

News about Treated Brown Cultured Pearls

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瑞士的SSEF Swiss Gemmological Institute 在研究五顆來自不同產地的“巧克力色”染色珍珠過程中，發現測試樣本對銀含量測試呈陰性反應，並希望作更深入之研究。

After reading the latest news about artificially coloured brown cultured pearls, the so called “chocolate pearls”, we were impressed by the complexity of the story that has been put about to explain this new colour. Following the writing of various different authors and rumours within the trade, one comes to expect a biochemical intervention centred on the melanin molecules. Good quality Tahiti cultured pearls with too much colour are said to be used with colour removed and reduced from the surface. The colour is said to be stable and to penetrate deep inside the pearl with sometimes even the nucleus turning brown (as reported in JNA June 2006 issue, page 60). This tends to give consumers the idea that decoloured pearls are better than just stained ones.

Now it is a difficult task to believe both that the colour of the pearl is lessened by sophisticated modification of melanin while, at the same time one is being asked to accept that the otherwise white bead in the centre of the pearl will turn brown during the same process. Anyhow, the result of such a process

of changing the colour of a pearl would be the same regardless if the colour were removed or added by simple staining. Either way you end up with a colour treated pearl.

For a long time now the SSEF, Swiss Gemmological Institute, has been seeking assistance in getting test material to learn more about this chocolate mystery. Then, recently, we happened to get 5 pearls from three different producers and were able to take the first steps of our research. The results are surprising and show that common sense is always helpful when mysteries intrigue people. Provided that the sources of our research material are correctly indicated, three different producers (one in England, one in Japan, and one in Switzerland) are distributing dyed pearls with distinct colour concentrations in the outermost layer of the pearls. The thickness of the dyed layer is about 0.05 mm (Fig. 2). The underlying nacre is grey to lighter brown, and not darker, as indicated in the “propaganda” material being circulated (Fig. 3). The same is found in pearls that have simply been stained, as it was once commonly done with silver nitrate or as it is done today with more modern dyestuffs. The test for silver was negative, so another dyestuff is in use. Such a treatment would also transform South Sea cultured pearls into “chocolate pearls”.

More research will have to follow, on a broader selection of "chocolate pearls". The testing methods so far are microscopic and Raman-spectroscopic. A simple gemmological test is not yet available. But a tiny flat polished spot (e.g. around a drill hole) would show a colour concentration confined to a superficial layer. The SSEF laboratory would welcome chocolate pearls for testing to increase our experience in this field. Contact us by e-mail: gemlab@ssef.ch. We are curious to learn if there really are dark Tahitian pearls that can be lightened in colour.

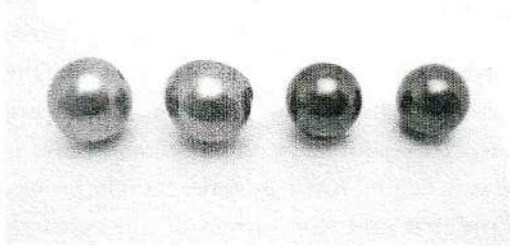


Fig. 1 A small selection of nucleated cultured pearls, so called "chocolate pearls", showing a range of colours. The diameter of the largest sample is 12.7 mm. Photo H.A.Hänni © SSEF

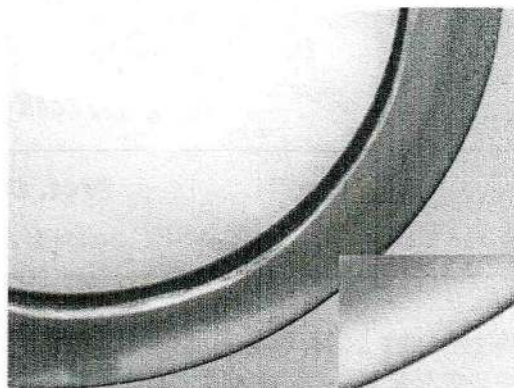


Fig. 2 Cross section through a nucleated cultured pearl sold as "chocolate colour". Clearly visible is the white bead nucleus and the thin surface layer showing brown colouration (see magnified inset) whereas the underlying nacre is greyish. Photo H.A.Hänni © SSEF



Fig. 3 A stained brown cultured pearl with small surface portion that has been polished flat. Surface colour concentration is clearly visible. Photo H.A.Hänni © SSEF