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Usage of PEN as self-vetoing structural material with wavelength shifting capabilities in the LEGEND experiment

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Polyethylene naphthalate (PEN) is an interesting industrial plastic for the physics community as a wavelength-shifting scintillator. Recently, PEN structures with excellent radiopurity have been successfully produced using injection compression molding technology. This opens the possibility for the usage of optically active structural components with wavelength shifting capabilities in low-background experiments. Thus, PEN holders will be used to mount the Germanium detectors in the LEGEND-200 experiment. The ongoing R&D on PEN will be outlined with a focus on the evaluation of its optical properties. In addition, the ongoing efforts for further application of PEN in the LEGEND-1000 experiment will be presented.

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