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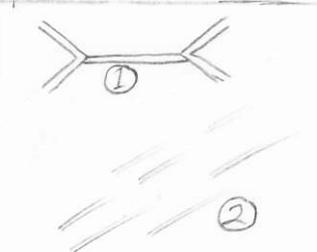
संदर्भ संख्या/Ref. No. : GTL/GJC/JPR/ 95-96/

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LAB. INFORMATION CIRCULAR No. 016

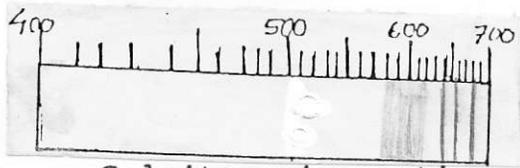
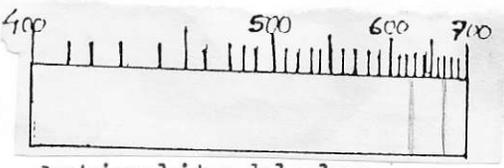
In the month of December '95 and January '96, one of our regular traders asked us to check a few stones said to be Natural Yellow sapphire, all stones were about 2-3- cts. in size. While testing these stones, following details were revealed.

- I. 1) Nat. Sapphire: Characteristic properties observed. Under magnification clear silk, twin planes and healed fingerprints were observed.
- 2) Syn. Sapphire: Flame fusion synthetics with fine pin point gas bubbles and distinct plato lines in immersion.
- 3) Syn. Cubic Zirconia: Very high heft, dispersive fire from the pavilion side, under polariscope it shows A.D.R. reaction with hydrostatic S.G: 5.85.
- 4) Nat. Zircon: Brownish yellow with good surface luster, clear zircon spectrum (6535 A°) and under magnification doubling of facet edges and needle like inclusions were seen.

			
<p>I. 1. SILK. 2. HEALED FINGERPRINTS. ① 3. TWIN PLANES</p>	<p>I. 1. GAS BUBBLES. ②</p>	<p>I. 1. DOUBLING ④ 2. NEEDLES</p>	<p>II. 1. ACTINOLITE. 2. PHASE.</p>

- II. Green Beryl / Quartz: Green rough, faceted and cabochons which were translucent to opaque and also had a mottled green and white colour. The typical properties were as follows:
R.I. 1.54-1.55 (+0.01) S.G. by hydrostatic method 2.64 to 2.68 (Different specimens), brownish red under chelsea filter, under spectroscopie varying intensities of the lines at 680, 640 nm. seen, under magnification some specimens showed distinct parallel phase and other crystal inclusions, lathe like actinolite ? blades, others showed the characteristic inter-woven internal structure of quartzite, completely included with what appeared to be actinolite blades. A comparison of the properties of Green Beryl and Quartz in this case indicates a

Clear overlap of properties and positive identification is possible with additional chemical analysis. An X.R.D. pattern on two samples gave the composition of a Beryl, thereby confirming it. However standard gemological testing may identify the stones as either Beryl or Quartz.

	Beryl	Quartz
1. R.I./D.R.	1.577 - 1.583 (\pm .008) 0.005	1.545 - 1.554 (\pm .001) 0.009
2. S.G.	2.67 (\pm 0.10)	2.65 (\pm 0.01)
3. Spectrum		
4. Inclusions	Calcite, mica, actinolite, phase, fingerprints etc.	Actinolite blades, phase, mica, fingerprints etc.
5. Composition	Beryllium Aluminum Slicate	Silica

III. Tanzanite and Kornerupine ? A packet of brownish rough stones said to be Zoisite were surprisingly found to contain brownish Kornerupine. This was noticed when the supposed brown Zoisite was heated to convert it to blue Tanzanite. The comparative properties are listed below for your information.

	Zoisite	Kornerupine
1. R.I. / D.R.	1.691 - 1.794 0.013	1.667 - 1.68 0.013
2. Optic Char. / Sign	B+	(B-) Pseudo Uniaxial
3. S.G.	6 - 7	6 - 7
4. Composition	Calcium Aluminium Hydroxysilicate	Magnesium Aluminium Borosilicate