

DAFTAR PUSTAKA

- [1] T. Qinghua, Y. Wei, W. Nan, Z. Kaifang, Z. Li, and Z. Yao, "Study on oil-paper insulation aging based on multi-characteristic parameters," in *2017 Chinese Automation Congress (CAC)*, IEEE, Oct. 2017, pp. 5197–5201. doi: 10.1109/CAC.2017.8243703.
- [2] A. Rajab, M. Tsuchie, M. Kozako, M. Hikita, and T. Suzuki, "Low thermal fault gases of various natural monoesters and comparison with mineral oil," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 23, no. 6, pp. 3421–3428, Dec. 2016, doi: 10.1109/TDEI.2016.006068.
- [3] L. Ruijin, T. Chao, Y. Lijun, and C. Huanchao, "Thermal Aging Studies on Cellulose Insulation Paper of Power Transformer Using AFM," in *2006 IEEE 8th International Conference on Properties and applications of Dielectric Materials*, IEEE, Jun. 2006, pp. 722–725. doi: 10.1109/ICPADM.2006.284279.
- [4] M. Gao, Y. Ding, T. Wang, T. Wen, and Q. Zhang, "Study on bubble evolution in oil-paper insulation during dynamic rating in power transformers," in *2016 IEEE International Power Modulator and High Voltage Conference (IPMHVC)*, IEEE, Jul. 2016, pp. 341–344. doi: 10.1109/IPMHVC.2016.8012835.
- [5] T. V. Oommen, "Vegetable oils for liquid-filled transformers," *IEEE Electrical Insulation Magazine*, vol. 18, no. 1, pp. 6–11, Jan. 2002, doi: 10.1109/57.981322.
- [6] Noor Syazwani Mansor, M. Kamarol, Y. M. Y, and K. Azmi, "Breakdown voltage characteristic of biodegradable oil under various gap of quasi-uniform electrode configuration," in *2012 IEEE International Conference on Power and Energy (PECon)*, IEEE, Dec. 2012, pp. 732–735. doi: 10.1109/PECon.2012.6450312.
- [7] C. P. McShane, "Natural and synthetic ester dielectric fluids: their relative environmental, fire safety, and electrical performance," in *1999 IEEE Industrial and Commercial Power Systems Technical Conference (Cat. No.99CH36371)*, IEEE, p. 8. doi: 10.1109/ICPS.1999.787238.
- [8] G. Dombek, J. Gielniak, and R. Wroblewski, "Fire safety and electrical properties of mineral oil/synthetic ester mixtures," in *2017 International Symposium on Electrical Insulating Materials (ISEIM)*, IEEE, Sep. 2017, pp. 227–230. doi: 10.23919/ISEIM.2017.8088728.
- [9] S. Wang, J. Wei, S. Yang, M. Dong, and G. Zhang, "Temperature and thermal aging effects on the Frequency Domain Spectroscopy measurement of oil-

- paper insulation,” in *2009 IEEE 9th International Conference on the Properties and Applications of Dielectric Materials*, IEEE, Jul. 2009, pp. 329–332. doi: 10.1109/ICPADM.2009.5252418.
- [10] A. Munajad, C. Subroto, and Suwarno, “Fourier transform infrared (FTIR) spectroscopy analysis of transformer paper in mineral oil-paper composite insulation under accelerated thermal aging,” *Energies (Basel)*, vol. 11, no. 2, Feb. 2018, doi: 10.3390/en11020364.
 - [11] A. Munajad, C. Subroto, and Suwarno, “Fourier transform infrared spectroscopy (FTIR) analysis of transformer insulation paper in natural ester,” in *2017 International Conference on High Voltage Engineering and Power Systems (ICHVEPS)*, IEEE, Oct. 2017, pp. 446–450. doi: 10.1109/ICHVEPS.2017.8225887.
 - [12] U. M. Rao, Y. R. Sood, and R. K. Jarial, “Physiometric and Fourier transform infrared spectroscopy analysis of cellulose insulation in blend of mineral and synthetic ester oils for transformers,” *IET Science, Measurement and Technology*, vol. 11, no. 3, pp. 297–304, May 2017, doi: 10.1049/iet-smt.2016.0334.
 - [13] Suganda and Abdul Muis, “Analisa Kualitas Tahanan Isolasi Transformator Daya,” *Sinusoida*, vol. 23, no. Vol 23 No 2 (2021): Jurnal Penelitian dan Pengkajian Elektro, 2021.
 - [14] M. Yogi Yusuf, Firdaus, and Feranita, “Analisa Konfigurasi Hubungan Primer dan Sekunder Transformator 3 Fasa 380/24 V,” *Jom FTEKNIK*, vol. 3, no. 1, 2016.
 - [15] K. Shaarbafi, *Transformer Modelling Guide Version : Revision 2 Transformer Modelling Guide Confidential/Internal*. Alberta Electric System Operator (AESO), 2014.
 - [16] Sinuhaji, “ANALISIS KEADAAN MINYAK ISOLASI TRANSFORMATOR DAYA 150 KV MENGGUNAKAN METODE DISSOLVED GAS ANALYSIS (DGA) DAN FUZZY LOGIC PADA GARU INDUK WILAYAH SIDOARJO,” Tugas Akhir, Universitas Jember, 2012.
 - [17] A. Junaidi, J. A. Wahab, S. No, and B. Ampar, “PENGARUH PERUBAHAN SUHU TERHADAP TEGANGAN TEMBUS PADA BAHAN ISOLASI CAIR,” vol. 13, no. 2, pp. 1–5, 2008.
 - [18] N. Ayu and K. Umiati, “PENGUJIAN KEKUATAN DIELEKTRIK MINYAK SAWIT DAN MINYAK CASTROL MENGGUNAKAN ELEKTRODE BOLA-BOLA DENGAN VARIASI JARAK ANTAR ELEKTRODE DAN TEMPERATUR,” *Transmisi: Jurnal Ilmiah Teknik Elektro*, vol. 11, pp. 23–36, Oct. 2010.

- [19] I. Nyoman Oksa Winanta *et al.*, “Studi Tegangan Tembus Minyak Transformator,” *Anak Agung Ngurah Amrita, Wayan Gede Ariastina Jurnal SPEKTRUM*, vol. 6, no. 3, 2019.
- [20] S. A. Azli, M. Hezri Fazalul Rahiman, Z. M. Yusoff, N. Fadzilah Razali, S. S. Abd Wahid, and M. Sufian Ramli, “A Review on Alternative Oils as Dielectric Insulating Fluids on Power Transformer,” in *2019 IEEE 15th International Colloquium on Signal Processing & Its Applications (CSPA)*, IEEE, Mar. 2019, pp. 198–201. doi: 10.1109/CSPA.2019.8695983.
- [21] D. U. Bandara, J. R. S. S. Kumara, M. A. R. M. Fernando, and C. S. Kalpage, “Possibility of blending sesame oil with field aged mineral oil for transformer applications,” in *2017 IEEE International Conference on Industrial and Information Systems (ICIIS)*, IEEE, Dec. 2017, pp. 1–4. doi: 10.1109/ICIINFS.2017.8300411.
- [22] K. Baburao, D. Shukla, and N. Nanavati, “Depletion rate of oxidation inhibitor in hydroprocessed mineral insulating oil and naphthenic oils,” in *2012 IEEE International Conference on Condition Monitoring and Diagnosis*, IEEE, Sep. 2012, pp. 261–264. doi: 10.1109/CMD.2012.6416426.
- [23] J. Ilham and S. Salim, “STUDI KARAKTERISTIK MINYAK NILAM SEBAGAI ALTERNATIF PENGGANTI MINYAK TRANSFORMATOR,” *Jambura Journal of Electrical and Electronics Engineering*, vol. 1, no. 2, Jul. 2019.
- [24] M. Latif, “PENGARUH TEMPERATUR TERHADAP KEKUATAN DIELEKTRIK MINYAK NABATI SEBAGAI BAHAN ISOLASI TRANSFORMATOR DAYA,” vol. 1, no. 30, 2008.
- [25] N. Rosyidi and Deki P, “PENGUJIAN TEGANGAN TEMBUS PADA MINYAK TRAFO,” vol. 23, no. Jurnal Penelitian dan Pengkajian Elektro, 2021.
- [26] Y. Hiramatsu, K. Kamidani, and Y. Muramoto, “Effect of water on AC breakdown properties of vegetable-oil-based insulating fluid mixed with mineral oil,” in *2017 International Symposium on Electrical Insulating Materials (ISEIM)*, IEEE, Sep. 2017, pp. 211–214. doi: 10.23919/ISEIM.2017.8088724.
- [27] H. Zhao, Z. Huang, J. Li, and D. Yao, “Controlled preparation of MOF for performance improvement of vegetable insulating oil,” in *7th IEEE International Conference on High Voltage Engineering and Application, ICHVE 2020 - Proceedings*, Institute of Electrical and Electronics Engineers Inc., Sep. 2020. doi: 10.1109/ICHVE49031.2020.9279773.
- [28] K. Bandara, C. Ekanayake, and T. K. Saha, “Compare the performance of natural ester with synthetic ester as transformer insulating oil,” in *2015 IEEE*

- 11th International Conference on the Properties and Applications of Dielectric Materials (ICPADM)*, IEEE, Jul. 2015, pp. 975–978. doi: 10.1109/ICPADM.2015.7295437.
- [29] Q. Liu and Z. D. Wang, “Streamer Characteristic and Breakdown in Synthetic and Natural Ester Transformer Liquids under Standard Lightning Impulse Voltage,” 2011.
 - [30] R. T. A. R. Prasath, S. N. Mahato, N. K. Roy, and P. Thomas, “Dielectric and thermal conductivity studies on synthetic ester oil based TiO₂ nanofluids,” in *2017 3rd International Conference on Condition Assessment Techniques in Electrical Systems (CATCON)*, IEEE, Nov. 2017, pp. 289–292. doi: 10.1109/CATCON.2017.8280230.
 - [31] A. Sukma Hardana, S. Abduh, and T. K. Sari, “ANALISIS LAJU PENUAAN ISOLASI KERTAS MENGGUNAKAN ESTER BASED OIL PADA TRANSFORMATOR RAMAH LINGKUNGAN,” *Jetri : Jurnal Ilmiah Teknik Elektro*, pp. 28–44, Aug. 2022, doi: 10.25105/jetri.v20i1.13665.
 - [32] T. A. Prevost and T. V. Oommen, “Cellulose insulation in oil-filled power transformers: Part I - history and development,” *IEEE Electrical Insulation Magazine*, vol. 22, no. 1, pp. 28–35, Jan. 2006, doi: 10.1109/MEI.2006.1618969.
 - [33] Qiang Fu *et al.*, “Correlation analysis between crystalline behavior and aging degradation of insulating paper,” in *2016 IEEE International Conference on Dielectrics (ICD)*, IEEE, Jul. 2016, pp. 617–620. doi: 10.1109/ICD.2016.7547531.
 - [34] G. Kaliappan and M. Rengaraj, “Aging assessment of transformer solid insulation: A review,” in *Materials Today: Proceedings*, Elsevier Ltd, 2021, pp. 272–277. doi: 10.1016/j.matpr.2021.04.301.
 - [35] M. Meissner, E. Matic, S. Schober, M. Darmann, and M. Mittelbach, “Monitored Migration of Additives from Thermally Upgraded Paper into Various Insulation Liquids,” in *Proceedings of the 2020 IEEE 3rd International Conference on Dielectrics, ICD 2020*, Institute of Electrical and Electronics Engineers Inc., Jul. 2020, pp. 649–652. doi: 10.1109/ICD46958.2020.9341830.
 - [36] Ming Dong, Guanjun Zhang, and Zhang Yan, “Synthetic furfural analysis for transformer ageing,” in *The 17th Annual Meeting of the IEEE Lasers and Electro-Optics Society, 2004. LEOS 2004.*, IEEE, 2004, pp. 245–248. doi: 10.1109/CEIDP.2004.1364234.
 - [37] C. Ling, L. Rui, C. Jun, and W. Xiao-jian, “Distribution characteristics of acid and influence of acid on thermal aging of oil-paper insulation,” in *2013 Annual*

- Report Conference on Electrical Insulation and Dielectric Phenomena*, IEEE, Oct. 2013, pp. 164–167. doi: 10.1109/CEIDP.2013.6748232.
- [38] R. Liao, Y. Lin, P. Guo, H. Liu, and H. Xia, “Thermal aging effects on the moisture equilibrium curves of mineral and mixed oil-paper insulation systems,” *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 22, no. 2, pp. 842–850, Apr. 2015, doi: 10.1109/TDEI.2015.7076783.
 - [39] K. Bandara, C. Ekanayake, T. K. Saha, and P. K. Annamalai, “Understanding the ageing aspects of natural ester based insulation liquid in power transformer,” *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 23, no. 1, pp. 246–257, Feb. 2016, doi: 10.1109/TDEI.2015.004744.
 - [40] A. B. D. Nandiyanto, R. Oktiani, and R. Ragadhita, “How to read and interpret ftir spectroscope of organic material,” *Indonesian Journal of Science and Technology*, vol. 4, no. 1, pp. 97–118, 2019, doi: 10.17509/ijost.v4i1.15806.
 - [41] S. Beldar, R. Dolasiya, G. Morde, and C. S. Narasimhan, “FTIR and X-Ray photoelectron spectral (XPS) evidence for interaction between natural ester and cellulose paper,” in *2019 IEEE 20th International Conference on Dielectric Liquids (ICDL)*, IEEE, Jun. 2019, pp. 1–4. doi: 10.1109/ICDL.2019.8796589.
 - [42] S. A. Khan, S. B. Khan, L. U. Khan, A. Farooq, K. Akhtar, and A. M. Asiri, “Fourier transform infrared spectroscopy: Fundamentals and application in functional groups and nanomaterials characterization,” in *Handbook of Materials Characterization*, Springer International Publishing, 2018, pp. 317–344. doi: 10.1007/978-3-319-92955-2_9.
 - [43] B. J. Inkson, “Scanning electron microscopy (SEM) and transmission electron microscopy (TEM) for materials characterization,” in *Materials Characterization Using Nondestructive Evaluation (NDE) Methods*, Elsevier, 2016, pp. 17–43. doi: 10.1016/B978-0-08-100040-3.00002-X.
 - [44] K. Akhtar, S. A. Khan, S. B. Khan, and A. M. Asiri, “Scanning Electron Microscopy: Principle and Applications in Nanomaterials Characterization,” in *Handbook of Materials Characterization*, Cham: Springer International Publishing, 2018, pp. 113–145. doi: 10.1007/978-3-319-92955-2_4.
 - [45] H. Yu, R. Chen, X. Hu, X. Xu, and Y. Xu, “Dielectric and physicochemical properties of mineral and vegetable oils mixtures,” in *2017 IEEE 19th International Conference on Dielectric Liquids (ICDL)*, IEEE, Jun. 2017, pp. 1–4. doi: 10.1109/ICDL.2017.8124697.
 - [46] T. K. Saha, M. Darveniza, D. J. T. Hill, and T. T. Le, “Electrical and chemical diagnostics of transformers insulation. B. Accelerated aged insulation samples,” *IEEE Transactions on Power Delivery*, vol. 12, no. 4, pp. 1555–1561, 1997, doi: 10.1109/61.634175.

- [47] U. M. Rao, Y. R. Sood, and R. K. Jarial, “Oxidation stability enhancement of a blend of mineral and synthetic ester oils,” *IEEE Electrical Insulation Magazine*, vol. 32, no. 2, pp. 43–47, Mar. 2016, doi: 10.1109/MEI.2016.7414230.
- [48] M. Qarina, “PENGARUH PENUAAN TERMAL TERHADAP TEGANGAN TEMBUS DAN KEKUATAN TARIK KERTAS ISOLASI DALAM CAMPURAN MINYAK MINERAL DAN ESTER SINTETIK,” Andalas University, Padang, 2023.

