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Science Notes - High Temperature Conductor Information

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High Temperature Superconductor Information

A 15-page booklet titled "Making High-Temperature Superconductors" is available free of charge from Colorado Futurescience, Inc., a company which also sells kits of the chemicals required for the project and simple accessories (see address below).

The author, Jerry L. Emanuelson, clearly has expended considerable effort researching how to make an yttrium-barium-copper oxide superconductor using equipment that conceivably could be collected by an energetic high school teacher. The booklet is well written and appears to be technically accurate. The procedures described make use of fewer devices (a high-pressure press to form pellets apparently is not required), but are considerably more "tedious" than those used by my students in an undergraduate physics lab. I would advise anyone considering such a project to purchase a few professionally made superconducting samples first, if only to gain experience with liquid nitrogen and the demonstration of the diamagnetism of a superconducting sample.

Additional information on the use of the new superconductors in teaching (at the undergraduate level) can be found in "Simple Demonstration of Superconductivity in $YBa_2Cu_3O_7$ " by G.C. Brown, J.O. Rasure and W.A. Morrison (1989. *American Journal of Physics* 57:1142), and in the references cited in that article. Superconducting samples can be obtained from large science materials suppliers (such as Sargent Welch) and from the following sources:

Colorado Futurescience, Inc.
P.O. Box 17179
Colorado Springs, CO 80935

Colorado Superconductor, Inc.
P.O. Box 8223
Fort Collins, CO 80526

National Superconductor, Inc.
13968 VanNess Avenue
Gardena, CA 90249

TEL-Atomic, Inc.
P.O. Box 924
Jackson, MI 49204

Arbor Scientific
P.O. Box 2750
Ann Arbor, MI 48106-2750

--F.P.