



# AEC-NASA TECH BRIEF



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## Metallographic Samples Mounted with Room-Temperature, Curable, Polyester Casting Resins

A study has been made and the results published on variably curing resins for mounting metallographic samples. In the past, heat-and-pressure-curing resins have been used almost exclusively as the mounting materials. It has now been discovered that certain polyester resins which are curable at room temperature are equally as good for mounting and have a versatility which permits their use in a variety of mounting applications.

This study of the epoxies and polyesters was conducted to determine which type of resin would satisfy the desirable prerequisites of a metallographic mount. These include: sufficient hardness; low curing temperature; adhesion to all types of specimens; no voids when cast; good chemical resistance to common solvents and etching reagents; short curing time; simple preparation; adequate toughness; transparency; high heat-distortion temperature; and handling safety.

Four resins were selected and intensively investigated to ascertain the variables associated with their curing processes. These were: Polylyte 8063, Polylyte 8173, PE-169, and PE-228 (mixed with various percentages by weight of methyl ethyl ketone peroxide (MEKP)). The results were compared to the standard thermosetting mounting material, Bakelite, and found to be favorable.

Additional background information contained in the report includes: types of resins, comparison of resin systems, the curing of polyester and epoxy systems, the chemistry of polyester resins, preliminary testing undertaken for the study, and the experimental techniques.

### Notes:

1. This report would be of special value to those who are interested in resins, but have a limited chemical background.
2. Additional details are contained in: *Variably Curing Resins for Mounting Metallographic Samples*, by O. L. Kruger, J. P. Hughes, and F. J. Schmitz, Report No. ANL-6712, Argonne National Laboratory, September 1963. Copies are available from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Price: Printed copy \$3.00. Microfiche \$0.65.
3. Inquiries concerning this innovation may be directed to:

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### Patent status:

Inquiries about obtaining rights for the commercial use of this innovation may be made to:

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