VISIBLE SPECTROSCOPY

PURDUE UNIVERSITY SCIENCE EXPRESS

**DEMYSTIFICATION OF THE SPEC 20**

**I. How Does the Spec 20 work?**

Chemicals absorb and reflect different colors of light by different amounts. A spec 20 measures how much light of a certain wavelength, or color, a substance absorbs. The basic colors of light, from longest wavelength to shortest, are: red, orange, yellow, green, blue, indigo, and violet. An easy way to remember these colors and their order is with the name Roy G. Biv. To see how this works, try the following exercise.

1. Turn on the Spec 20.
2. Allow the machine to run through its diagnostics.
3. Place a piece of white paper in the plastic cuvette.
4. Set the wavelength to 700 nm.
5. Place the cuvette containing the paper in the sample compartment.

**DO NOT CLOSE THE SAMPLE COMPARTMENT**.

1. Look into the sample compartment, change the wavelength down and record the range of wavelengths for each color.
2. Use the chart below to report your findings

**Chart A**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **Color of Light** |  |  |  |  |  |  |  | | **Wavelength Range (nm)** |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |
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8. Compare your results with the class. Do different groups have different ranges for the

colors?

9. If there are differences between groups, list at least two reasons for these difference.

10. After doing this experiment, why might it be important to make sure you perform

your entire lab with the same machine?