

Solid Dielectric Task Force Meeting Minutes

May 4, 2009, Ashville, NC

- The meeting was called to order at 3:45 PM by Chris Ambrose, chair. Self-introductions were made and the attendance sheet was routed. 15 members and 18 guests were present, with 4 excused.
- The (4) mandatory IEEE Patent slides were presented. There were no comments or concerns brought up at this time relating to these. Plus the new letter of assurance slide.
- The minutes from the last meeting were displayed.
 - The grouper website was shown which is <http://grouper.ieee.org/groups/sdtf/private>
 - User name is sdtf-pr the password is intentionally omitted from the minutes.
 - Minutes were accepted as written and submitted.
- Based on comments from #10 in the minutes, Chris and Mietek developed the following proposed definition:

Solid Dielectric insulation, as used in this case, consists of polymeric dielectric materials, such as silicone rubbers, EPDM rubbers, cross-linked EVA, epoxy resins, and polyurethanes, as primary insulation for the live (energized) parts.

This definition specifically excludes ceramics, porcelain, glass, air, SF6, and oil as primary dielectric materials.

In this definition, primary insulation means that this insulation material is used as a main insulating medium providing the dielectric function of the equipment.

- Discussion occurred regarding this definition. Exception was taken that primary insulation means that this insulation medium provides the dielectric function of the equipment. Chris Ambrose felt that this was equivalent to underground cables. Then there may be two separate classes here. One where there is a ground shield around the insulation. The other is where there is air such as in reclosers which use air to supplement the dielectric of the polymer. A third is epoxy around the conductor.

Steve Meiners stated we were not trying to exclude devices which have some gap between poles.

First paragraph was revised to provide for both uses both as an encapsulating means for the live energized parts. The revised version is as follows:

Solid Dielectric insulation, as used in this case, consists of polymeric dielectric materials, such as silicone rubbers, EPDM rubbers, cross-linked EVA, epoxy resins, and polyurethanes, as ***an encapsulating material*** for the live (energized) parts.

This definition specifically excludes ceramics, porcelain, glass, air, SF6, and oil as primary dielectric materials.

- The coating of bus bars would then be covered by the new wording.
- Chris reported that he sent a copy of IEEE Std 98-2002 to the group members. Contact him if you did not get this since it is not on the website yet.
- The Solid Dielectric Task Force Theme was reviewed again.
- Jeff Geiger was not able to make it. He provided a question whether we as a group would like to discuss would be the addition of primary insulating medium surrounding/encapsulating the thigh voltage from “phase to phase” and “phase to phase” in the definition.
 - Group stated what we just changed should resolve this.
- Francois Soulard sent a question asking if we should introduce the definition of the notion of “homogeneous” of the solid dielectric insulation”. I think that some equipment is designed with multi-material insulation.
 - Group stated that should be addressed by what we just changed also.
 - Kirk Smith stated if you add you need expansion layer and possibly grading layer.
 - Consensus is that we are going more into the design of it and we need to stay more towards the performance of it.
- Presentations:
 - Bob Behl provided a presentation on various thermal cycling tests done at different locations around the globe that they have found.
 - A page was shown from a gentleman in Germany that he presented. Talks about resins usually shrink during the curing and cooling process.
 - Bob then showed the thermal cycling programs for various products that his company has.
 - Bob will check to see if these documents can be posted.
 - IEC for circuit breakers have a -101 or -100 that provides a temperature cycling program was question asked.
 - Frank Lambert offered the NEETRAC report from 2004 for the group. Steve Meiners stated that we have it. Frank has sent it to Chris Ambrose.
 - Nenad Uzelac of G&W provided a presentation on review of IEEE 400-2001. IEEE Guide for Field testing and evaluation of the insulation of shielded power cable systems.

- Test has two areas. Pass/fail and diagnostic. He will concentrate on diagnostic.
 - Mietek felt that he heard that spectroscopy is not that successful from what he has heard.
 - Diagnostic test will probably not indicate the leftover life of the device.
- IEC 60216 part 2
 - This may be useful to look at other parts of this series. Part 1 for aging procedures and evaluation of test results.
 - It was requested for Chris Ambrose will request these standards from the IEEE.
- Discussion on IEEE 98.
 - Comments were sent into Bill Long in April of 2007 from one member. There is also IEEE 99.
- Comments on IEC 200 by Gerard Schoonenberg Eaton
 - They also have a temperature cycle. Ramp rate 60°C/hr. -20 to 100 C.
 - They found cracking takes place at the low level more than the high level.
 - They perform 100 cycles.
 - Discussion is on going on how to get an internal arc. Drill? How many phases to ignite? They assign a rated single phase-to-earth arc fault in the new CD version. You still have to drill it if there are no other possibilities. You have to pick the middle phase per IEC to give you the longest length.
 - A copy of the presentation will be provided to Ambrose.
- Develop plans for the output of this Task Force.
 - Chris put up an outline of areas that we may want to be included into the document.
 - Capra suggested that have some key people work together to create a draft document for design tests for encapsulated switchgear and bring it to the group. Gerard recommended looking at -201 which should cover this.
 - Chris needs to recommend a small group of the members of the taskforce to create.
 - Nenad Uzelac, Larry Putnam, Frank Muench, Chris Ambrose, Gerard Schoonenberg.
 - The existing taskforce will then review this document at the next meeting. Next meeting we will edit/approve.
- Adjourned 5:25 PM.