

World Congress on Insulators, Arresters & Bushings 2009

**Crete, Greece
10-13 May 2009**

Volume 3'qh'4

ISBN: 978-1-61839-158-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2009) by Insulator News & Market Report (INMR)
All rights reserved.

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact Insulator News & Market Report (INMR)
at the address below.

INMR
P.O. Box 95 Westmount (Montreal), Quebec
Canada H3Z 2T1

Phone: (514) 939-9540
Fax: (514) 939-6151

info@inmr.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

SESSION A: INSULATOR TECHNOLOGY – YESTERDAY, TODAY & TOMORROW

A Balanced Approach to Insulator Selection and Specification"223

Ravi Gorur, Professor, Arizona State University, United States

Are We Approaching a New Phase for Composite Insulators?"243

Martín Portillo, Consultant, Spain

Development of Knowledge Base for Operation & Maintenance of Equipment with Polymeric Insulation"26;

Amra Omeragic, Head of Investment Planning, Elektroprenos B&H &

Prof. Kemo Sokolija, Professor, Faculty of Electrical Engineering, University of Sarajevo, Bosnia & Herzegovina

Evolution of Standards & Performance of Composite Insulators"293

Giovanni Giobbe, Plant Director, Isoelectric, Italy

Optimized Insulators for Different Environments and Applications"2; ;

Thomas Johansson, Chief Technical Officer, PPC Insulators/SEVES Power Insulators, Sweden &

Gustav Gödel, Technical Manager, Porzellanfabrik Frauenthal, PPC Insulators, Austria

Overview of the Power System on Crete – Problems & Solutions"345

Manolis Thalassinakis, Head of Transmission System, Public Power Corp., Greece

RTV Silicone Coatings for Insulators Reliability and Beyond..."364

Faisal Huda, President & CEO, CSL Silicones, Canada

The Evolution of the Polymeric Insulator"387

R. Allen Bernsdorf, Principal Engineer - Insulators, Hubbell Power Systems, United States

SESSION B: INSULATOR INSPECTION & DIAGNOSTICS

Application of Helicopter-Based IR Technology for Detection of Internal Defects in Composite Insulators^{3: 3}

Igor Gutman, Technical Manager Insulation, STRI, Sweden

Evaluating the Condition of Low Leakage Silicone Insulators After Years of Service in a Polluted Industrial Environment^{P 1C}

John Kuffel, Chief Engineer, Kinectrics, Canada

Evolution of Visualization of HV Defects Through UV and IR Imaging⁴²⁹

Nishal Mahatho, Research Engineer, Eskom, South Africa

Methods Used in China to Assess Composite Insulators After Years in Service⁴³⁸

Liang Xidong, Professor, Tsinghua University, China

Monitoring of HV & UHV Overhead Line Components With UV and IR Cameras^{45:}

Vaclav Sklenicka, Director, EGU HV Laboratory, Prague, Czech Republic

Non-Ceramic Insulator Condition Detection⁴⁸⁷

A.J. (Tony) Carreira, President, K-Line Insulators, Canada

On the Evaluation of Composite Insulators In and After Service^{4: 9}

Frank Schmuck, Convener, CIGRE Working Group B.2.21 "Insulators", Switzerland

The Application of Terahertz Waves for Inspecting Composite Insulators⁵²²

Roel Stolper, Project Manager, Electro-Optical Engineering, CSIR, South Africa

**SESSION C: PERFORMANCE MATERIALS FOR MV & HV NETWORK
COMPONENTS & INSULATION ENHANCEMENT**

About the Tracking and Erosion Resistance of High Voltage Silicone Elastomers⁵³²

Harald Janssen, Application Engineering & Technical Support, Dow Corning, Germany

High Voltage Insulator Coatings: A Review⁵³⁸

Inma Peña, Commercial Development Manager, Dow Corning, Spain

History of Composite Insulators & Development of Powersil Product Family^{55:}

Hans-Jörg Winter, Technical Marketing Manager T&D, Wacker Chemie, Germany

New Casting & Impregnation Systems for Monolithic & Composite Insulators^{57;}

Christian Beisele, Technical Service & Development Manager, Huntsman, Switzerland

Overview of Applications of RTV Coatings Across the Mediterranean⁵⁹²

Panos Meletacos, Director of Mediterranean Operations, CSL Silicones, Greece

POWERSIL® Silicone Rubber Coatings⁶³⁴

Jens Lambrecht, Technical Marketing Manager T&D, Wacker Chemie, Germany

Review of Polymeric Materials & Design Considerations

Based on Field Experience and Laboratory Testing⁶⁵³

Jean-Marie George, Scientific Director, SEVES Power Insulators, France

RTV Silicone HVIC Eliminating the Barriers to Broad-Scale Adoption⁶⁶³

Chris McConnery, Operations Manager, CSL Silicones Inc., Canada

SESSION D: DEVELOPMENTS IN HOLLOW CORE INSULATORS

Advanced Methods & Tooling for Hollow Core Insulator (HCI) Manufacturing^{'687}

Rainer Roder, Principal, Axxos, Switzerland

Experience with Composite Hollow Core Insulators at Areva T&D – Research into Reduction of Gas Emission^{'699}

Yannick Kieffel, Head of Materials Group, HV Switchgear R&D, Areva T&D, France

Latest Developments in Composite Hollow Core Insulators from the Perspective of CIGRE WG A 3.21^{'725}

Alberto Pigni, Consultant, Italy

Non-Destructive Testing of Silicone Rubber Outdoor Insulation: Surge Arresters and Hollow Core Insulators^{'74;}

Henrik Hillborg, Sr. Researcher, ABB Corporate Research, Sweden

Overview of Developments in Composite Hollowcore Insulators^{'779}

Richard Martin, Insulation Consultant, Canada

Production & Application of Hollow Composite Insulators on HV Apparatus^{'798}

Dan Windmar, Global Product Manager for Composite Insulators, ABB, Sweden &

Mattias Lundborg, Marketing & Sales Manager, ABB Plast, Sweden

Seismic Qualification of Equipment with Insulators^{'7: 8}

Armin Merten, Head of Engineering, Composite Products, Maschinenfabrik Reinhausen, Germany

UHV Bushings: Development & Experiences^{'838}

Paolo Cardano, Engineering Department Manager, Areva T&D Italy - Passoni & Villa, Italy

SESSION E: APPLICATION DESIGN & SERVICE EXPERIENCE WITH INSULATORS

Assessing Ten Years of Service Experience with Composite Line Insulators at HVDC^{'862}

Sonja Berlijn, Senior Advisor, Norwegian Power Grid, Statnett, Norway

Composite Insulators Used For UHV AC / DC Transmission Line^{'886}

Su Zhiyi, EPRI of China

Evaluating Resistance of Materials for Outdoor Insulator Housings to Corona and Ozone^{'8: 8}

Stanislaw Gubanski, Professor, Chalmers University of Technology, Sweden

Insulation Aspects for AC to DC Conversion of Transmission Lines^{'944}

Jan Lundquist, Technical Manager - Lines & Substations, STRI, Sweden

Performance Evaluation Method and Optimum Selection of Overhead Line Insulators for Contaminated Environments^{'956}

Jean-Marie George, Scientific Director, SEVES Power Insulators, France

Performance of HV Ceramic & Non-Ceramic Insulators Under Combined Marine & Petrochemical Pollution in North-West Algeria^{'969}

Raouf Znaïdi, Sr. Department Manager, Société Tunisienne de l'Électricité et du Gaz (STEG), Tunisia

SESSION F: APPLICATION EXPERIENCE & DEVELOPMENT OF SURGE ARRESTER TECHNOLOGIES

Application of Arresters for Optimal Environmental Impact on Power Transmission "Taking Another Look at Transmission Line Voltage Upgrading"': 9

Jonathan Woodworth, Principal, ArresterWorks, United States

Externally Gapped Line Arresters An Old Technology - Finally Standardized'9; 4

Lars Klingbeil, Head of Strategy & Marketing, Surge Arresters Siemens, Germany

Recent Experimental Findings on the Energy Handling Capability of Metal-Oxide Varistors for High-Voltage Applications'": 24

Volker Hinrichsen, Professor, Technische Universität Darmstadt, Germany

Transmission Line Lightning Performance Mitigation - Shield Wires Versus Line Arresters'": 35

John Williamson, Transmission Engineering Manager, NB Power Transmission Corp. Canada

SESSION G: APPLICATION EXPERIENCE & DEVELOPMENT OF BUSHING TECHNOLOGIES

Fire and Safety Aspects of High Voltage Bushings'": 76

Lars Jonsson, Senior Specialist, ABB Sweden

Latest Developments and Experience with SeismicRIP® Bushings'": 96

Bruno Schnider, Area Sales Manager for Bushings &

Zoran Zic, Business Development Manager, ABB Micafil, Switzerland

The Performance and Operational Experience in Severe Conditions of New Type Capacitive Bushings of Dry type'": 2:

Eric Euvrard, President, RHM International, United States

Unique Approach to Seismic Analyses of Transformer Bushings'": 37

Robert Platek, Scientist, &

Robert Sekula, Group Leader, ABB Corporate Research, Poland

SESSION H: INSULATOR DESIGN, MANUFACTURING, MAINTENANCE & TESTING

Design and Manufacture of Composite Post Insulator"; 55

Ren Gui Qing, Director & Vice General Manager, Dalian Insulator, China

New UHV Testing Facility for Insulators & Arresters"; 73

Li Qingfeng, Director HV Laboratory, Electric Power Research Institute, China

Overview of Blackout in Niigata and Study on Property

Property of Wet Snow Packed with Sea-Salt on Insulator Strings"; 78

Manabu Sakata, Sr. Research Engineer, Central Research Institute of Electrical Power Industry (CRIEPI), Japan

Practical Applications of Insulator Selection Tool Program

for Insulation Dimensioning Using Test Station & Tower Data"; : 4

Igor Gutman, Technical Manager Insulation, STRI, Sweden

Production of Insulators & Arresters by Injection Moulding"3227

Volker Krell, Head of Design & Application Engineering, Klöckner Desma, Germany

Substation Pollution Maintenance Using RTV Silicone Coatings"323:

Kiriakos G. Siderakis, Consultant to Public Power Corporation, Greece

The New Method of Improving External Insulation Strength of HV Equipment"3254

Zhang Desai, Professor, Wuhan University, China