

## **BOOK REVIEW**

### **Results of Radiation Tests at Cryogenic Temperature on some Selected Organic Materials for the LHC (CERN 96-05)**

by H Schönbacher

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Organic materials are extensively used in form of insulating tapes, epoxy, cables *etc.* in the accelerator complexes operating both at room temperature as well as cryogenic temperature. Very large accelerators, like the Large Hadron Collider (LHC) at CERN, use superconducting magnets for bending the particles. It is, therefore, extremely important and essential to measure the properties of various materials at cryogenic temperatures as low as 2 K. The radiation level in such accelerators is quite high and, therefore, the properties of materials are likely to undergo changes during course of time. If proper material, which can withstand radiation damage even at very low temperatures, is not used then the reliability of accelerators can suffer considerably.

This report gives extensive details of the material properties at cryogenic temperatures for a large number of organic materials used for the above mentioned purpose. In view of very high stresses subjected to the materials in the superconducting magnets, the authors have primarily studied the changes in mechanical properties at very low temperatures due to radiation. A large number of commercially available materials have been investigated. The results given in the report will be extremely useful for the accelerator laboratories engaged in the design of superconducting magnets likely to operate in high radiation environments. The research workers working in academic institutions will also find this report very useful to offer interpretations for various radiation damage phenomena.

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