

Abstract Submitted  
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**Effect of Lightning Impulse Discharge on PVC Thin Film** NORIMITSU TAKAMURA, TAKAO MATSUMOTO, Department of Electrical Engineering, Fukuoka University, HAZUKI NEROME, KENJI MISHIMA, Department of Chemical Engineering, Fukuoka University, YASUJI IZAWA, MASAHIRO HANAI, KIYOTO NISHIJIMA, Department of Electrical Engineering, Fukuoka University — Lightning damage to blades of wind turbine generators has been increasing in parallel with the recent increase in the installation of the generators. According to a paper, it is said that a large current produced by a lightning penetrates into the blades, the air temperature and pressure inside the blades increase, which causes destruction of the blades. In order to solve this problem, preventing lightning penetration into the blades and passing lightning only on the surface of the blades are required. Therefore, we undertook a basic research for finding out the mechanism of lightning penetration into the blades. In this study, as our original research for clarifying the above mechanism, we investigated the effect of lightning impulse discharge on some polyvinyl chloride thin films. A high voltage electrode and a ground electrode were set with 1.0 m separation. Each film was set at the midpoint of the electrodes and approximately 750 kV of only one positive lightning impulse voltage was applied to the electrodes. After discharge, the hole-, deformed- and tarnished-diameters of the films, formed by discharge, were measured using a microscope. The results suggest that the thickness and/or the volume resistivity of the films are deeply tied to destruction of the films by discharge.

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