

Working Group for Acceptance and Maintenance of Insulating Liquids in Transformers and Related Equipment

PC57.166

Tuesday, March 26, 2019

1:45 – 3:00 PM

Capistrano Room

Anaheim, CA

Chairman Tom Prevost
Vice Chair Scott Reed
Secretary Alan Sbravati

The meeting was called to order at 1:48 pm by Chair Tom Prevost.

There were 24 of 33 members present. There were 62 guests. A membership quorum was achieved.

Introductions

Approval of Agenda

Approval of Fall 2018 Minutes

Call for Patents

New Document:

Title

Scope

Purpose

Review of Document Structure and Task Forces

Task Force Reports

TF1 Types of Insulating Liquids—Jinesh Malde

TF2 In Service—Scott Reed

TF3 Mixture of Insulating Liquids—Alan Sbravati

TF4 Maintenance of Insulating Liquids—Rich Simonelli

TF5 Insulating Liquids for LTCs—Rainer Frotscher

TF6 Editorial—Toby Johnson

New Insulating Fluids – Continued Discussion from Fall 2018 Meeting

Voltage Levels within Acceptance Tables- Discussion

New Business

Adjourn

The Fall 2018 minutes were unanimously approved. Minutes of meeting from Rainer Frotscher, second Don Dorris.

The Spring 2019 agenda was unanimously approved. Motion for approval the agenda from Luiz Cheim, seconded by Jim Thompson. No comments were presented, agenda approved unanimously.

Chairman Prevost posted the Patent Claim. No claims were made.

Chair's Remarks:

Chairman Prevost reviewed the scope and purpose of the guide. Next, the chair asked each task force to speak about their respective sections.

TF1-Types of Insulating Liquids, Jinesh Malde

Jinesh shared a draft guide combining all the information from the existing standards. In addition, the task force identified the appropriate liquid tests and their significance as well as evaluate new liquids to be included as part of this guide. A discussion was raised around the inclusion of ASTM D877. The task force position is suggesting to keep as it is used typically for the maintenance. Jim Thompson raised the relevance of using the D877 for voltage regulators, tap changers and other equipment were this is the applied standard. Bob Rasor mentioned that D877 is no applied for transformers in the C57.106.

Jinesh presented the suggestion of the TF to use the nomenclature of High Molecular Weight Hydrocarbons. Jimmy Rasco recommended using the ASTM nomenclature, which is High Fire Point Mineral Electrical Insulation Oil. Sasha mentioned the relevance of registering the history of the terminology. Claude suggested including some informative annex with additional history background. Tom suggested using the initial session of the background information. Jinesh took back to the task force the task of defining an abbreviation to be used.

The definitions of Unused / New / Prior to use / In Service were discussed. Jeff Valmus expressed the preference for the term “unused”. A question around how to classify a liquid in a spare transformer not energized during 25 years. Jinesh and Tom advocated this would be as a “prior to energization” condition. Jim Thompson refers to the C57.93 as a guidance for the storage and the tests to be applied to this situation.

Jinesh asked for help for completing the information about silicone liquids, as the task force was not able to get inputs. Tom asks the audience for reference of where silicone is used. John John from Virginia transformer mentioned they have not received any request for quotation for new transformers filled with silicone liquid during the last 10 years. Rainer F. from MR offered to help with the information about silicone liquid. Bob Rasor mentioned SD Myers is servicing transformers filled with silicone liquid.

TF2- In Service, Scott Reed

Scott reviewed the relevant tables from the existing guides. He reported that TF2 is dependent on the format that TF1 takes on what liquid test values will be reported and also questioned whether any new liquid tests should be added to the guide. The group discussed the quantity of tests to be included for routine tests. For the natural esters tables the reference was table 4 of C57.147. Scott mentioned the absence of limits for dissipation factor, for example. Alan Sbravati explained these values are presented in the Annex B of the standard, as provisional. Tom Prevost mentioned this revision is the moment to collect more data and move the values to the main table. Regarding synthetic esters, Scott mentioned the need to work closely with the TF1, as the ASTM standard for unused synthetic esters is under development. At the moment there are no threshold limits defined in standards. Rainer Frotscher mentioned the existence of an IEC standard, which is valid for up to 35kV. Available information and limits for silicone liquid and HMWH are very limited.

TF3-Mixture of Insulating Liquids, Alan Sbravati

Alan prepared a first draft for this session, including information around the issues of mixing silicone with any other of the liquids, on the impact of mixing mineral oil with natural esters and also with synthetic esters and on the mixing of natural and synthetic esters. New volunteers joined the task force, who will revise the text prepared by Alan. They are: Mike Bonn; Ed Casserly; David Sundin; Nikola Lukenda; Bob Rasor and Jon Karas.

TF4- Maintenance of Insulating Liquids, Rich Simonelli

Rich is focused on the Reprocessing and Reclaiming of in service fluids. TF4 determine they have enough expertise on mineral oil and esters but needs more support with Less Flammable Hydrocarbon Fluids. TF4 is developing and consolidating guidance on Corrosive Sulphur and application / maintenance of Passivators. TF5 expects to have a draft guide available August.

T5- Insulating Liquids for LTC's, Rainer Frotscher

Rainer presented the application guides his company use as manufactures of tap changer and the available tables from IEC standards. Due to the variety of acceptable limits Tom mentions the need of consolidating the information.

Old Business:

Chairman Prevost addressed ‘New’ Insulating Liquids and Voltage Classes.

New Business:

No new business was presented.

The meeting was adjourned at 3:02 pm.

Alan Sbravati, Secretary

Scott Reed, Vice Chair