest, the same ultrasound scanner was able to accurately give a "pass" reading for a 99.99 pure gold bar but a "fail" reading for a gold ornament that is usually mixed with other alloy.

"You cannot temper with science," says Mr Foo. "This is why we will remove even 99.99 bars from their castings to test them in order to safeguard the integrity of our business. Such tests eliminate the possibility of adulterated bullion passing into our exchange."

EXPERT'S THREE TIPS FOR THOSE KEEN ON COLLECTING GOLD BARS

Buy from only dealers who get their supply from accredited miners. Make sure you always keep proper receipts and proof of purchase or ownership. Such documents can help you to get back your money if there are disputes. Where possible, always check and test your physical holdings. The Singapore Assay Office can authenticate your gold for an affordable fee.



When customers send their gold jewellery for smelting, they get back gold nuggets, such as this one, that has 99.99 per cent purity. ST PHOTO: CHONG JUN LIANG

Why two bracelets failed the purity test

Two gold bracelets which look nice and shiny but have a serious defect that the naked eye could not detect were given a 'fail' rating by the Singapore Assay Office (SAO).

The office gave the rating to the jewellery because the gold content was less than the 91.6 per cent benchmark for 916 or 22K jewellery, or 91.6 less.

An X-ray test showed that the gold content was 90.9 per cent, or a mere 0.7 percentage points short. It may sound petty to nitpick over a

fraction of a percentage point, but this has implications on the integrity of the gold business - customers do not like to be short-changed.

So, if a bracelet weighs 20g, it should contain gold worth at least \$1,400, based on the current price of the precious metal. But the shortfall means it is worth \$1,399, or \$11 less.

That seems like small change, but a shipment containing 1,000 bracelets would have a shortfall in gold of a hefty \$11,000.

When such cases happen, the fault usually rests with either the supplier or the refinery, and not the goldsmiths, who would want to be accused by customers of selling 'sub-standard' jewellery.

Invest learnt that the owner of an overseas refinery once took issue with such reports by the SAO, saying he had been running his business honestly for decades.

But the irrefutable scientific data was proof that all was not well. The owner later found out that one of his employees had been tampering with the gold content at his refinery.

The SAO's senior manager, Mr Yap Jian Jie, says that apart from jewellery with less than the declared gold content, it has also come across pieces that have "inserts" such as lead within hollow spaces in the gold.

Jewellery that have been tampered in this manner come mostly from overseas dealers, so you should think twice before shopping at unknown jewellers when you are holidaying, no matter how great the bargain.

Some dubious pieces may also use toxic alloying elements such as thallium and cadmium to improve melting characteristics. Wearers of jewellery with prohibited elements risk encountering skin or other health complications.

IMPORTANT TO DEAL WITH REPUTABLE DEALERS

Only someone develops an affordable, portable gold scanner - they cost tens of thousands of dollars

While these two gold bracelets look nice and shiny, tests by the Singapore Assay Office show they do not meet the benchmark purity of 91.6 per cent gold content. ST PHOTO: CHONG JUN LIANG

Tests such as X-ray and ultrasonic tests on gold bars will reveal tell-tale signs if the bars are not made of pure gold.

Invest understands that the bars were first put through an X-ray test with a handheld spectrometer which should display '9999 Au', or Aurum, gold's chemical name, for pure gold bars. The bars passed this test, but some failed the ultrasonic test, which suggested that there was impurity within the bars that could not be picked up by the X-ray scanner.

Heavily gilded tungsten has been passed off as gold. Such fraud is possible because tungsten, a far

WHAT SHOULD BUYERS DO

It is not a requirement for goldsmiths to authenticate or hallmark gold pieces at 916 or to gold retailers with around 30 stores across the island engage the SAO to certify and put its hallmark on their jewellery. Firms published on the SAO's website include household names like Poh Heng, On Cheong, Chip Lee, Ming Seng, as well as Arthesdam, a popular destination for tourists in Little India.

The SAO says these jewellers send all their gold pieces to be officially certified through X-ray and ultrasonic tests to ensure they meet the benchmark gold content - 99.99 per cent for pure gold pieces and at least 91.6 per cent for the more common 22K, or 916 jewellery.

The ones that meet the benchmarks are inscribed with a hallmark that comes with a SAO lion's head emblem.

Of course, items that do not have such hallmarks can still meet the required gold content. But if you want assurance that you are getting your money's worth, look for those SAO hallmarks, because the tests are rigorous that any pieces that miss out on even a fraction of the passing benchmark will be marked as 'failed'.

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SAO SENIOR MANAGER YAP JIAN JIE'S TIPS ON BUYING GOLD

- You cannot tell the purity of gold by its colour because the primary metals used in alloy, such as copper and silver, affect the final colour of the alloy. For instance, a higher silver content results in "whiter" gold, while higher copper content results in "rose" items. But if you buy a 916 rose gold jewellery that is hallmarked by SAO, you will get 91.6 per cent gold content in it.
- "White gold" is not palladium or platinum. While white gold usually contains 75 per cent gold and other alloys, such as silver, palladium or nickel. This makes it comparable to a 18K gold and jewellery which comprises 75 per cent gold. So if you are being charged 916 prices or higher for white gold pieces, you should ask the seller to spell out the item's metal content to see if it is worth your money. For instance, a genuine platinum ring would cost more than a

Stamp of trust is good as gold for business



Arthesdam Jewellery owner Angela Lam prices her gold jewellery lower than many of her competitors, but that often results in undervalued items such as "lower price power quality".



On Cheong Ho Nai Chuen says it will continue to work with SAO to hallmark all its gold jewellery to offer consumers' added confidence. PHOTO: ON CHEONG JEWELLERY

Ms Lam tries to silence such criticism by sending every gold item to an independent scientific test centre for authentication - a step many goldsmiths both here and abroad don't do.

This means that all pure gold items sold by her three outlets in Serangoon Road are truly of 99.99 per cent grade, while all her 916 jewellery is certified to meet the minimum benchmark of 91.6 per cent since gold content. The proof of the gold standard comes in the form of a lion's head hallmark from the Singapore Assay Office (SAO) that is inscribed on every piece.

"I am very particular in ensuring that everything we sell meets the gold standard, that even small ornaments that are less than one gram gets a hallmark", Ms Lam says, adding that the less than \$3 fee to mark each jewellery is a small price to pay to gain customers' trust and long-term patronage.

Although Arthesdam - derived from the Tamil word "lucky" - was started by her father in 2000, Ms Lam is the third generation jeweller of the family because her grandfather was a veteran in the pawnshop industry.

"Trust and customer relationship are very important in our trade. So having the SAO hallmark has proved to be very successful for us because we also get many online purchasers from overseas customers", she says.

Indeed, the faith that foreign buyers have in the Singapore hallmark gold jewellery has also led her company to sign wholesale deals with retailers in more than 20 countries, including Switzerland, Germany, France, Canada, Sweden, Denmark and Norway.

Now that more tourists are back in Singapore, Ms Lam says Arthesdam has been enjoying brisk business.

"As the Singapore dollar is quite strong, we deliberately lower our gold price so that the sales volume will go up. As our hallmark is proof

that everything is as real as it gets, customers are assured that they are getting a good bargain", she says.

Another brand-name goldsmith, On Cheong, believes in guaranteeing the quality of its gold jewellery, a "commitment" to its customers that it has undertaken since the company started as a traditional goldsmith shop in 1936.

Managing director Ho Nai Chuen says it will continue to work with SAO to hallmark all its gold jewellery to provide consumers' with added confidence" when choosing items.

After all, gold means more than just a product; the company's name, which is derived from a popular Chinese phrase for peace and prosperity, is in gold colour as well.

"The hallmarking fee is regarded - as an investment rather than a cost element," says Mr Ho.

The goldsmith, which has two outlets in prominent locations in New Bridge and South Bridge roads, enjoys brisk businesses from regular customers as well as tourists who often regard Chinatown as the place to shop for gold jewellery.

"Hallmarking is useful in attracting online purchase," notes Mr Ho. "It is more so for international visitors, whether they are patronising On Cheong's physical outlets or purchasing through online platforms."

Tan Ooi Boon

Ms Angela Lam, the owner of Arthesdam Jewellery, sends every gold item to an independent scientific test centre for authentication. PHOTO: ARTHESDAM JEWELLERY

QUALITY CONTROL

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ANGELA LAM, OWNER OF ARTHESDAM, ON GETTING PROOF OF THE GOLD STANDARD IN THE FORM OF A LION'S HEAD HALLMARK, ON EVERY GOLD ITEM.

ALWAYS HAVE ENOUGH MONEY

Not everyone can become rich. But all of us can certainly try to avoid being poor - if you succeed in doing so, it means you will always have enough money.

ALWAYS HAVE ENOUGH MONEY

In his new book, author and ST Invest Editor Tan Ooi Boon shares practical tips on:

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