

## Gems and Minerals

# Gem Alert

**Bear Williams** reports on star stones that are not what they seemed

### Lead glass filling seen in star ruby

A 2.59 ct red star stone, one of a parcel of stones purchased in one of the 'outer shows' in Tucson 2008, was sent to me for identification (1). At first glance it had the appearance of an Indian star ruby, but with a bit more translucency. Closer observation revealed that it was in fact a star ruby with a lead glass filling, the glass no doubt creating the clearer, less opaque look, albeit a somewhat included view.

In the 20x photo (2), in the region from 9 o'clock to noon, several fissures and a larger cavity, probably where the material was introduced, are visible. In the interior of the stone were rutile, normal colour zoning and inclusions, without any indications of extreme heat. Air bubbles could be seen deep within the stone. Despite the heat involved in the glass filling, enough rutile remained intact to create the star.

The Raman reading on the ruby (3) clearly showed peaks due to glass accompanied by the usual corundum peaks. These were compared against the glass control readings (black). Weak UV chromium emission reactions were also noted.

Such stones had been reported as being seen as early as 2004 by the Gemmological Association of All Japan (GAJ) and 2005 at the American Gem Trade Association (AGTA), but this alert comes as a reminder that these are no longer the rare visitor to a laboratory, but general products now sold in the open market.

### Etching on blue stone to create a star

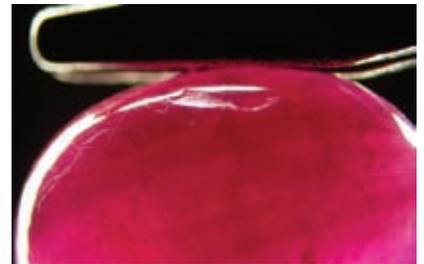
Another interesting star corundum treatment was seen in a ring (4) submitted for evaluation, set with a 12.4 x 11 mm blue star stone estimated at 11.65 ct. As can be seen in the photo (5), tiny etched grooves have been applied over the top surface of a synthetic sapphire cabochon giving the appearance of a star which looks surprisingly authentic, especially when set in a ring with diamonds. The work had been very artfully carried out in that slight variations had been made to give the appearance of the natural-looking crookedness on some of the 'rays' of the star. When the stone was immersed and examined under a microscope, curved striae were observed in the interior indicating its Verneuil growth origin. This star stone is the product of a skilled worker with a good eye.

### Warning

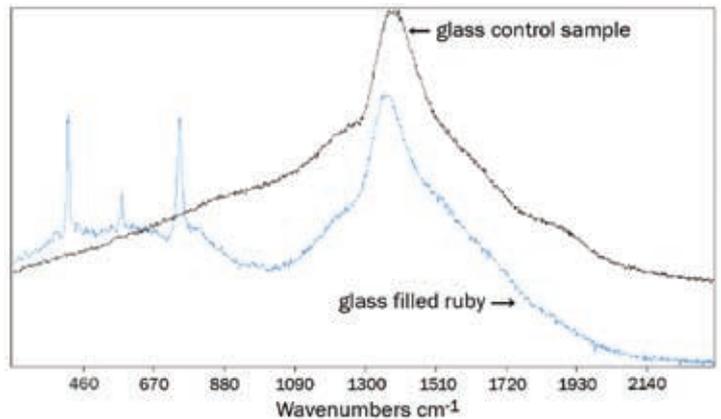
While not commonly seen treatments, these fakes can pop up anytime and anywhere, and the practising gemmologist should consider all potential frauds when examining materials.



ruby. 8.9 x 6.7mm.



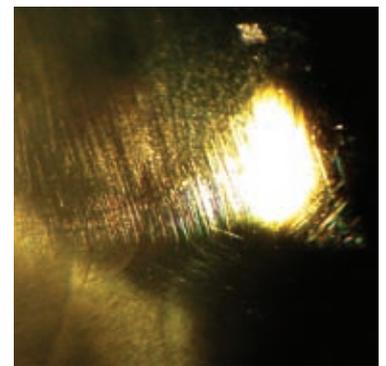
2 The filled section of the ruby. Magnification 20x.



3 The Raman spectrum of the glass filled ruby (blue) showing the peak at 1377  $\text{cm}^{-1}$  indicating the presence of glass, compared with the standard glass spectrum (black).



4 The blue star stone mounted in a ring.



5 The etched lines in the blue star stone showing how they converge at 60° angles to give the asterism. Magnification 25x.