

kinds, is ideal when sheet or film is to be treated or when only surface treatment is required, since electrons have relatively poor penetrating power. In recent years, however, a number of radiation products and processes for which isotopic radiation sources have proved to have technical or economic advantages have been commercialized or have entered the pilot-plant stage.

Wood—plastic material, of course, is one of these, and it promises to become a major commercial product. The material is produced by impregnating wood with a chemical monomer, such as methyl methacrylate, and then irradiating it with gamma rays from cobalt-60 or cesium-137. The radiation polymerizes the plastic molecules and yields a solid wood—plastic combination that:

1. Is harder than natural wood by several hundred percent and thus is more resistant to blows, scratches, etc.
2. Has much higher compression strength and abrasion resistance.
3. Absorbs moisture more slowly and therefore has more dimensional stability (resistance to warping and swelling).
4. Has much improved shear and static bending strength.
5. Retains the natural wood grain and color, or can be artificially colored throughout.
6. Can be sawed, drilled, turned, and sanded with conventional equipment, giving a hard, beautiful, satin-smooth finish.

The distinct advantage of this new process is that many of the properties of natural wood are improved without sacrificing any of the wood's important characteristics, including aesthetic appeal.

This new material has promise for such applications as floors, furniture, window frames, sills and doors, tool handles, decorative trim, sporting goods, boat decks and fittings, and dies and jigs.

The plant we are dedicating today has a design capacity of 15 million square feet of wood—plastic flooring per year. The total industry design capacity is on the order of 25 million square feet per year. A market demand within a few years has been estimated in the range of 100 million square feet annually. Certainly other significant uses of this unique material also will be forthcoming.

Wood—plastics are only the most recent of a number of radiation-produced products that began to appear on the industrial scene about a decade ago. The earliest of these was cross-linked polyethylene. The