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Handling Difficult Small-molecule Specimens. Victor Young, Dept. of Chemistry, Univ. of Minnesota, 207 Pleasant St. SE, Minneapolis, MN 55455 USA.

This presentation will focus on the many successful ways we small-molecule crystallographers employ to transport delicate specimens from the container, presented by the chemist, to the diffractometer. The problems we face are many. Solvent loss in specimens causes great trouble. If the specimen is sufficiently porous, then solvent will naturally leak out just as a sponge would when lifted from water. If only a small percentage of solvent is lost from such specimens, then the attainable resolution of the experiment will suffer tremendously. Numerous transfer methods will be surveyed to deal with these problems.

Temperature-sensitivity is another issue for which many crystallographers have devised gadgets to maintain cold temperatures between the microscope and the diffractometer cryostat. We will explore what methods best work for the various troublesome samples. Air-sensitivity is another problem. We will explore what types of specimens warrant special handling. While most of us do not work with shock-sensitive specimens, it will be of value to consider methods of transfer for these potentially explosive materials. Finally, it will be of value to consider the environment created by the cryostat itself and how it may contribute to decay of your prized specimen.