



# Studienkomitee D1: Materials and Emerging Test Techniques

Member: Christof Sumereder

Berichterstattung durch Stephan Pack

TU Graz, IHS

# Scope of D1

---

- Das Ziel des SC D1 ist die Förderung des Fortschritts technischer Entwicklungen sowie der internationale Informationsaustausch und Wissenstransfer im Bereich der Materialwissenschaft und der aufstrebenden Prüf- und Diagnosetechniken. Das SC D1 beabsichtigt den Informationsstand und das Wissen um den Stand der Technik durch die Entwicklung von Empfehlungen zu erweitern und zu verbreiten.
- Das SC D1 besteht aus 24 regulären Mitgliedern und 11 Beobachtern. Zu den Kernaufgabengebieten des SC zählen:
  - Flüssige und flüssig imprägnierte Isoliersysteme
  - Hochspannungs- und Hochstromprüfung und Diagnose
  - Gasförmige Isoliersysteme
  - Feste Isoliersysteme
- Wechsel Chairman: Prof. Gockenbach (Uni Hannover) zu Prof. Kindesberger (TU München),  
Sekretär Prof. Holbøll (DTU Lungby )



# Active Working Groups

## August 2010

---

- CSAG D1 - Strategic and Customer Related Advisory Group / J. Smit
- AG D1.01 - Liquid and Liquid Impregnated Insulation Systems/ L. Lundgaard  
AG D1.02 - High Voltage and Current Testing and Diagnostic/ M. Muhr  
AG D1.03 - Insulating Gases / U. Schichler  
AG D1.04 - Solid Materials / J. Densley
- WG D1.17 - HV Asset Condition Assessment Tools, Data Quality and Expert Systems / E. Gulski  
WG D1.19 - Solid Insulation Endurance under Repetitive Transient Voltages / J. Holboell  
WG D1.20 - Water Tree Detection in XLPE insulation / J. Densley  
WG D1.23 - HVDC ageing, diagnostics and accelerated life testing of polymeric materials / G.C. Montanari  
WG D1.24 - Potential of Polymer Nanocomposites as Electrical Insulation for Highly Stressed Insulation Material in AC and DC Application / T. Tanaka  
WG D1.25 - Application Guide for PD Detection in GIS using UHF or Acoustic Methods / U. Schichler  
WG D1.26 - Basic Principles to Determinate Methane Content of Cross-linked Solid Insulation of MV and HV Cables / S. Pelissou



# Active Working Groups

## August 2010

---

- WG D1.27 - Material Properties for New and Non-ceramic Insulation/ J. Kindersberger
- WG D1.29 - Partial Discharges in Transformers / J. Fuhr
- WG D1.30 - Oxidation Stability of Transformer Insulating Oils / I. Höhle
- WG D1.31 - Dielectric Performance of insulating liquids for transformers / L. Lundgaard
- WG D1.32 - Progress in DGA techniques and diagnoses / M. Duval
- WG D1.33 - High Voltage Test and Measuring Techniques / M. Muhr
- WG D1.34 - Condition assessment for oil-impregnated insulation used in ac cables / S. Cherukupalli
- WG D1.35 - Performance of high-voltage and high-current measurement systems for high voltage testing / Y. Li
- WG D1.36 - Special requirements for dielectric testing of ultra high voltage (UHV) equipment / U. Riechert
- WG D1.38 - Emerging Test Techniques Common to High Temperature Superconducting (HTS) Power Applications / H. Okubo
- WG D1.39 - Methods for Diagnostic/Failure Data Collection and Analysis / P. Morshuis
- WG D1.42 - Radiation Ageing of Polymeric Insulating Materials / T. Okamoto



# Preferential Subject 2010

---

Preferential Subject 1: New materials for improved efficiency and sustainability of AC and DC power equipment (6 Papers), Special Reporter: S. Gubanski

Preferential Subject 2: Challenges for testing and diagnostics (17 Papers), Special Reporter: M. Muhr

Preferential Subject 3: Endurance of materials especially in harsh electrical and physical environments (2 Papers), Special Reporter: S. Gubanski



# Preferential Subjects 2012

---

PS1 > Dielectric performance and aging of insulation materials

- Influence of ambient conditions
- Environmentally friendly materials
- Acceptable field stresses

PS2 > Test Techniques for UHV including HVDC

- Impulse voltage shapes, wet tests, atmospheric correction
- Test circuits and techniques for HVDC
- PD measurements under DC

PS3 > Diagnostic tools

- Material aging assessment and defect detection
- New tools for interpretation
- Tools for monitoring in smart grids



# Aktivitäten 2011/13

---

- Joint Colloquium mit SC A2 (Transformers) im September in Kyoto im Anschluß an die ISEIM
- SC Meeting 2013 in Australien geplant