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**Cross-linking of Wires & Cables with Electron Beam (EB) – A New Technology of Future**

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**Introduction**

The industrial applications of radiation processing in polymers, utilizing electron beam cross-linking, for modification and enhancement of polymeric properties has been well established over the past 80 years. Modification in polymeric structure of materials can be brought about either by conventional chemical means, usually involving silane or per-oxide or **by exposure to ionizing radiation from energetic electrons from electron** **accelerators.** **The electron beam processing in wires and cables helps to improve thermal, chemical, barrier, impact wear and other mechanical properties to meet the** **demanding applications of the customers in wires and cables**. This is evident from the large number (>2500) of EB machines presently working in India and abroad.

The growth of EB technology in last two decades in China and other countries including India establishes the process of cross-linking in wires and cables with the advantages of increased life, higher temperature withstand capability, higher current carrying capacity, improved physical properties with reduced thicknesses in these cables. Because of being superior in life and performance compared to conventional cables, cross-linked cables have already been adopted in all critical applications such as railways, defense, solar power, wind energy and nuclear power. Even PVC being used in building wires and power cables can be cross-linked with EB technology only. **The EB cross-linking technology in PVC building wires and power cables not only increases life and the current carrying capacity to more than double, but also prevents fires due to overload short circuits and thus saves precious lives and property.**

**Electron Accelerator (EB) Facility**

