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Optimising sample preparation for solids, pellets, liquids and solutions for Far-IR and IR analysis at the Australian Synchrotron

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This presentation gives an overview of the development and comparison of different sample preparation techniques for presenting samples to the Far-IR and IR beam line at the Australian Synchrotron.

We have investigated using polyethylene (PE), polytetrafluoroethylene (PTFE), polyvinylacetate (PVA), paraffin, and mixtures, as matrixes for pellets.

We have also trialled pressing pure compounds without an added matrix. Most recently we have investigated using specially constructed liquid cells for liquid samples and those compounds that can be in solution.

Not surprisingly, there is not one 'solution' to all sample preparations and there are compromises to be made. Samples that do not bind into stable pellets as pure compounds need a matrix to support them and compounds that are strong absorbers may need matrix to dilute them.

For solutions the choice of solvent is also critical (especially for compounds that are poorly soluble in convenient solvents) as there needs to be enough material to give a signal without being swamped by the signal from the solvent.

Presenting results from those samples that produced good spectra from a range of applications - riboflavin (fluorescence of semen), ninhydrin (from fingerprint developing reagents) and bilirubin and biliverdin (from studying breakdown of blood and ageing of bruises) and those that didn't - this presentation draws conclusions about the process of optimising the preparation of varied samples to obtain the best results from your time at the Australian Synchrotron.

Keywords or phrases (comma separated)

Far-IR, IR, Pellets, Liquid cells, Semen, Fingerprints, blood, bruises

Are you a student?

Yes

Do you wish to take part in the Student Poster Slam?

No

Are you an ECR? (<5 yrs since PhD/Masters)

No

What is your gender?

Female

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