SKIS TO DEMONSTRATE NEW ATOMIC TECHNIQUES

Skis in which part of the material consists of birch wood impregnated with the basic chemicals of plastic and then irradiated are now undergoing tests. They are a demonstration of the new material created when this technique is applied to wood and fibres.

Ten pairs of the skis have been made in Finland, and some have been in use for 500 km of skiing without showing signs of wear. Only a thin veneer of the new material is used, on the underside, and the indications are that the material has suitable properties for such purposes. The skis are not yet available for general use.

Research on the application of irradiation to treated fibres first began in USSR and has attracted increasing attention, with come commercial manufacture, in other countries. The Agency has encouraged exchange of information because of possible benefits for developing countries, where fibrous materials might be suitable for building purposes, and because supplies of hardwood are decreasing.

For building purposes the use of fibre such as bagasse (made from the residues of sugar cane) may be adapted for building outside walls. At present in its hardboard form it is suitable for interior insulation. Development for the new purpose could be of value in South East Asia and the Far East and other regions where sugar cane is grown.

The impregnation process is carried out in a vacuum using liquid or gaseous monomers. This fills all empty spaces, and under irradiation the monomers, bonded with cellulose contained in the fibres, are polymerized and the whole material takes on a new character. It is hard, can be resistant to fire and insects, has an enhanced bending property and although not suitable for nails can be drilled and cut.

One advantage is that objects can be cut or shaped in wood before the treatment. This may be helpful for wood carvings carried out in softwood. In some areas this is a useful export trade, but is subject to losses through cracking or breaking, a fault which can be overcome by the new method.

Floor coverings of the parquet type made of the material are already in production and use. Tests at a large school in Finland showed that after a year's hard use no wear could be detected, while normal flooring was considerably worn. A new airport there will use this new flooring throughout its premises.

Since the irradiation is performed with a radioisotope source and not a nuclear reactor, the wood or fibre will not itself become radioactive. There is thus no question of risk to the users.

It is expected that many more applications will be developed suitable for a variety of industries such as toy and tool manufacture, sports goods and the textile industry (for improving crease-free properties of garments).

The first isotope generator to be installed for use with an airfield marker beacon is at Benbecula on a Scottish island, where it marks high ground. A vertical radio signal indicates to aircraft the point for safe descent. The generator can provide sufficient power for at least five years without attention. (Photo: UKAEA)