RESINS, ANYONE???

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The epoxy resins, especially Spurr's epoxy resin, are time consuming to prepare and dangerous to work with. In an effort to minimize contact time with the resin and to conserve components, we prepare one large batch of resin (minus catalyst) that is then dispensed into glass scintillation vials that are tagged to give the exact weight of resin in the vial. The resins are stored in the freezer (preferably -70° C) until needed at which time they are thawed and the appropriate amount of catalyst added. After mixing by gentle inversions and stirring, the resins are dispensed as needed using widebore pipettes. .Any resin remaining in the vial may be refrozen several times after adding a puff of Freon or dry air to the vial. When the resin becomes too depleted or too old to refreeze, the vial is placed into a 60° C oven and the contents polymerized. The vial may then be discarded or recycled (i.e., reused) until the space in the vial is diminished to an unacceptable level.

While we do not even intend to try to make Microscopy Today a "technical " publication, we are most interested in receiving articles/information relating to the broad interests of the microscopy community.

We remain delighted to receive contributions from any of our readers. - - Ed.

LINSCOTT'S DIRECTORY
OF IMMUNOLOGICAL & BIOLOGICAL REAGENTS

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I have found a directory which is entitled Linscott's Directory of Immunological & Biological Reagents to be a very useful resource in the laboratory.

The seventh edition of the directory lists more than 39,000 different products: 8,500 commercially available MONOCLONAL ANTIBODIES, 12,500 conventional antisera and conjugates, and 18,000 other reagents used in medical research: recDNA reagents, lectins, blood products, purified serum proteins, growth factors and other cytokines, immunoassay kits, tissues, microbial cultures and antigins, separation media, enzymes, hormones, peptides, cell lines (including many hybridomas), laboratory animals from protozoa to primates, and thousands of other useful items. International Reference Standards from the World Health Organization, American Type Culture Collection reagents, and many different items available through the National Institute of Health are also listed.

A subscription, in effort for two years, costs $70 (U.S., Canada and Mexico) - less $10 if payment is in advance. It includes the initial copy plus three supplements sent 6 months apart.

For further information, contact Linscott's Directory, 4877 Grange Road, Santa Rosa, CA 95404. Tel.: (707)544-9555.

MICROSCOPY IN FORENSIC SCIENCE

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This article is the first in a series relating to the application of microscopy to forensic science. As such, the article is intended to be purely introductory in nature. Future articles will be specific both as to the forensic challenge and the solution as allowed by the creative application of microscopy.

Microscopy has played an integral part in forensic science since the early part of this century. In 1928, E. Locard established the practical and theoretical underpinnings of the microscopic examination of trace amounts of evidence . The "exchange principle of evidence" was so developed:

> *Whenever two objects come into contact there is always a transfer of material. The methods of detection may not be sensitive enough to demonstrate this or the decay rate may be so rapid that all evidence of transfer has vanished after a given time. Nonetheless, the transfer has taken place.*

The above is the guiding principle behind the collection, evaluation and analysis for all evidence collected at a crime scene, whether it is fingerprints, glass, hairs, bullets or blood. Modern light and electron microscopy greatly increases the "sensitivity of demonstration" and are key tools in the evaluation of criminal evidence.

The range of applications for light and electron microscopes in forensic science is very broad. Microscopes are routinely used in such areas as document examination, tool mark comparison, firearms identification, body fluids, drug chemistry, and trace evidence. Trace evidence, especially, utilizes microscopy to its fullest extent. Practically speaking, anything can be encountered as physical evidence in a crime and no other instrument is as applicable as the microscope. The trace analyst daily encounters as evidence automotive and household paint, soil, minerals, hairs, pollens, glass, fibers, paper, alloys, plastic, and wood. In evaluating these items, the forensic microscopist may utilize a stereoscopic microscope, a biological microscope, a polarized light microscope, a comparison microscope (where two separate fields of view can be seen simultaneously) and a scanning electron microscope.

While much can be done with the microscope alone, the integration of microscopy with other instrumentation, typically spectrographic methods, results in a versatile and definitive combination of imaging and chemistry which is critical to modern forensic science. Some of these techniques are fourier-transform infra-red spectrophotometry (FTIR)j, a light microscope equipped with a hot stage for glass refractive index analysis, and electron microscopes with energy dispersive spectrometry and digital imaging system (SEM/EDS). FTIR is employed in evaluating samples as diverse as fibers, explosives, and drugs; the SEM/EDS system is capable of analyzing and quantifying many materials and is useful in analyzing paint, explosives and, most recently, gunshot residue (GSR).

Microscopy has a history in forensic science that begins with Conan Doyle's Sherlock Holmes and continues on through the most advanced optical/chemical techniques of today. The old adage that "there is no such thing as a perfect crime" is true mostly due to the forensic scientist's ability to collect, compare and identify ever smaller pieces of evidence with the most widely used piece of forensic instrumentation: the microscope.