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Polimer akibat Paparan Korona Jangka Pendek**
Harry Boas Saputra, Harry Prabowo, S.T., M.T.; Prof. Ir. Tumiran, M.Eng., Ph.D., IPU.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

[1] M. Z. Saleem and M. Akbar, "Review of the performance of high-voltage composite insulators," *Polymers*, vol. 14, p. 431, 2022.

[2] SA Power Networks, "Power outages on yorke peninsula," March 2025. [Online]. Available: https://www.sapowernetworks.com.au/data/321951/power-outages-on-yorke-peninsula/

[3] X. Pan, Z. Wang, W. Zhou, F. Liu, and J. Chen, "Research progress on polymer materials in high-voltage applications: A review," *Energies*, vol. 19, no. 2, p. 504, 2026.

[4] S. Liu, S. Liu, Q. Wang, Z. Zuo, L. Wei, Z. Chen, and X. Liang, "Improving surface performance of silicone rubber for composite insulators by multifunctional nano-coating," *Chemical Engineering Journal*, vol. 451, p. 138679, 2023.

[5] Y. Zhu, "Influence of corona discharge on hydrophobicity of silicone rubber used for outdoor insulation," *Polymer Testing*, vol. 74, pp. 14–20, 2019.

[6] M. H. Tahir, A. Arshad, and H. U. Manzoor, "Influence of corona discharge on the hydrophobic behaviour of nano/micro filler based silicone rubber insulators," *Materials Research Express*, vol. 9, p. 035302, 2022.

[7] M. Taghvaei, M. Sedighizadeh, N. NayebPashaee, and A. Sheikhi Fini, "Reliability assessment of RTV and nano-RTV-coated insulators concerning contamination severity," *Electric Power Systems Research*, vol. 191, p. 106892, 2021.

[8] E. Kuffel, W. S. Zaengl, and J. Kuffel, *High Voltage Engineering Fundamentals*, 2nd ed. Oxford: Newnes, 2000.

[9] R. S. Gorur, E. A. Cherney, and J. T. Burnham, *Outdoor Insulators*. Phoenix: Ravi S. Gorur Inc., 1999.

[10] G. G. Karady, "Flashover mechanism of non-ceramic insulators," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 6, no. 5, pp. 718–723, 1999.

[11] D. Ghosh and D. Khastgir, "Degradation and stability of polymeric high-voltage insulators and prediction of their service life through environmental and accelerated aging processes," *ACS Omega*, vol. 3, no. 9, pp. 11 317–11 330, 2018.

[12] A. H. El-Hag, "Leakage current characterization for estimating the conditions of non-ceramic insulators' surfaces," *Electric Power Systems Research*, vol. 77, no. 3–4, pp. 379–384, 2007.

[13] H. Hillborg and U. W. Gedde, "Hydrophobicity changes in silicone rubbers," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 6, no. 5, pp. 703–717, 1999.

[14] B. Ma, J. Wang, H. Hillborg, and S. M. Gubanski, "Performance of HTV silicone rubber under artificial AC and DC corona/ozone test," in *Proceedings of the 17th International Symposium on High Voltage Engineering*, 2011, pp. E–036. [Online]. Available: https://research.chalmers.se/publication/145214

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[15] A. R. Leon-Garzon, G. Dotelli, M. Tommasini, C. L. Bianchi, C. Pirola, A. Villa, A. Lucotti, B. Sacchi, and L. Barbieri, "Experimental characterization of polymer surfaces subject to corona discharges in controlled atmospheres," *Polymers*, vol. 11, no. 10, p. 1646, 2019.

[16] B. S. Reddy and S. D. Prasad, "Corona degradation of the polymer insulator samples under different fog conditions," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 23, no. 1, pp. 359–367, 2016.

[17] J. W. Chang and R. S. Gorur, "Surface recovery of silicone rubber used for HV outdoor insulation," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 1, no. 6, pp. 1039–1046, 1994.

[18] E. A. Cherney, "RTV silicone—a high tech solution for a dirty insulator problem," *IEEE Electrical Insulation Magazine*, vol. 11, no. 6, pp. 8–14, 1995.

[19] J. J. Lowke and F. D'Alessandro, "Onset corona fields and electrical breakdown criteria," *Journal of Physics D: Applied Physics*, vol. 36, no. 21, pp. 2673–2682, 2003.

[20] M. Abdel-Salam, A. Hashem, and E. Sidique, "Characteristics of negative corona discharge in single-needle- and multi-needle-to-plane configurations," *International Journal of Plasma Environmental Science and Technology*, vol. 7, no. 2, pp. 121–135, 2013.

[21] F. Mugele and J.-C. Baret, "Electrowetting: from basics to applications," *Journal of Physics: Condensed Matter*, vol. 17, no. 28, pp. R705–R774, 2005.

[22] J. H. Masliyah and S. Bhattacharjee, *Electrokinetic and Colloid Transport Phenomena*. Hoboken, New Jersey: John Wiley & Sons, 2006.

[23] Q. Li, S. M. Rowland, I. Dupere, and R. S. Morris, "The impact of water droplet vibration on corona inception on conductors under 50 Hz AC fields," *IEEE Transactions on Power Delivery*, 2018.

[24] J.-M. Jin, *The Finite Element Method in Electromagnetics*, 3rd ed. Hoboken, NJ: John Wiley & Sons, 2014.

[25] A. F. Stalder, G. Kulik, D. Sage, L. Barbieri, and P. Hoffmann, "A snake-based approach to accurate determination of both contact points and contact angles," *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, vol. 286, no. 1–3, pp. 92–103, 2006.

[26] IEEE Standards Association, "IEEE guide for the application, maintenance, and evaluation of room-temperature vulcanizing (RTV) silicone rubber coatings for outdoor ceramic insulators," IEEE, Tech. Rep. IEEE Std 1523-2018, 2018.

[27] International Electrotechnical Commission, "Artificial Pollution Tests on High-Voltage Insulators to be Used on A.C. Systems," IEC, Tech. Rep. IEC 60507:1991, 1991.

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[28] A. A. Salem, K. Y. Lau, Z. Abdul-Malek, W. Zhou, S. Al-Ameri, S. A. Al-Gailani, and R. A. Rahman, "Investigation of high voltage polymeric insulators performance under wet pollution," *Polymers*, vol. 14, no. 6, p. 1236, 2022.

[29] Y. Yang, Z. Wang, X. Peng, Z. Huang, and P. Fang, "Influence of crosslinking extent on free volumes of silicone rubber and water diffusion after corona discharge," *Materials*, vol. 15, no. 19, p. 6833, 2022.