

PEN: A new optically active low background structural material

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Polyethylene Naphtalate (PEN) is a mechanically very favorable polymer. Earlier it was found that thin foils made from PEN can have very high radio-purity, if compared to other commercially available foils. In fact, PEN is already in use for low background signal transmission applications (cables). Recently it has been realized that PEN also has favorable scintillating properties.

In combination, this makes PEN a very promising candidate as a self-vetoing structural material in low background experiments. Components instrumented with light detectors could be built from PEN. This includes detector holders, detector containments, signal transmission links, etc.

The current R&D towards qualification of PEN as a self-vetoing low background structural material will be presented. A possible application within an experiment for the search of neutrinoless double beta decay will be shown.

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