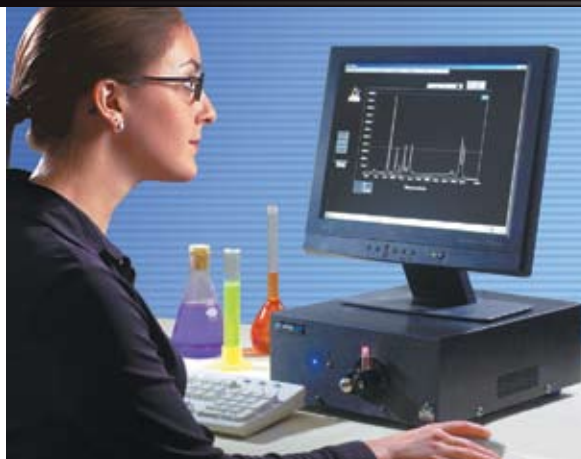




Discover the Raman Advantage!

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Easy to use...

"The DeltaNu Advantage 633 has proven to be an extremely useful tool for qualitative analysis in my instructional and research laboratories. We have used it to identify both inorganic salts and organic compounds. Students readily learn how to operate the instrument and several samples can be analyzed in a short time period. The online laboratory procedures that DeltaNu provides are a very helpful resource and have assisted the incorporation of Raman spectroscopy into our program. I am very pleased with the performance of the Advantage 633 and continually look to further its role in our laboratories.

- Richard Martoglio DePauw University

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Applications Series: #12- Solid State Chemistry

Solutions to problems...

Symmetry analysis is often difficult due to complicated crystallographic distortions. The true symmetry is hard to analyze with infrared spectroscopy because of the strong interference produced by water. The perchlorate ion provides a perfect example of crystallographic distortion and Raman spectroscopy's ease of analysis in solution. Only two of the four spectroscopically active vibrations of tetrahedral perchlorate should be observed with infrared spectroscopy. Only after hours of drying and pressing pellets can one obtain an infrared spectrum of perchlorate and then it is distorted and shows two bands that should be forbidden. Raman spectroscopy provides a spectrum of the solid in a few seconds and shows splitting due to distortion in the solid state. A clear spectrum of the true tetrahedral anion is obtained within seconds in an aqueous solution.

Problem solved...

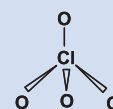
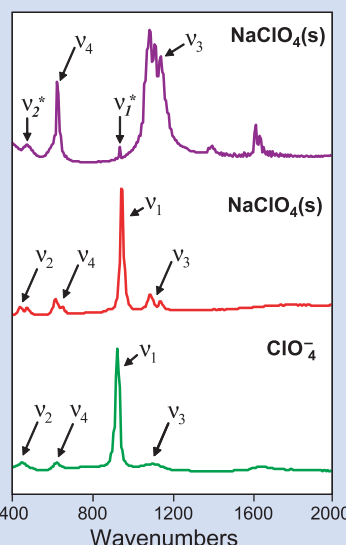


Table with 4 columns: Td, Point Group, V1, V2, V3, V4 and rows for A, E, F2, F2 and R, R, R,IR, R,IR.

*Forbidden in a tetrahedral anion

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