

LAB INFORMATION CIRCULAR (L.I.C.)

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Enhancement..... Disclosure.....

Gemmologist , GTL

In the '70's the main issue was that of synthetics and the implications to the natural gemstone dealers. Time solved that problem.

Today it is Enhancements and their disclosure which is all set to upset the applecart.. In this case it does not look like time alone will be the healer. Unlike synthetics wherein a stone is either a natural or a synthetic, in the case of enhancements the situation is not so simple.

Over the past few years trade organisations such as CIBJO , ICA , AGTA , IDMA etc. have tried to evolve a standardised system to handle this issue .

The Bottom line is now clear - **Disclosure is absolutely necessary NOW**, so as to ensure a healthy future for the trade.

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GTL Activities.....

Educational

In the past few months a number of new courses have been introduced at GTL, Jaipur. Regular courses now include :

- Diploma in Gem Identification - 3 1/2 months
Fees :Rs.10,000/-
Next Batch commences on 1st.Dec.2000
- Diploma in Gem Identification – Correspondence
Fees : Rs.12,000/- (India) ; Rs.21,000/- (Foreign)
- Certificate Course in Gem Identification – 4 months
Fees : 12,500/-
- Masters Diploma in Gem Identification – 5 months
Fees : Rs.25,000/-
Next batch commences on 1st.Jan. 2001
- Short Courses are conducted as per individual requirements.



New Staff members at GTL

Smt. Ritu Bharadwaj and Shri. Manish Kumar were appointed as Assistant Gemmologists and joined GTL in April 2000.

Under the RCCI –SDC Project ,Shri. Mustaqem Khan has joined from April 2000, for operation and preparation of database on the FTIR spectroscope.

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Enhancement (contd.).....

But first, a quick look at some of the enhancements currently being done on gemstones.

- Bleaching – removal of colour
- Colourless Impregnation – fracture filling / filling of pores / voids & cavities with a colourless substance
- Coloured Impregnation - fracture filling / filling of pores / voids & cavities with a coloured substance
- Heating
- Irradiation
- Diffusion
- Surface modifications -Coating / Spraying / Foiling
- Laser drilling

Disclosure of Enhancements on Identification Certificates

- At one point the issue revolved only around gemstones such as Diamond, Emerald, Ruby, Sapphire and Pearl, probably due to the higher value being attributed to them.
- This is no longer the case since a number of gemstones (all high value) are being enhanced too.
- Another important factor is that all qualities - low value to high value are being enhanced.
- This brings up the question of the feasibility of a uniform system of disclosure and the question of the **amount** of treatment done to a stone.
- Of prime importance is that a laboratory must have the technology and qualified personnel to maintain consistently, an accurate analysis of enhancement.
- The basic concept remains as to whether the enhancement can be identified conclusively on a consistent basis.
- **It is accepted that enhancements must be certified on an identification report.**
- A two pronged system with General disclosures and Specific disclosures is being introduced.

- Specific disclosures such as the exact nature of the filler material in a fracture would be **On Request** in many labs. – the problem of consistency in reports.
- Degree of enhancement - minor, moderate, significant. A system of grading the amount of treatment is being worked out, so as to distinguish between a stone with a small filled fracture from one which contains numerous filled fractures - Problem of consistency and the personnel required to handle the grading of enhanced gemstones.

The Traders Viewpoint

- Disclosure would improve credibility.
- With more gemstones being enhanced, all of a sudden there are a number of stones which appear as high value stones.
- Since there is a distinct difference in the price of a natural untreated gemstone and one that has been enhanced - **disclosure should be mandatory.**
- Importance of certification of degree of enhancement - to distinguish the lower quality stones, from the higher grade i.e. if two deep green emeralds are examined, one has one fracture while the other has four fractures filled. Here consistency is absolutely necessary.
- **It is necessary that enhancements must be certified on an identification report.**
- It would be simpler if all traders declared exactly what has been done to the goods.

Would you take a few minutes of your time to let us know your opinions in this connection. Thanking you in advance.

- What do you feel about this issue ?
- What stand do you think the laboratories in India should take ?
- Should the labs in India certify enhancements?
- Kindly write to us at :
GEM TESTING LABORATORY,
RAJASTHAN CHAMBER BHAWAN,
M.I. ROAD, JAIPUR 302003
Email us at : atlior@id1.dot.net.in

A TRIBUTE



Shri Shreechandji Golecha is no more and with him ends an era. Shreechandji breathed his last on 1st.July at 3.00am. at his residence. He was 97 years old.

He was a renowned Authority on Emeralds and Jain literature and has been Guruji to most of the leading jewellers of today .A very quiet, unassuming and self made man he has been a fount of wisdom to all who went to him.

Shreechandji was a favored and very punctual Chief Guest at GTL, Jaipur and has graced many of our functions since 1997. We will miss his interest and advise.

May his soul rest in peace.

THE 2ND. NATIONAL GEMMOLOGICAL SEMINAR - SHIMLA , MAY 2000

IGS 2000 was held in Shimla from 4th. – 7th. May 2000. The Conference held on 5th. & 6th. was well attended with about 100 delegates from all over India. Congratulations to Shri. Deepak Bagai for his painstaking efforts and organisation which was responsible for the success of the conference. Panel discussions included the practical applications of the FTIR and the Raman Spectroscopes in routine certification.

Papers presented were :

- Hutti Gold Mines - Retrospective and Prospective - K.L. Negi
- Will Diamond Remain Invincible In the New Millenium ?? - Indira Vikamsey
- Gem News Around the World - Dr. Jayshree Panjekar
- Diamond Mines Panna - Dr. A.N. Singh
- Emerald Source Identification With The Help Of 10x Lens - Mustaqem Khan
- Laser Raman Spectroscope and It's Applications - Animesh Sharma
- Beads - Beena Jain
- A Comparative Overview of Laser Raman Spectroscopy and FT-IR Spectroscopy - Ritu Bhardwaj
- Gem Care - Tejas Mehta
- Observations On The GE-Processed Diamonds - Dharmesh Pachchigar
- Crystal Therapy - Usha
- Branded Jewellery - Anjali Jhaveri
- Role of FT-IR in Gem Identification - Manish Kumar
- Inclusions in Natural Ruby - Meenu Vyas
- Tanzanite : Mining to Marketing - Prateek Jhaveri
- Gem as an Investment - Kapil Malhotra
- Gemmology, Astrology and Yantrashastra - Vijay V Udeshi
- Rare Minerals - Mrs. Tanuja Maratha
- Pegasus : The Journey Unfolds - Nicola
- Gem Therapy : Medicine and Healing - Akash Jain
- Incidents of Diamond at Panna - K.K. Sharma & Dr. A.N. Singh
- Practical Difficulties Encountered In Gem Identification. - Dr. Jayshree Panjekar and Ramchandran

Ritu Bharadwaj, Manish Kumar, Meenu Vyas & Mustaqem Khan represented Jaipur.

Next Venue - Salem, Tamil Nadu in December 2001

August 12th. 2000

Happy 28th. Anniversary to GTL

There have been numerous requests from ex-students to DO... something on the 12th.

- We have decided to display all the new and unusual gemstones – natural & synthetic, which we have collected over the years .
- Those of you who are interested can visit GTL between 11a.m. and 1p.m. on 12th. August and examine the stones with a lens , with a microscope..... , or maybe with the FTIR.....
- Or you might like to just meet us and have a cup of tea.
- **Only Students of GTL i.e. GTLIans are welcome – no guests please.**
- **Kindly inform us on 568221 if you will be joining us .**

Results of the Diploma Examinations held in April , May and June 2000

20th. Batch & Correspondence Candidates

Yogesh Bhargav	Ist. Overall
Gagan Choudhary	Ist. In Practicals
Dheeraj Gupta	
Love Agarwal	
I. Madhavi	
Prateek Garg	
Rahul Gala	
Rohan Tak	

Sangeeta Atrawalkar
Paul Rossi
Hema Malani
Kusum Kumari Chauhan

Kiran Periwal **Certificate course**

Masters Diploma in Gem Identification

Congratulations to the first three candidates who have successfully completed the course with the following grades in April and June 2000.

	Theory	Practicals
Manish Kumar	A	A
Mustaqem Khan	A	A
Rishi Pathak	A	C

Field Visits :

The 20th. Batch of Diploma students visited the garnet deposits at Tonk on 30th. March. They were able to see the style of mining and the rough which was mostly abrasive quality .

OUR INTERESTING VISITOR

DR. HENRY HANNI - SSEF, BASEL

One of our most important visitors has been Dr.Hanni, who was on a two day holiday at Jaipur. He visited GTL on 12th. March alongwith Dr.Ram S. Sharma . He was given a complete tour of the activities at GTL and assured us of his continued support and assistance.

OUR GENEROUS DONORS

We are very grateful to all those who continue to donate gemstone specimens / literature / materials for our educational and research activities . In the past few months our Sincere THANK YOU for donations :

- Shri. Mehul Durlabhji
- Shri. Nawal Kishore Tatiwala
- M/s. Ram Narain & Sons
- Shri. Sunil Pareek
- Shri. Vikas Joshi
- Shri. Vivek Kala
- All our students

SOME SPECIFIC CONTROVERSIES

1. Violet – blue Chalcedony :

The common stones being examined are *Chalcedony(Dyed)*, *Quartzite (Dyed)* and translucent *Glass*.

All have approx. the same refractive index and heft (glass is lower). The dyed stones are consistently exhibiting a Cobalt spectrum and are mostly red under Chelsea filter.

Inclusions – gas bubbles in glass; fine fingerprints and colour concentrations in quartzite ; and

concentric banding and small crystals in chalcedony.

2. Spessartite Garnet : This is a Manganese Aluminum Silicate garnet. The basic colour is a vivid orange , also known as Mandarin garnet. With percentages of Iron entering the structure the colour becomes more brown. In some cases, with the admixture of other elements, the colour becomes a combination of red, brown and orange.

Without elemental analysis the parameters which are used for defining a spessartite are mainly the specific gravity, the refractive index, the absorption spectrum

Stone News - what's moving these days

Some Interesting stones through GTL.....

Fracture filled Diamond : We recently had a 1ct.+ diamond with a large fracture running through. The strong pinkish colour flash off the fracture alongwith other features, clearly indicated the glass filling. The stone was certified as " Natural Diamond (Fracture Filled)"

Synthetic emerald overgrowth : This was a hexagonal crystal with the central core which was colourless and a thin layer of synthetic emerald. The basal plane clearly showed this feature and the Infra red spectra in the two distinct directions confirmed the natural core and the synthetic overgrowth.

A number of faceted pieces have been certified . Most of them had a thin slice of natural white beryl with a deep green synthetic overgrowth. In one case it was a classic "Sandwich emerald"!

- ♦ On a routine basis were synthetic emeralds , rubies , sapphires and glass.

and the inclusions.

At GTL, Jaipur, when we get garnets which have a basically orange, yellow, brown & red combination colour, and the properties overlap with other similar coloured garnets , we then certify the same as "*Garnet, Intermediate Species*". This is especially true in the case of an overlap with "*Malaya Garnet*" .

3.Green Beryl/Natural Emerald :

Once again we repeat this, just to inform you that the best way for a **trader to judge** is that if a stone is pale green or more bluish in shade , it would be a Green beryl, since if chromium or vanadium is present it would be an emerald.

A COMPARATIVE OVERVIEW OF LASER RAMAN SPECTROSCOPE AND FTIR SPECTROSCOPE.

Smt. Ritu Bhardwaj :The author has done the Diploma in Gemmology from the Gem Testing Laboratory(GTL), Jaipur. Currently she is working as an Assistant Gemmologist at GTL, Jaipur. This paper was presented at the 2nd. Indian Gemmological Seminar at Shimla in May 2000.

Principle of Advance Spectroscopy

- The spectroscopy is basically the study of spectra which are the result of structural vibrations in the atomic structure of a sample.
- This set of vibrational mode is a characteristic 'fingerprint' of the chemistry and structure of a molecular, atomic group or element, thus, providing valuable information regarding the sample.

Advantages and Applications

Advantages :

- Accurate
- Effective
- Fast
- Safe
- No specific qualification is required for operating these instruments.

Applications

- Gem identification
- Study of inclusions and internal structure
- Studed Jewellery

COMPARATIVE OVERVIEW OF LR AND FT-IR SPECTROSCOPES

	LRS	FT-IR
TECHNOLOGY		
• EXCITATION SOURCE	Laser Rays	Infra-red Rays
• TARGETED AREA	Structural Bonding	Molecular & Atomic Groups
• RESULT	Elemental Analysis	Molecular & Atomic Analysis
APPLICATION		
• GEM IDENTIFICATION	Yes	Yes
• NATURAL / SYNTHETIC	Yes	Yes
• ORIGIN DETERMINATION	Yes	Yes
• FRACTURE FILLER ID.	Yes	Yes
• HEAT / IRRADIATION	Yes	Yes
• IMPREGNATION OF JADE	Yes	Yes
• OPAL,CORAL,TURQUIOSE	Yes	Yes
• ID. OF ORGANIC GEM MATERIALS AND THEIR TREATMENTS.	No	Yes
COST (approximately)	Rs. Sixty Lakhs Only	Rs. Thirty Lakhs Only.

GTL ian's CORNER

This very apt Poem is written by **Smt. Kusum Kumari Chauhan**. She joined GTL in June 1999 and successfully cleared her Diploma examinations in June 2000. This is her contribution to all the Past, Present and Future students of Gemmology. Thank You Kusum.

**Gemmology is a Science of Gems,
Varying from Raman Spectroscopy to 10 X lens,
Soft as Amber , to hard as Diamond at No. 10,
Work, work and work as much as you can.**

**Solid inclusions will be lasered out,
Synthetics under the microscope no doubt,
Enhancements and treatments for a short time ,
Critical angles will be there with you till you rhyme,
Hundreds and thousands of peaks to show the line,
FTIR is accurate to the last chime.**

**Let your atomic bonding be 1.54 A, at all states,
To survive the grit of No.10 faceting and polishing plates,
Metamic stages will give way to physical and optical properties at bay,
To talk of S.G.'s, R.I.'s and coloured bands,
You can talk on the streets and bus stands,
But to jot them down you will cry,
For they never match from eye to eye.**

**And Oh! those cat's eyes, No sugar and honey guys,
But then Gemmology is mostly stones,
So try to endure all colours and all tones,
To bring out light and fire, to remove all overtones.**



CLASSROOM HOWLER'S

- ◆ On a field trip to Ajmer mines , all the students were enthusiastically collecting specimens of tourmaline and garnet . This was the disgusted reaction of an eight year old son of one of the instructors " Mummy , Jaipur ke road peh itne sare pathar hai, tho hum itne dur pathar uthane ke liye kyon aiye "
- ◆ From Batch 1 to Batch 21 , there have been a lot of changes at GTL . From a single lab - cum - classroom to individual rooms to two classrooms + a lab., the basic difference between our first batch and our current batch

Batch 1 : They came, they saw and they succeeded

Batch 21 : They came , they saw and they.....?????????

DON'T FORGET TO JOIN US ON 12TH. AUGUST 2000

ESPECIALLY IF YOU WOULD LIKE TO CHECK OUT THE FTIR

