



रत्न परीक्षण प्रयोगशाला

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Gem Testing Laboratory

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G.T.L. LAB INFORMATION CIRCULAR No. 006

In January '95 we have examined a number of different gemstones. A few interesting stones were:

1. Transparent Grossular Garnet:- Transparent, well cut and rough stones; yellowish green, yellowish brown and brown colours fairly clean specimens ranging in size from 1 ct. to 3 cts. The colours seen are those which are not so commonly met with, as in the case of Hessonite and Tsavorite. The properties correlated with the intermediate varieties of Grossular and Andradite Garnet; R.I. range 1.76 to 1.78 and S.G. 3.76 to 3.71 (Hydrostatic) under U.V. lamp it shows weak red to inert; under magnification most of these are clean but small crystalline and needle like inclusions and growth zoning was observed.
2. Syn. Green Quartz: Transparent well cut faceted stone, similar in colour to yellowish green Diopside. R.I. 1.54 to 1.55; S.G. 2.66 (Hydrostatic); Bull's eye optic figure, under magnification a distinct seed plate parallel to the table facet and circular interference colours under cross polars were seen.
3. Syn. Green Spinel: Bluish green transparent faceted stone, properties typical for Syn. Spinel with R.I. 1.73, chalky fluorescence under S.W. U.V., under magnification it shows clear gas bubbles.

Besides these, flame fusion synthetics and Coated Beryl and Quartz continued to come in for certification.

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POSSIBLE EFFECTS OF HEAT ON CORUNDUM VARIETIES

Corundum is heat treated to enhance the general appearance, which increases their colour, clarity and value. Although almost any ruby and sapphire may be treated, only certain types may improve their general appearance after heat treatment. Some possible changes on some corundum varieties are as follows:

1. Effects on blue colour:

- a. Development of Blue: Milky blue white sapphires may turn into a fine blue colour, Srilankan Sapphires (geuda) are commonly treated thus.
- b. Lightening of Dark Blue: Some ink dark blue sapphires, like from Australia may be converted into light blue/green colour.
- c. Darkening of light blue colour: Most of the light blue/pale blue sapphires will probably turn into med/dark blue colour.
- d. Reduction of blue colour zoning: Blue sapphires, most commonly from Montana with colour zoning are heat treated to reduce the colour zoning.
- e. Reduction of secondary colour component (purple/brownish/blue colours): Commonly rubies from Mogkok, Burma may be turned to purer pink or red by removal of overcasted brown/purple/blue colour on heat treatment.

2. Effects on yellow/green colour:

- a. Darkening of yellowish colour: Pale yellow sapphires from Srilanka may be turned to golden yellow or unnatural brown colour.
- b. Intensification of green, blue/green, yellow/green sapphires: Weak green, blue/green and yellow green sapphires from Srilanka, Tanzania and Montana are treated into darker shades.

3. Development of Silk: Corundums with milkiness in them could be heat treated to get the three directional silk.

4. Disolution of silk: Rubies from Mogok are heat treated to remove silk from them, hence improve clarity.

5. Development of lilac/purple/colour change effect: Sapphires from Srilanka, Columbia, Tanzania could be enhanced to get colour changing effect.

6. Change of Colour: Pink Sapphires from Srilanka may turn into blue or violet colour on heat treatment.

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