Technical Tip

Epoxy Resins: Problems, Causes, and Solutions

Problems associated with poor embedding in epoxy resins:

- Blocks are difficult to section
- Sections may disintegrate upon contact with water or the electron beam
- Holes in the sections
- Unevenly cured blocks
- Blocks are either too soft or too hard

Factors that cause poor embedding in epoxy resins:

- The presence of water in absolute dehydration solvents and in the ingredients of the embedding mixture

Solutions to the causes:

- Use either fresh or well capped bottles of dehydration solvents.
- Embedding should be carried out at relative humidities below 50%. Dellman, H.D. and Pearson, C.B. (1977).“Better epoxy resin embedding for electron microscopy at a low relative humidity”. Stain Technol., 52:5
- Since epoxy resin is hygroscopic, extreme care should be taken to prevent contamination by water.
- Accurate measurement of accelerators.
- Complete mixing without incurring air into the mixture (Use a "PTFE" or glass rod for at least 20 minutes).