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IEEE Guide for Application of Composite Insulators

IEEE Power Engineering Society

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IEEE Power Engineering Society**

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Abstract: A guide to the application of composite insulators to overhead transmission and distribution lines is provided. It is based on utility field experience, results of research laboratory tests, and manufacturers' recommendations. The guide deals with composite insulators, which include a core, weathersheds, and metal end fittings. The core consists of resin and axially-aligned glass fibres. The weathersheds are of polymeric materials.

Keywords: composite insulators, non-ceramic insulators, polymer insulators

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Introduction

(This introduction is not part of IEEE Std 987-2001, IEEE Guide for Application of Composite Insulators.)

Since the first application guide, great strides have been made in the understanding of polymer material properties and composite insulator design characteristics. Of the few remaining concerns that utilities have today in using composite insulators, surely the greatest ones are on the aging and life expectancy of these insulators. Initially weathering was considered to be the main factor in limiting life. Although weathering has been shown to age polymer materials, there is a growing body of experience suggesting that composite insulator life is more related to design characteristics and/or quality control during their manufacture. With present day polymer material technology used in good designs and with good quality control during their manufacture, it is entirely feasible to produce composite insulators that will have adequate service life. There are installations where polymer insulators have been in service for more than 25 years.

This application guide is founded on field experiences, laboratory tests, and on manufacturers' recommendations. It was prepared by a task force of the working group on Non-Ceramic Insulators, Lightning and Insulator Subcommittee, Transmission and Distribution Committee of the IEEE Power Engineering Society. At the time this guide was approved, G. G. Karady was the chairman of the working group. J. Kuffel served as the chairman of the task force and was instrumental in guiding development of this guide. The task force members were as follows:

G. G. Karady, Chair

J. Kuffel, Chair, Non-Ceramic Insulation Task Group

G. Amburgey
G. Baker
T. Baker
A. Bernstorff
G. Bolen
R. Brown
J. Burnham
T. Carreira
J. Cartwright
E. Cherney
L. Coffeen
C. de Tourreil
R. Gemignani
E. Gnant

R. Gorur
W. Guidi
J. Hall
R. Harrbridge
R. Hamon
R. Hartings
T. Imakoma
A. S. Jagtiani
G. Karady
J. Kise
J. Kindersberger
A. Kuchler
A. Mai

J. McBride
J. Nicholls
T. Orbek
L. Pargamin
G. Powell
T. Rahill
T. Rozek
A. Schwalm
G. Stewart
J. Stewart
S. Sundhar
Z. Szilagyi
L. Wakefield
Q. J. Yu

The following members of the balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

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R. Allen Bernstorf
Joseph F. Buch
Ed Cherney
James F. Christensen
R. Decker
Frank A. Denbrock
Claude deTourel
Dale A. Douglass
Jim Duxbury
Edward Dziedzic
George Gela
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Erich Gnanit
Edwin J. Goodwin

Ravi Gorur
Stan Grzybowski
Ralf Hartings
Richard W. Hensel
George G. Karady
Nestor Kolcio
Samy G. Krishnasamy
John Kuffel
Robert C. Latham
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J. David Mitchell
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