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Repaired surfaces found on rubies

Polished rubies with repaired surface pits and cavities that are impossible to detect with the naked eye have been discovered by gemmologists in Thailand.

Jewellers and dealers are warned to check their proposed purchases in the next few months.

In certain cases, the value of repaired rubies could rise if the treatment went undetected.

Gemmologists at the Asian Institute of Gemological Sciences (AIGS) discovered the treatment in June when a parcel of one carat rubies was brought in for examination.

This is believed to be the latest form of corundum treatment to emerge from the ovens of Thailand's "gem chefs."

It is not known how many treated rubies may be on the market or in which countries they are circulating.

"We have no information on the process itself," said laboratory director, Richard Hughes, "but we believe it involves fusing glass into the pits at high temperatures."

The magnification power needed to detect the repairs varies between 10 and

30 times, depending on the size of the repair, Mr Hughes said.

As far as the gemmologists could tell, there is no reason why this treatment could not be applied to other stones, as long as the glass could be fused to the material in question.

"The permanency of this treatment has yet to be established, but it would seem to be questionable.

"Should the glass fall out of the pits, then the stone would be more susceptible to damage," Mr Hughes said.

The glass areas are much softer than the surrounding stone, he added, so they will not be polished to the same perfection.

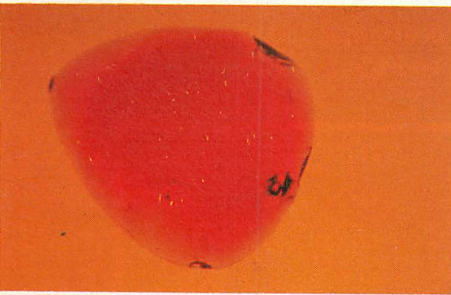
Any increase in value of the stone would depend on the extent of the repaired areas, Mr Hughes said.

Conceivably, the value of a stone could be raised by as much as 50 per cent above its real value if the repaired areas comprised a large portion.

If the repaired pits penetrate deep into the stone from the surface, two factors must be considered, Mr Hughes said.

"Firstly, as the undiscovered repaired

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High relief repaired areas, visible when the stone is immersed in methylene iodide (10X)



The large repaired area is exposed under oblique lighting, 23X (above), 40X (below)



Taiwan diamond factory sells in Asia

By Letitia Chow Mei Lai

The largest diamond cutting factory in Taiwan, Tojo Diamond Cutting Works Ltd, has started selling polished diamonds direct from its factory, and from Hong Kong, to the trade in Asia.

The aggregate turnover for the first three months of 1984 exceeded US\$500,000.

Since the Octha Diamonds Group of South Africa opened

the factory in February 1981, all production was sent to the company's New York office for distribution through marketing offices in New York, Antwerp and Zurich.

Now, products are available for sale at the factory in Taiwan.

"Our company believes

Asia is where we should develop our markets. We want to concentrate on supplying large manufacturers and dealers," the general manager of Tojo Diamond Cutting Works, Dawid de Villiers, said.

"This is a shift in emphasis for us from the traditional markets.

"We have already tested the market in Asia and response has been overwhelming. Now we are moving into full scale, aggressive marketing."

Rough diamonds for the Taiwan factory are supplied from Octha's mines in South Africa and from dealers in Antwerp.

Mr de Villiers said he would like to see Tojo

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PRICE

Hong Kong HK\$18, India Rs 46, Singapore S\$7.50, Malaysia Rg8, Macau HK\$18, Philippines US\$3.50, Taiwan NT\$150, Thailand B80, Sri Lanka Rs105, Pakistan Rs53

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Ruby repair technique

stone is priced per carat, part of the total price would pay for the weight of the filler at the ruby price per carat.

"Secondly, if the recutting of the stone to remove the re-filled pits drops the weight of a relatively clean stone below a unit carat level, a significant price devaluation will result."

AIGS laboratory supervisor, Wimon Manorotkul, believes the new treatment will only have a temporary effect on the market.

"Once the market starts to reject these stones and they are turned back through buying channels to the actual producers, then it will stop," she said.

"When the producers find they can't sell these stones, then why bother treating them?"

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New treatment surfaces for rubies

Gemmologists working at the Asian Institute of Gemmological Sciences in Bangkok have uncovered what appears to be the latest form of corundum treatment to emerge from the ovens of Thailand's skilled gem chefs — the "surface repaired" ruby.

Surface pits and cavities are a common feature on faceted rubies, especially expensive stones. To grind them away sacrifices weight, and in the ruby business a few extra points (0.01 carat equals one point) may be the difference between profit and loss.

So, until recently, the pits remained. Then, a parcel of one carat rubies was brought in for examination.

Every stone in the lot was found to have had the surface pits repaired by filling them with a transparent colourless material.

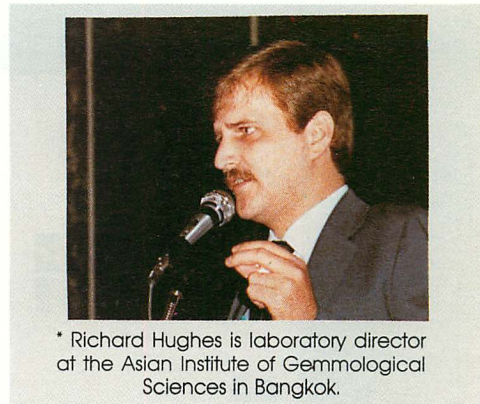
By Richard Hughes*

These repaired areas stood out in high relief when the stone was immersed in methylene iodide and examined under magnification.

Gas bubbles of various sizes were also seen in some of the filled areas. Additional tests proved the filler material to be singly refractive with a 1.52 refractive index, thus suggesting the identity to be some type of glass.

Because the filler material seems to have been fused into the surface pits and cavities, it appears that some type of high temperature heat treatment is involved.

Gem cookers have been known to add a wide variety of substances to the crucible, and



* Richard Hughes is laboratory director at the Asian Institute of Gemmological Sciences in Bangkok.

this could be the accidental by-product of the ordinary burning.

However, since the initial discovery other rubies have been found displaying similar repaired features. It seems more likely that this is being done with the aim of improving the appearance of stones by lessening the visibility of their surface flaws.

Regardless of the motives behind this new treatment, the fact remains that in certain cases the surface repairing of rubies could substantially raise the value of a stone if it went undetected.

It is of great importance that buyers know all the details about the absence or presence of surface repair, and its extent, before deciding to buy a particular stone.

How to detect surface repair

Detection of the surface repair of rubies should not be too much of a problem for a well-equipped gemmologist.

The stone in question should be immersed in pure methylene iodide and examined under magnification with diffused light field illumination.

Any repaired cavities will be visible as high relief (highly reflective) areas breaking the surface of the stone, especially when viewed at an angle to the surface. Gas bubbles within the filling material are often seen as well.

But care should be taken not to confuse a repaired pit or cavity with a naturally occurring included crystal; these can sometimes break the surface as well.



Thai ruby: magnified view (46 times left and 60 times right) of a surface pit which has been repaired by filling it with a glassy material. Note the large gas bubble in the filling material. The discovery was made by Suree Charoensrihanakul.