

Solid-state NMR Characterization of Aging of Cable Termination for Distribution Power Systems

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13-year service-aged distribution cable terminations from 3 different environmental regions are investigated by solid-state NMR spectroscopy to study aging characteristics. All dismantled terminations are showing micro-cracks on the surface of weathershed and blooming fillers from bulk. ¹³C CPMASDD, fast spinning MASDD, composite pulse decoupled MASDD, and melt-state MASDD techniques of solid-state NMR are used. The observation of polymer composition change showed that the environmental factors such as pollution and salt have an effect on the aging of the distribution cable terminations.