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Madagascar Meltdown

Comparing ruby direct from Madagascar and by way of the Thai cooking industry...



At the ISG at Tucson 2011 events we met a miner from Madagascar who sold us a specimen of a Madagascar ruby crystal still in its biotite mica matrix. We try to buy things like this whenever we find a good source simply for the reference value for future research. After all, you never know when you are going to need a good reference specimen to compare some future issue, and this was a perfect opportunity to obtain a Madagascar ruby still in matrix direct from the guy who dug it out of the ground.

At right you see an image of this biotite mica matrix. The plate formation of the mica is very characteristic for this material, and based on our further research we found is classic for much of the ruby formations in Madagascar.

Approximately 2 months ago we were offered several crystals of Madagascar ruby from two dealers located in Thailand. We purchased these and brought them into our lab for evaluation.



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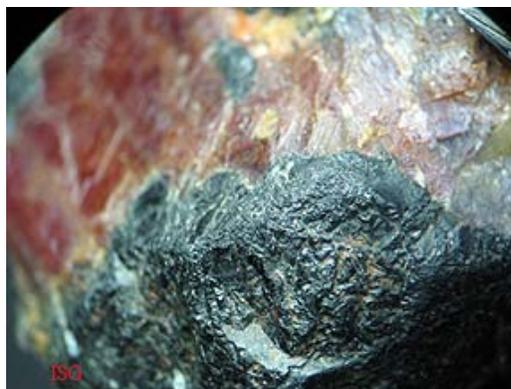
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Upon initial inspection the crystals appeared to be quite normal. As you can see at left the ruby was a very nice red color. It was more cabbing type material rather than facet grade, but that was OK since we did not plan to actually cut and sell these. And while we confirmed the anticipated biotite matrix on the crystals supporting the claimed Madagascar origin, there was something quite strange about the biotite mica platelets. They appeared to be...melted.

Indeed, when we looked at the black matrix of these crystals, the biotite mica platelets were evident in places, but in other places they appeared to be little more than a black melted mass on the stone that had flaked off in places.



Some of you out there have already put 2 + 2 together on this. The melting point of biotite mica is very, very high. On the range of 1300 degrees C. That is extremely high. And since we have a piece of natural Madagascar ruby in matrix from the miner, we know that this material did not come out of the ground in this condition. At some point in time these crystals were subjected to extremely high heating....like that used in the diffusion process in Thailand. But there was more....



At left you see the surface of the ruby itself. It is easy to see that this crystal has been heated to the point of melting as evidenced by the surface of the stone showing flow lines. This ruby has been subjected to heating that exceeded that of the melting point of mica and reached almost to the melting point of corundum, at around 2000 degrees C. Exactly what we would expect from these crystals being heated for diffusion process treating.

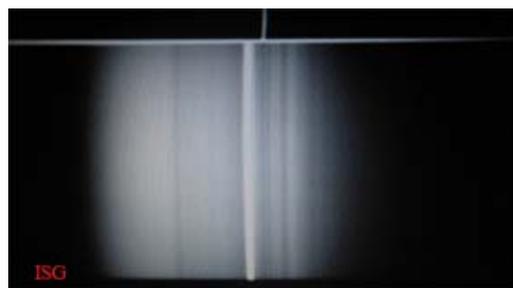
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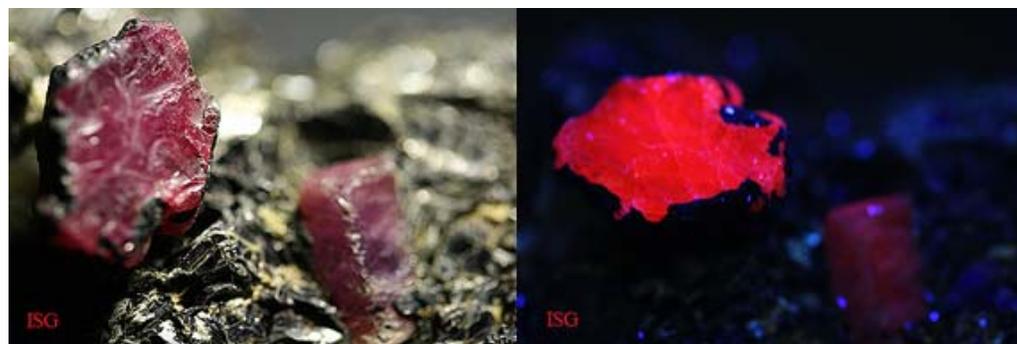


Based on our research published just previous to this newsletter, we know that the diffusion treated corundum tends to produce

very strong transmission lines in the 695nm range of the spectrum. Since these crystals were translucent, we turned to our MDM Spectrometer as it can transmit very strong light that permeates these types of crystals. The results are characteristic of what we have found in diffusion treated corundum. The actual spectrum of this crystal is below.



Our research has also told us that if these rubies are heated for diffusion treatment, and the bright transmission lines in the 695nm are due to diffusion treatment, then the usual result is a significant alteration in the ultraviolet reaction of the stone. Our natural Madagascar ruby in matrix is very very faint to UV owing to the rather high iron content of the stone, But based on our research, even what we know to be Madagascar ruby from the Thai dealers will be altered for UV reaction if diffusion treated. The test results are below by simple comparison of our control Madagascar ruby in matrix to the Madagascar ruby purchased from the Thai dealers. The results are dramatic.



The extremely bright reaction to ultraviolet light has only been seen in natural corundum that has been diffusion treated, and in lab created specimens. Since the biotite matrix of these crystals serves as a sign post of their origin as natural and from Madagascar, the only reasonable conclusion is that these stones have been subjected to extremely high heat and diffusion treatment....while still rough. Which is a new development to this office as the majority of diffusion treated corundum we have seen to date has been treated after cutting. These crystals mark the first time we have been able to purchase rough crystals in matrix that have been subjected to diffusion treatment.

The bottom line to this is simple: Based on our ongoing research, buying gemstones from Thailand right now is a virtual guarantee of undisclosed treatments. While we strongly support the treatment of gemstones in order to maintain a viable market supply, we do not support the overwhelming number of stones flooding the market out of Thailand that are sold undisclosed for treatments. Just as the group you see above.

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When shopping for gemstones on any level, we urge everyone to shop with a Registered Gem Dealer of the World Gem Society to insure that you are getting proper disclosure and representation of your purchases. Look for the WGS Logo as seen below. Click on the logo to visit our WGS Registered Gem Dealer Directory:



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To the Thailand Gem Industry: You folks apparently have no clue just how much damage you are doing to the world gemstone markets, particularly to consumer confidence. Your treatments are wonderful and could make gemstones available on the markets for years to come. But flooding the market with undisclosed treated gemstones is killing the whole market for all of us. We know you are doing it as demonstrated above. And as new equipment and research comes on the market this dirty little Thailand secret just cannot be kept hidden. You need to look to the future, not to short term profits. Disclose these excellent treatments for what they are. We will help you sell them....when and if you are willing to start proper disclosure. Otherwise, we will not stand down in our reports.

To the GIA, AGTA, ICA, Gem-A, AGS, AGA, et al...: If we are going to recover the future of this industry we are all going to have to sit down together and work out this issue of undisclosed gemstone treatments. This is never going to get resolved unless we can sit down over a cup of coffee and work together to rebuild consumer confidence in this industry. If we don't, the colored gemstone industry as we know it will be damaged beyond repair in just a few more years.

Seriously, I will buy the coffee if any of you are willing to sit down at Tucson and see if we can come up with a plan to help get this colored gemstone industry back on the right track. Contact me: info@worldgemsociety.org

If you have problems viewing the images above, please visit the World Gem Society Forums to read the article in its entirety. [World Gem Society Forums](#)

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