

## **Working Group for Application of High-Temperature Materials IEEE P-1276 – Roger Wicks**

The Peabody Memphis Hotel – Memphis, Tennessee, USA  
Room – Grand Ballroom B  
November 3, 2015, 3:15pm – 4:30pm

- A. Welcome & Chairman's Remarks R. Wicks  
Roger opened the meeting at 3:15pm with a brief description of the scope of the Working Group.
- B. Circulation of Attendance Rosters J. Arteaga  
Circulated
- C. Attendance for Quorum J. Arteaga  
17 members were in attendance meeting the quorum requirement of 16 members. From the rosters at the end of the meeting there were 16 members in attendance and 89 guests. Of these 89 guests, 13 requested membership. The attendance will be reviewed and new members will be added if they meet current attendance requirements. The attendance will be recorded in the AMS system.
- D. Approval of Spring 2015 Meeting Minutes – San Antonio, TX J. Arteaga  
The meeting minutes were approved unanimously as written without changes.
- E. Approval of Meeting Agenda R. Wicks  
The agenda was approved unanimously without changes.
- F. Review of IEEE 1276 D1.2 All  
Kurt Kaineder presented changes proposed to section 4, merits of operating at high temperatures and section 7, description of high-temperature transformers. He indicated that figures 1 and 2 cover a range of temperature very large and unrealistic, with winding gradients up to 90°C, and there is a need to review. Unfortunately the based data for these charts was no longer available and a new data is required, seeking the support of the working group to provide this information.  
  
A modified section to cover mobile transformers was added with ODAF cooling system and further expansion on the topic is required.  
  
Section 4.5 to cover the merits of other transformers need additional cases for types of transformers and the input from the working group was requested.  
  
In section 7, description of high-temperature transformers, additional detail of the transformers with hybrid insulation is required, in special the section for distribution transformers that were not included on current version of guide.  
  
Tom Golner presented his contribution consisting of a list of considerations for the design, components and accessories for transformers operating at elevated temperatures. He also

indicated that the suppliers of high temperature liquids could provide additional recommendations.

Mark Perkins indicated that he needs to consider that the load losses would also increase with higher temperatures.

Craig Stiegemeier recommended the document include volume requirements for the expansion tank for these transformers.

It was also indicated that for distribution transformers the selection of the breakers and fuses should be also addressed in this guide.

Dharam Vir suggested to include values of DGA in the guide. It was also suggested to include consideration for current transformers.

Tom Golner also presented a list of major insulation, minor insulation, conductor components and core components that need to be addressed for higher temperature operation. In addition, he presented the different type of tests that would be required to qualify these materials for their use in transformers operating at elevated temperatures.

Valery Davydov indicated that the moisture in insulation also would be required to be included, however work is underway in PC57.162 to address this subject and current guide will make reference to this document.

Jinesh Malde pointed that required characteristics for diamond baked paper needs to be included in this guide.

Evan Langran suggested to include the additional mechanical stresses in conductors due to their thermal expansion when operating at elevated temperatures.

Chairman requested working group members and guests to participate in the elaboration of the sections required and the following new assignments were made:

Dave Sundin – Clauses 5 & 6, Evan Langran – Clause 7, Attila Gyore – Clause 6, Chuck Stevens – Clause 6, Shane Goydich – Clause 6, Jinesh Malde – Clauses 5 & 6, Dustin Davis – Clause 6

Chairman indicated that the working group will meet again in the Spring 2016 meeting.

#### G. Old Business

The Chair noted that our par expires at the end of 2016, and that we need to work quickly to complete this first draft with all of this additional input, likely in time to discuss at our Spring meeting so we will be in a better position to request a PAR expansion prior to the end of September 2016.

#### H. New Business

No new business

I. Adjournment

No further discussion, so with this, Attila Gyore moved to adjourn, seconded by Bruce Forsyth  
Meeting adjourned at 4:20 PM.

Roger Wicks – Chair

Mike Franchek – Vice Chair

Javier Arteaga - Secretary