

ASTM Committee D27 Electrical Insulating Liquids and Gases Liaison Report

Ed Casserly

IEEE/PES Transformers Committee

October 23, 2023

Kansas City, MO

AGENDA

Introduction to ASTM D27

Current Hot Topics

Future Meetings

Committee D27 on Electrical Insulating Liquids and Gases

ASTM Committee D27 on Electrical Insulating Liquids and Gases was formed in 1959. D27 meets twice each year, in November and May, with about 30 members participating in 12 meetings over two days. The Committee, with a membership of approximately 110 members, currently has jurisdiction of over 50 approved standards that are published in the Annual Book of ASTM Standards, Volume 10.03

D27 Committee Scope

The promotion of knowledge pertaining to electrical insulating liquids and gases, whether of synthetic or natural origin, and the recommendation of standards pertinent to these materials.

The principal materials included in this scope are oils of petroleum origin, synthetic liquids, halogenated and other gases, when used, singularly or as combinations, as electrical insulation or as an environment for electrical insulation.

Standards peculiar to solid insulating materials and varnishes and the development of standards pertaining to the nonelectrical uses of liquid and gaseous materials are excluded from the scope of Committee D27.

Development in these fields incidental to the normal work of Committee D27 will be coordinated with the appropriate technical committees of the Society.

Committee Officers

Chairman:	Lance R. Lewand
Vice-chairman:	Edward W. Casserly
Secretary:	Michael Bonn
Staff manager:	Kelly Paul
Admin assistant:	Samantha Martin
Editor:	Julia Porter

D27 Committee Membership

Classification	Official	Non-Official	Total
Producer	18	12	30
User	9	3	12
Consumer	0	0	0
General Interest	43	25	68
Total	70	41	111

- Organized by company, organization, or individual
- 1 official vote per company, organization, or individual
- Unanimous approvals – all negatives must be resolved, even from non-voting members
- Membership varies as members are dropped for non-payment

Subcommittees

D27.01 Mineral

D27.02 Gases and Non-Mineral Oil Liquids

D27.03 Analytical Tests

D27.05 Electrical Test

D27.06 Chemical Test

D27.07 Physical Test

D27.15 Planning Resource and Development

D27.90 Executive

D27.91 I.E.C. TC 10 and Advisory

D27.95 Awards, Special Events, and Bylaws.

ASTM D27 Hot Topics (1)

Last meeting: May 8 – 9, 2023 Denver, Hybrid in-Person/Virtual

Subcommittee Reports

D27.01 - Mineral Oils, Griffin Burk:

- **ASTM D8180-23** - **New standard**: Specification for Re-refined Mineral Insulating Liquid Used in Electrical Apparatus, **approved Jan 1, 2023**.
- **ASTM D5222-23** – Specification for Less Flammable High Molecular Weight Hydrocarbon Mineral Electrical Insulating Liquids, **approved January 1, 2023**.
 - **New title**, previously, “High Fire Point Mineral Electrical Insulating Oils”
- **ASTM D3487-16** – Specification for Mineral Insulating Oil Used in Electrical Apparatus
 - **Currently under revision, WK83455; subcommittee vote.**

ASTM D27 Hot Topics (2)

Subcommittee Reports

D27.02 - Gases and Non-Mineral Oil Liquids, Todd Felton:

- **ASTM D8240-22** Specification for Less-Flammable Synthetic Ester Liquids Used in Electrical Apparatus (IEC 61099), **approved August, 2022**.
 - **New standard; requires disclosure of additives.**
- **ASTM D6871-17** Specification for Natural (Vegetable Oil) Ester Fluids Used in Electrical Apparatus.
 - **Currently under revision, WK81903**

ASTM D27 Hot Topics (3)

D27.03 - Analytical Tests, Claude Beauchemin:

- **WK81449** New Standard For the determination of additives in insulating liquids - Part 1 - Determination of phenolic antioxidants using liquid chromatography (LC)
 - (Technical Contact: Casserly, Edward W)
- Work is on-going. Part 1 is on the determination of phenolic antioxidants using liquid chromatography (LC) and a draft has been issued.
 - Concurrent with IEC TC10 MT43 revision of 60666.
 - IEEE ICDL 2022 paper published.

ASTM D27 Hot Topics (4)

D27.05 - Electrical Tests, Sandra Smith:

D27.06 - Chemical Tests, Lance Lewand:

D27.07 - Physical Tests, Zach Holland:

D27.95 - Awards, Special Events, Bylaws, Janet Lloyd

ASTM D27 Hot Topics (5)

D27.15 - Planning, Resources and Development, Kevin Wirtz:

Task Group Reports

- a) WK68133 – Oxidation Stability of Natural and Synthetic Ester Liquids using OIT by DSC – submitted for development to D27.06 SC. Current draft to be posted to collaboration site is v11.
- b) Oxidation of Natural Ester Liquids using Non-DSC Methods – L. Lewand
Working on use of D2112 to assess. No updates.
- c) Partial Discharge – Tom Prevost – No report as Tom was not present.
- d) Relative Saturation of Water in Insulating Liquids – Lance Lewand – Status unchanged and no updates.

D27.91 - IEC TC 10 Advisory, Ed Casserly:

Ed Casserly presented the IEC TC 10 Advisory report.

Future Meetings

Monday Nov 6, 2023 – Tuesday Nov 7, 2023

Location: Washington Hilton, Washington DC

Monday May 6, 2024 – Tuesday May 7, 2024

Location: Philadelphia Marriott Downtown, Philadelphia, PA

Monday November 11, 2024 – Tuesday November 12, 2024

Location: Renaissance Orlando at SeaWorld, Orlando, FL

Monday May 5, 2025 – Tuesday May 6, 2025

Location: Sheraton Centre, Toronto, Ontario, CA