**Asynt Assist Sublime Research at Cambridge University**

Jeremy Rawson, Senior Lecturer in Inorganic Chemistry at Cambridge University, UK has developed a family of unusual metal-free magnetic materials. His compounds are based on molecular sulfur-nitrogen free radicals and are typically purified by vacuum sublimation, i.e. they are transported through a solid-gas-solid process. Jeremy says that "sublimation is crucial in the final stages of our material preparation since it affords high purity material with a well-defined morphology whilst precluding solvent incorporation."

Working with designers at Asynt, Rawson's team have developed a unique hot-stage for gradient sublimation. The 10cm deep custom made DrySyn™ Multi insert accommodates up to four 14mm o.d. glass tubes and a probe site for temperature controller or thermometer. The oil-free heating technology produces an ideal temperature gradient with volatiles collecting a few centimeters above the top of the base unit. "Initial experiments with ferrocene and 1,4-benzoquinone have been particularly impressive" enthuses Jeremy whose team are now applying this equipment to purify their free radicals. Beautifully formed crystals of benzoquinone and ferrocene with dimensions up to 2 x2 x 1mm coat the surface of the glassware above the block whilst non-volatile impurities are retained at the bottom of the tube. The design could be readily modified to accommodate larger or indeed smaller vessels.

Photographer: Nathan Pitt

Crystals of 1,4-benzoquinone (left) and ferrocene (right) simultaneously grown at $10^{-1}$ atm with a base temperature of 50.5±0.5°C.

**Asynt Ltd**
Unit 29 Hall Barn Road Industrial Estate Isleham Cambridgeshire United Kingdom CB7 5RJ
T: +44 (0)1638 781709 F:+44(0)1638 781706 sales@asynt.com www.asynt.com

***Did you know?***

In color printing, dye sublimation is often used to transfer dye onto a variety of substrates; a small heater is used to vaporize the solid dye material, which then solidifies upon the paper. This type of printer offers very fine control of the primary color ratios offering excellent colour reproduction.