

Minutes of Meeting
Working Group: Methodologies to Demonstrate Expected Life of
Lubricants Used in Switching Devices
3:45 pm – 5:30 pm (CDT/UTC-5), October 16, 2024

1. Call Working Group (WG) meeting to order Jack Harley (Chair)
Meeting called to order at 3:45 pm (CDT).

2. Introduction of Participants Doug Edwards (Secretary)
Participants provided self-introductions with affiliations.
For reference, Voting-Members are:

Burse, Ted	Powell	Leccia, Brad	Eaton
Carne, Clint	Schneider	Ricciuti, Anthony	Eaton
Christian, Michael	ABB	Shiller, Paul	First Power Group
Edwards, Doug	Siemens (Secr)	Thomas, Christo	Schneider
Harley, Jack	First Power Grp (Chair)	Wolfe, Dan	MEPPI
Hunt, Terry	Westinghouse	Webb, John	ABB

3. Determine Quorum Doug Edwards
Quorum was met with:
 - 10 of 12 Voting Members
 - 1 Ex-Officio Members
 - 30 of 82 Non-Voting Members (NVM), including nine(9) new NVMs

4. Approval of Meeting Agenda (R5) Jack Harley
 - Meeting was announced via the Switchgear Committee’s website.
 - Agenda had been circulated.Motion: Brad Leccia
2nd: Christo Thomas
Approved – No objection to approval.

5. Policies & calls for (provided prior to meeting) Jack Harley
 - [IEEE’s Patent Policy](#): No issues reported.
 - [IEEE’s Copyright Policy](#): No issues reported.
 - [IEEE’s Participant behavior in IEEE-SA activities’ Policy](#): Reminder to behave provided.

6. Approval of previous virtual WG meeting minutes Jack Harley
[FS24 ADSCOM WG C37.100.8 Minutes R01.pdf](#)
 - Minutes provided with Meeting invitation and shown during meeting.
 - Approved by consent.

7. WG Chair Comments Jack Harley

In process task: When using the Arrhenius equation to estimate aging, the assumption has been that the order of reaction is one. In April of 2023, the concept was introduced to the WG that lubrication products may have more than one physical characteristic that can be subject to thermal degradation. On this basis, the lubricant will exhibit different activation energies with respect to each property. Based on tests that have been conducted, there is evidence that the natural order of reaction of lubricants is greater than one.

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Continued investigation is in process to determine if this is significant to the life of the lubricants. Questions and comments welcome. More to come.

Offer made, if interested, to perform test for the order of reaction, of specific lubricants of interest.

8. C37.100.8/D17 (attached to Meeting Invitation) Doug Edwards
Draft D17 version provided via Meeting Invitation and in [IMeetCentral](#).
9. Highlights of revisions incorporated into draft & Task Force Reports Jack Harley
1. Overview
- 1) Review if text concerning causes for slower than appropriate operation tied to lubricant (versus other causes) is sufficient.
No issues with draft.
 - Text about Load, Environment, Temperature, and Speed (LETS) added.
No issue with draft D17 text.
- 1.1 Scope: Is PAR change needed?
- 1) Where/how to cover RODE applications?
Request to RODE for participation has been made. The concept for potentially covering RODE equipment with other sections covering devices that are speed dependent is likely.
 - 2) HVS Ad hoc & conductivity issue – In or Out of Scope?
Kept “conductivity is out of scope” text to limit the Scope of the work so that the document might be completed.

Action Item: Review addition of note with HVS Ad hoc.
“NOTE—Lubricants may be used with bolted connection hardware.”
- 3.1 Definition: Is definition for “lubricant” needed?
Action Item: Jack Harley to draft definition.
- 3.2 Acronym: LETS added
No issue with draft D17 text.
- 4: Service Conditions
No changes made.

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5. General Consideration

- 5.6 Lubricants and limitations
 - 5.6.1 Starting torque added
No issue with draft D17 text.
 - 5.6.2 Hydrolysis added
No issue with draft D17 text.
 - 5.6.2 (previous) – Ester lubricants removed
No issue with draft D17 text deletion.
- 5.8 Lubricant compatibility
No issue with draft D17 text.
Action Item: Paul Shiller to provide recommended tests details.

6: Requirements by type of equipment (number of updates)

- 6.1 Devices which mechanically operate and performance is speed or time dependent
Clint Carne
No issue with draft D17 text.
- 6.2 Devices and components that mechanically operate but are not dependent on speed (includes HV Switches)
Joe Andreyo
No issue with draft D17 text.

7: Test objects – Continued Placeholders

8: Methodologies for demonstrating aging

- 8.2 & 8.2.3: Choice of variable – k vs dg/dt (in 8.2) and dg/dt (in 8.2.3)
Action Item (Paul Shiller): Recommendation for decision of “ k ” vs “ dg/dt ”.
Action Item: Edit equations based on proposal to be provided by Tery Hunt.
- 8.2.4: Keep or delete this section. Previously discussed but no conclusion.
Action Item: Edit equations based on proposal to be provided by Tery Hunt.

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9: Interpretation of data – Continued Placeholders
Not reviewed during this WG meeting.

10: Test Reports – Continues Placeholders
Not reviewed during this WG meeting.

Annex A: Bibliography

Action Item: Add "Other Aging Standards and Guides" references (see Annex B item below) will be added.

Annex B: Proposal for "Other Aging Standards and Guides" Annex B

Action Item: Add ""Other Aging Standards and Guides" references")as provided by Clint Carne) with brief overview of each.

Future Action Item for Annex A & Annex B: WG to review keeping Annex B or only referencing the other aging standards in the Annex A Bibliography. The next draft will have the more difficult edit first (with the addition of an Annex B) and then if the choice is made that the references are only needed in the Bibliography, the Annex B can be simply deleted.

10: Test Reports – Continues Placeholders

10.Next meetings

Jack Harley

Will be scheduled via Doodle Poll with target of November or December (avoiding US Thanksgiving and Christmas holidays).

11.Adjourn

Jack Harley

Adjourned at 4:30 pm (CDT).

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Attendance

Participant Type	LastName, FirstName	Company	2024-10-16
Voting Member (Chair)	Harley, John	FirstPower Group LLC	VM (Chair)
Voting member (Secretary)	Edwards, Doug	Siemens Industry, Inc.	VM (Secretary)
Voting Member	Burse, Ted	Powell Industries, Inc	VM
Voting Member	Carne, Clint	Schneider Electric	VM
Voting Member	Hunt, Terry	Westinghouse	VM
Voting Member	Leccia, Brad	Eaton	VM
Voting Member	Ricciuti, Anthony	Eaton Corporation	VM
Voting Member	Shiller, Paul	FirstPower Group LLC	VM
Voting Member	Thomas, Christo	Schneider Electric	VM
Voting Member	Webb, John	ABB	
Voting Member	Wolfe, Dan	MEPPI	VM
Voting Member (Ex-Officio)	Flowers, Keith	Siemens Industry, Inc.	
Voting Member (Ex-Officio)	Swing, Donnie	Avail	VM (ExO)
Non-Voting Member	Anderson, Tim	Aluma-Form	NVM
Non-Voting Member	Andreyo, Joe	Southern States	
Non-Voting Member	Antantis, Michelle	Duquesne Light	
Non-Voting Member	Aristizabal, Mauricio	Hitachi	

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Non-Voting Member	Bartels, Andreas	Powell	NVM
Non-Voting Member	Beck, Jason	Dominion Energy	NVM
Non-Voting Member	Blake, Randy	Schneider Electric	NVM
Non-Voting Member	Boyce, Russell	Eaton	
Non-Voting Member	Bridges, Chris	Eaton	
Non-Voting Member	Coziuc, Fiom	S&C	
Non-Voting Member	Davies, Stacey	Siemens	
Non-Voting Member	Diallo, Boubacar	Southern States	
Non-Voting Member	Doroz, Arkadiusz	Eaton	NVM
Non-Voting Member	Dunn, Chris	Dominion Energy	NVM
Non-Voting Member	Flores, Sergio	Schneider Electric	
Non-Voting Member	Gill, Juan	Southern States	
Non-Voting Member	Glinsky, Ilya	Southern California Edison (SCE)	
Non-Voting Member	Govindarajan, Sathish	Schneider Electric	NVM
Non-Voting Member	Grahor, Lou	Eaton Corporation	NVM
Non-Voting Member	Guidry, Sean	Omicron Electronics	
Non-Voting Member	Hall, John	Tennessee Valley Authority	
Non-Voting Member	Hartman, Oliver	Siemens	
Non-Voting Member	Hawkins, Tom	Siemens Industry, Inc.	

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Non-Voting Member	Hensberger, Jeremy	MEPPI	
Non-Voting Member	Hoss, Danny	Southern States	
Non-Voting Member	Irwin, Todd	GE Grid Solutions	
Non-Voting Member	Jahan, Fathmi	ABB	NVM
Non-Voting Member	Jamal, Shah	Avangrid	
Non-Voting Member	Jarnigan, Christopher	Southern Company Services	
Non-Voting Member	Keels, Thomas	kEElectric Engineering	
Non-Voting Member	Khan, Umer	ABB	
Non-Voting Member	Ledford, Travis	ABB	NVM
Non-Voting Member	Leopard, Johnathan	Eaton	
Non-Voting Member	Livshitz, Albert	Qualus Services	
Non-Voting Member	Lopez, Adrian	Powell Industries	NVM
Non-Voting Member	Lu, Li	Eaton	
Non-Voting Member	May, Steven	Southern Company	NVM
Non-Voting Member	Miller, Anne	TCI	
Non-Voting Member	Milnikel, Henning	Siemens AG	NVM
Non-Voting Member	Moser, Darryl	ABB	NVM
Non-Voting Member	Nenning, Andrew	Omicron Electronics	
Non-Voting Member	Orosz, Miklos	CBT&S LLC	NVM

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Non-Voting Member	Page, Mike	Eaton	NVM
Non-Voting Member	Pal, Sumitabha	Schneider Electric	
Non-Voting Member	Parks, Owen	ABB	
Non-Voting Member	Pecile, Conrad	Myers Power Products	NVM
Non-Voting Member	Pruitt, Al	The Durham Company	NVM
Non-Voting Member	Rakus, Paul	Eaton	
Non-Voting Member	Reid, Laura	Hubbell Power Systems	NVM
Non-Voting Member	Rowe, Ryan	TCI	NVM
Non-Voting Member	Ruiz, Eduardo	Eaton	NVM
Non-Voting Member	Runov, Artyom	S&C	
Non-Voting Member	Salinas, Alex	Doble/Vanguard	NVM
Non-Voting Member	Sax, Ben	Nashville Electric Service	NVM
Non-Voting Member	Sigmon, Hall	Siemens	
Non-Voting Member	Sims, Garrett	Eaton	NVM
Non-Voting Member	Solanki, Lokeshkumar	ABB	NVM
Non-Voting Member	Sullivan, Paul	DuPont	
Non-Voting Member	Tillery, Tim	Howard Industry	NVM
Non-Voting Member	Tuthill, Bryan	Volta	NVM
Non-Voting Member	Walgebach, Jake	Siemens	NVM

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Non-Voting Member	Ward, Jeffrey	Doble Engineering Company	
Non-Voting Member	Ward, Randy	Aluma-Form	NVM
Non-Voting Member	Weishuhn, William	ABB	NVM
Non-Voting Member	Woodyard, Terry	Siemens	
Non-Voting Member (IEEE Staff)	Santulli, Jenn	IEEE (Staff)	

PRELIMINARY