

DAFTAR PUSTAKA

- Abdul M.W., T., 2018. Characterization of an Asphalt Concrete Binder Course Mixture Using Asbuton Granular Asphalt. *Journal of Engineering and Applied Sciences* 13, 5942–5946. <https://doi.org/jeasci.2018.5942.5946>
- Affandi, F., 2018. Properties of Refined Natural Asphalt Buton (Asbuton) as Pavement Materials. *Jurnal Jalan Jembatan* 22, 20.
- Alam, S., Hossain, Z., 2017a. Changes in fractional compositions of PPA and SBS modified asphalt binders. *Constr. Build. Mater.* 152, 386–393. <https://doi.org/10.1016/J.CONBUILDMAT.2017.07.021>
- Alam, S., Hossain, Z., 2017b. Changes in fractional compositions of PPA and SBS modified asphalt binders. *Constr. Build. Mater.* 152, 386–393. <https://doi.org/10.1016/J.CONBUILDMAT.2017.07.021>
- Alberta, Karya, V., 1989. Feasibility Study for Refining Asbuton, Final Report Vol.3 (Physical and Chemical Characterization of Asbuton). Jakarta.
- Ali, M.H.H., 2011. Mixture characteristics of buton rock asphalt.
- Al-Qadi, I.L., Hasiba, K.I., Cortina, A.S., Ozer, H., Leng, Z., Parish, D.C., Worsfold, S.J., 2012. Best Practices for Implementation of Tack Coat: Part 1, Laboratory Study. Illinois.
- Amanda, M.T., Mauliana, R., Rahman, T., Suparma, L.B., 2025. Evaluating the performance of porous asphalt mixtures with polymer-modified and unmodified bitumen. *Discover Civil Engineering* 2, 31. <https://doi.org/10.1007/s44290-025-00196-x>
- Amelian, S., Kim, Y.-R., 2018. Performance Assessment of Interlayers with Different Tack Coats by Considering Loading Types and Failure Modes. *Transportation Research Record: Journal of the Transportation Research Board* 2672, 1–9. <https://doi.org/10.1177/0361198118768528>
- Ananda, F., 2020. Analisis Kuat Geser Antara Lapis AC-WC dan AC-BC yang Menggunakan Tack Coat Tipe CRS-1 dan CSS-1. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.



- Ann, B.T.Q., 2022. Effect of Tack Coat Application Rate and Temperature on Interlayer Cohesion and Friction of Double-Layer Asphalt Samples. hlm. 595–606. https://doi.org/10.1007/978-981-16-7160-9_60
- Anupam, K., Akinmade, D., Kasbergen, C., Erkens, S., Adebiyi, F., 2023. A state-of-the-art review of Natural bitumen in pavement: Underlining challenges and the way forward. *J. Clean. Prod.* 382. <https://doi.org/10.1016/j.jclepro.2022.134957>
- Apostolidis, P., Liu, X., Erkens, S., Scarpas, A., 2020. Use of epoxy asphalt as surfacing and tack coat material for roadway pavements. *Constr. Build. Mater.* 250, 118936. <https://doi.org/10.1016/J.CONBUILDMAT.2020.118936>
- Aspabi, 2025. Beranda Aspabi [WWW Document]. URL <http://aspabi.id/> (diakses 9.16.25).
- Bae, A., Mohammad, L.N., Elseifi, M.A., Button, J., Patel, N., 2010. Effects of Temperature on Interface Shear Strength of Emulsified Tack Coats and Its Relationship to Rheological Properties. *Transportation Research Record: Journal of the Transportation Research Board* 2180, 102–109. <https://doi.org/10.3141/2180-12>
- BPMI Setpres, 2022. Tinjau Pabrik Aspal, Presiden Dorong Kabupaten Buton sebagai Wilayah Industri Penghasil Aspal [WWW Document]. URL <https://www.presidentri.go.id/siaran-pers/tinjau-pabrik-aspal-presiden-dorong-kabupaten-buton-sebagai-wilayah-industri-penghasil-aspal/> (diakses 9.4.25).
- BRIN, 2023. Logam Tanah Jarang dan Aspal Buton, Harta Karun yang Masih Terpendam [WWW Document]. URL <https://www.brin.go.id/news/111263/logam-tanah-jarang-dan-aspal-buton-harta-karun-yang-masih-terpendam> (diakses 9.4.25).
- Brown, S.F., 1973. Determination of Young's Modulus for Bituminous Materials in Pavement Design. *Highway Research Record*.
- Caltrans, 2024. Tack Coat Guidelines 2024. Division of Construction California Department of Transportation, California.
- Chang, J.-R., Chen, Y., Lo, Y.-Y., 2026. The effect of different conditions on the interlayer bonding of asphalt tack coat under pipeline construction. *KSCE Journal of Civil Engineering* 30, 100336. <https://doi.org/10.1016/j.kscej.2025.100336>



- Chang, Y., Chen, Z., Niu, X., Zhou, Z., 2017. Test of shear resistance of modified emulsified asphalt by waterborne epoxy resin. *Jiangsu Daxue Xuebao (Ziran Kexue Ban)/Journal of Jiangsu University (Natural Science Edition)* 38, 224 – 229. <https://doi.org/10.3969/j.issn.1671-7775.2017.02.017>
- Chen, J.-S., Huang, C.-C., 2010. Effect of Surface Characteristics on Bonding Properties of Bituminous Tack Coat. *Transportation Research Record: Journal of the Transportation Research Board* 2180, 142–149. <https://doi.org/10.3141/2180-16>
- Chen, Z., Huang, G., Wang, S., Wang, X., Wang, Z., Zhang, J., Falchetto, A.C., 2024. Variation of SARA fractions of crumb rubber modified asphalt binder-aggregate interface system and its correlation with adhesion properties. *Constr. Build. Mater.* 435, 136902. <https://doi.org/10.1016/j.conbuildmat.2024.136902>
- Collop, A.C., Sutanto, M.H., Airey, G.D., Elliott, R.C., 2011. Development of an automatic torque test to measure the shear bond strength between asphalt. *Constr. Build. Mater.* 25, 623–629. <https://doi.org/10.1016/j.conbuildmat.2010.07.030>
- Destrée, A., Visscher, J. De, Vanelstraete, A., 2012. Evaluation of Tack Coat Performance For Thin and Ultra-Thin Asphalt Pavements. 5th Eurasphalt & Eurobitume Congress.
- Diakhaté, M., Millien, A., Petit, C., Phelipot-Mardelé, A., Pouteau, B., 2011. Experimental investigation of tack coat fatigue performance: Towards an improved lifetime assessment of pavement structure interfaces. *Constr. Build. Mater.* 25, 1123–1133. <https://doi.org/10.1016/j.conbuildmat.2010.06.064>
- Direktorat Jenderal Binamarga, 2024. Perencanaan Teknis Geometrik Simpang. Republik Indonesia.
- Direktorat Jenderal Binamarga Kementerian PUPR, 2024. Manual Desain Perkerasan Jalan 2024. Republik Indonesia.
- Dirjen Binamarga Kementerian PUPR, 2018a. Spesifikasi Umum 2018 untuk Pekerjaan Konstruksi Jalan dan Jembatan. Indonesia.
- Dirjen Binamarga Kementerian PUPR, 2018b. Spesifikasi Umum 2018 untuk Pekerjaan Konstruksi Jalan dan Jembatan. Indonesia.

- D'melo, D., Taylor, R., 2015. The Shell Bitumen Handbook, 6th edition, dalam: Hunter, R.N. (Ed.), . Thomas Telford Ltd. <https://doi.org/10.1680/tsbh.58378>
- Du, J.C., 2011. Evaluation of Shear Strength on Pavement Layers by Use Tack Materials. *Adv. Mat. Res.* 255–260, 3176–3179. <https://doi.org/10.4028/www.scientific.net/AMR.255-260.3176>
- FAA, 2008. Advisory Circular 150/5370-10D: Standards for Specifying Construction of Airports.
- Fadhilah, M.R., 2022. Analisis Kuat Geser Antara Lapisan AC-WC dan AC-BC Terhadap Pengaruh Curing Time dan Takaran Tack Coat Tipe CRS-1P dan CRS-1. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.
- Falih, T., Abed, A.H., 2023. Enhancing Shear Strength of Bonding Materials Used for Asphalt Concrete and Composite Pavement Layers. *E3S Web of Conferences* 427, 03002. <https://doi.org/10.1051/e3sconf/202342703002>
- Fauzi, H., 2012. Ekstraksi Bitumen dari Batuan Aspal Buton Menggunakan Gelombang Mikro dengan Pelarut n-Heptana, Toluena, dan Etanol. Universitas Indonesia, Depok.
- FHWA, 2016. Tack Coat Best Practices, dalam: Techbrief. FHWA.
- Floragusmia, 2021. Analisis Pengaruh Variasi Tack Coat CRS-1 dan CSS-1 pada Kuat Geser Antara Rigid Pavement dan Lapisan AC-WC. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.
- Garber, N.J., Hoel, L.A., 2014. *Traffic and Highway Engineering*, 5 ed. Cengage Learning, Boston.
- Ghabchi, R., Mihandoust, M., 2021. Evaluation of the effect of interlayer shear strength of a layered asphalt pavement on observed distresses in the field: A case study, dalam: *Airfield and Highway Pavements 2021: Pavement Design, Construction, and Condition Evaluation - Selected Papers from the International Airfield and Highway Pavements Conference 2021*. hlm. 264 – 271. <https://doi.org/10.1061/9780784483503.026>



- Gierhart, D., Johnson, D.R., 2018. Tack Coat Specifications, Materials, and Construction Practices. Transportation Research Board, Washington, D.C. <https://doi.org/10.17226/25122>
- Guo, C., Chang, R., 2019. Preparation and properties of an amide emulsifier. *Petroleum Processing and Petrochemicals* 50, 85 – 89.
- Guo, M., Xie, X., Du, X., Sun, Y., 2025. Study on the evolution of mechanical properties of asphalt binder based on an asphaltenes re-blending technology. *Constr. Build. Mater.* 491, 142667. <https://doi.org/10.1016/j.conbuildmat.2025.142667>
- Hanifan, E., 2025. Evaluasi Pengaruh Biological Clogging Materials Terhadap Drainage Characteristics Aspal Porus. Universitas Gadjah Mada, Yogyakarta.
- Hasan, Md.A., Alam, M.T., Tarefder, R.A., 2024. Optimum Tack Coat Application Rate and Curing Time from Direct Shear Test, dalam: International Conference on Transportation and Development 2024. American Society of Civil Engineers, Reston, VA, hlm. 462–470. <https://doi.org/10.1061/9780784485538.041>
- Hefer, A.W., Little, D.N., 2005. Adhesion in Bitumen--Aggregate Systems and Quantification of Surface Free Energy. Texas A&M University.
- Hu, X., Lei, Y., Wang, H., Jiang, P., Yang, X., You, Z., 2017a. Effect of tack coat dosage and temperature on the interface shear properties of asphalt layers bonded with emulsified asphalt binders. *Constr. Build. Mater.* 141, 86 – 93. <https://doi.org/10.1016/j.conbuildmat.2017.02.157>
- Hu, X., Lei, Y., Wang, H., Jiang, P., Yang, X., You, Z., 2017b. Effect of tack coat dosage and temperature on the interface shear properties of asphalt layers bonded with emulsified asphalt binders. *Constr. Build. Mater.* 141, 86–93. <https://doi.org/10.1016/J.CONBUILDMAT.2017.02.157>
- Isacson, U., Zeng, H., 1997. Relationships between bitumen chemistry and low temperature behaviour of asphalt. *Constr. Build. Mater.* 11, 83–91. [https://doi.org/10.1016/S0950-0618\(97\)00008-1](https://doi.org/10.1016/S0950-0618(97)00008-1)
- Jair, M., 2015. Bitumen emulsions, dalam: Hunter, R.N. (Ed.), *The Shell Bitumen Handbook*, Sixth Edition. Thomas Telford, London.



James, A., 2006. Overview of Asphalt Emulsions, dalam: Asphalt Emulsion Technology. Transportaion Research Board, Washington DC.

Jiang, B., Xu, L., Cao, Z., Yang, Y., Sun, Z., Xiao, F., 2024. Interlayer distress characteristics and evaluations of semi-rigid base asphalt pavements: A review. *Constr. Build. Mater.* 431, 136441. <https://doi.org/10.1016/j.conbuildmat.2024.136441>

Jin, T., Liu, L., Yang, R., Sun, L., Yuan, J., 2023. Investigation of interlayer bonding performance between asphalt concrete overlay and Portland cement concrete using inclined shear fatigue test. *Constr. Build. Mater.* 400, 132681. <https://doi.org/10.1016/j.conbuildmat.2023.132681>

Jin, W.D., Liang, C.Y., Gao, X.K., Zhang, P., 2015. Mechanical Effect Study of the Vehicle Braking on the Asphalt Pavement. *Applied Mechanics and Materials* 744–746, 1266–1272. <https://doi.org/10.4028/www.scientific.net/AMM.744-746.1266>

Karshenas, A., Cho, S.-H., Tayebali, A.A., Guddati, M.N., Kim, Y.R., 2014. Importance of Normal Confinement to Shear Bond Failure of Interface in Multilayer Asphalt Pavements. *Transportation Research Record: Journal of the Transportation Research Board* 2456, 170–177. <https://doi.org/10.3141/2456-17>

Kim, Y.K., Rith, M., Lee, S.W., 2021. Bond Strength Recovery of Tack Coat between Asphalt Concrete Surface and Roller-Compacted Concrete Base in Composite Pavements. *KSCE Journal of Civil Engineering* 25, 3750–3757. <https://doi.org/10.1007/s12205-021-0834-y>

Kimura, T., 2014. Studies on stress distribution in pavements subjected to surface shear forces. *Proceedings of the Japan Academy, Series B* 90, 47–55. <https://doi.org/10.2183/pjab.90.47>

Kong, L., Wu, P., Yang, H., Xu, J., Wang, Z., Li, X., Ren, D., Ai, C., 2024. Synergistic effects of buton rock asphalt and BBOEA on the enhanced temperature resistance and flexibility of asphalt. *Mater. Lett.* 377, 137345. <https://doi.org/10.1016/J.MATLET.2024.137345>

Kurniawan, C.D., 2022. Analisis Kuat Geser Interace Antara AC-WC dan AC-BC yang Menggunakan Serbuk Ban Karet. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.

Lavin, P.G., 2003. *Asphalt Pavements*, 1 ed. Spon Press, London.



- Li, B., Luo, X., Zou, X., Bi, Y., Chen, Z., Gao, J., Deng, X., 2025. Impact of environmental conditions on the bonding performance of asphalt overlays in high-altitude areas. *Constr. Build. Mater.* 464, 140201. <https://doi.org/10.1016/j.conbuildmat.2025.140201>
- Li, X., Tang, X., Tang, Z., Guo, H., Wang, X., Ma, F., Chao, Y., Zheng, X., Fu, R., Pang, L., Dong, F., 2025. Sodium Lignosulfonate-Based Emulsifiers for Asphalt Emulsion. *J. Appl. Polym. Sci.* <https://doi.org/10.1002/app.57736>
- Liu, S., Huang, R., Wang, J., Bie, J., Garcia Hernandez, A., 2024. Shear strength parameters for porous asphalt mixtures: From macro to meso. *Mater. Des.* 238, 112670. <https://doi.org/10.1016/j.matdes.2024.112670>
- Liu, W., Wang, J., Wu, S., Liu, Q., Xu, H., 2025. Analysis of the influence of interface features on shear strength between thin overlay and base layer via random forest regression. *Constr. Build. Mater.* 462, 139870. <https://doi.org/10.1016/J.CONBUILDMAT.2025.139870>
- Long, Y., Muhsen, S., Assilzad, H., Ali, H.E., 2025. Optimizing the Storage Stability of Emulsified Asphalt Using Electrokinetic Potential with Emulsifiers of Varying Ionic Characteristics. *J. Environ. Chem. Eng.* 119427. <https://doi.org/10.1016/J.JECE.2025.119427>
- Ma, G., Wang, J., He, L., Li, X., Sui, H., 2020. The nature of the Indonesian carbonate asphalt rocks and its insights into the separation processes. *J. Pet. Sci. Eng.* 195, 107752. <https://doi.org/10.1016/j.petrol.2020.107752>
- Mahmoud, A., Coleri, E., Batti, J., Covey, D., 2017. Development of a field torque test to evaluate in-situ tack coat performance. *Constr. Build. Mater.* 135, 377–385. <https://doi.org/10.1016/j.conbuildmat.2017.01.013>
- Mattos, J.R., Núñez, W.P., Ceratti, J.A., Zingano, A., Fedrigo, W., 2016. Shear strength of hot-mix asphalt and its relation to near-surface pavement failure – A case study in Southern, dalam: *Proceedings of 6th Eurasphalt & Eurobitume Congress*. Czech Technical University in Prague. <https://doi.org/10.14311/EE.2016.240>
- MISUMI Mech Lab, 2025. Coefficient of Friction for Metals and Materials [WWW Document].



Miswanto, A., Suherman, I., Suseno, T., Pravianto, W., 2023. Study of Supply-Demand of Indonesia Buton Asphalt. *INDONESIAN MINING JOURNAL* 26, 49–69.

Mohammad, L.N., 2012. Optimization of tack coat for HMA placement. Transportation Research Board, Washington.

Musselman, James.A., Moraes, R., Welback, T., West, R., 2020. Methods for Addressing Tack Tracking Literature Review. Auburn.

Nugroho, R.D., 2024. Pengaruh Muatan Elektrik Permukaan Tack Coat dan Agregat Terhadap Kuat Geser Antarlapisan Campuran Aspal. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.

Nugroho, R.D., Rahman, T., Utomo, S.H.T., Suparma, L.B., 2025. The effect of surface electric charges in tack coat and aggregate on the interlayer shear-bond strength of asphalt pavements. *Constr. Build. Mater.* 463, 140037. <https://doi.org/10.1016/J.CONBUILDMAT.2025.140037>

Ozer, H., Rivera-Perez, J., 2017. Evaluation of Various Tack Coat Materials Using Interface Shear Device and Recommendations on a Simplified Device. Illinois.

Pavement Interactive, 2025. Sweet Emulsion – How Asphalt and Water Combine [WWW Document]. https://pavementinteractive.org/sweet-emulsion-how-asphalt-and-water-combine/?utm_source=chatgpt.com. URL https://pavementinteractive.org/sweet-emulsion-how-asphalt-and-water-combine/?utm_source=chatgpt.com (diakses 10.2.25).

Pradipta, R., 2024. Analisis Kuat Geser Lapisan AC-WC dan AC-BC dengan Perkuatan Geogrid Sebagai Interlayer. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.

Rahman, A., 2019. Experimental and Computational Investigation of the Interface Shear Bonding Performance Between Asphalt Pavement Layers. <https://doi.org/10.27414/d.cnki.gxnju.2019.001810>

Rahman, A., Ai, C., Xin, C., Gao, X., Lu, Y., 2017. State-of-the-art review of interface bond testing devices for pavement layers: toward the standardization procedure. *J. Adhes. Sci. Technol.* 31, 109–126. <https://doi.org/10.1080/01694243.2016.1205240>



- Rahman, A., Huang, H., Ai, C., Ding, H., Xin, C., Lu, Y., 2019. Fatigue performance of interface bonding between asphalt pavement layers using four-point shear test set-up. *Int. J. Fatigue* 121, 181–190. <https://doi.org/10.1016/j.ijfatigue.2018.12.018>
- Rahman, T., Dawson, A., Thom, N., Ahmed, I., Carvajal-Munoz, J.S., 2022. Determining the allowable opening-to-traffic asphalt temperature for airport pavements. *International Journal of Pavement Engineering* 23, 2351–2369. <https://doi.org/10.1080/10298436.2020.1855350>
- Rahman, T., Widyatmoko, I., Rachman, A., Nurhidayati, Z., 2025. Buton Rock Asphalt (BRA/*Asbuton*): a systematic review of the characteristics, performance, sustainability, and future research directions. *Road Materials and Pavement Design* 1–50. <https://doi.org/10.1080/14680629.2025.2580376>
- Rahmawati, R., Suparma, L.B., Utomo, S.H.T., 2022. PENENTUAN NILAI MODULUS ELASTISITAS PERKERASAN LENTUR MENGGUNAKAN METODE PERHITUNGAN BALIK. *Jurnal HPJI* 8, 159–172. <https://doi.org/10.26593/jhpji.v8i2.5999.159-172>
- Read, J., Whiteoak, D., 2003. *The Shell Bitumen Handbook*, Fifth. ed. ThomasTelfordPublishing, London.
- Ronald, M., Luis, F.P., 2016. Asphalt emulsions formulation: State-of-the-art and dependency of formulation on emulsions properties. *Constr. Build. Mater.* 123, 162–173. <https://doi.org/10.1016/j.conbuildmat.2016.06.129>
- Rondón-Quintana, H.A., Ruge-Cárdenas, J.C., Zafra-Mejía, C.A., 2023. Natural Asphalts in Pavements: Review. *Sustainability* 15, 2098. <https://doi.org/10.3390/su15032098>
- Sihombing, A.V.R., Subagio, B.S., Hariyadi, E.S., Yamin, A., 2021. Chemical, morphological, and high temperature rheological behaviour of Bioasbuton® as an alternative binder for asphalt concrete in Indonesia. *Journal of King Saud University - Engineering Sciences* 33, 308–317. <https://doi.org/10.1016/j.jksues.2020.07.006>
- Siregar, M.F.P.S., 2020. Analisis Interface Shear Bond Strength Antara Lapisan AC-WC dan AC-BC menggunakan Tack Coat Jenis CRS-1 dan CRS-1P. Departemen Teknik Sipil dan Lingkungan, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta, Indonesia.



- Song, W., Shu, X., Huang, B., Woods, M., 2015. Factors affecting shear strength between open-graded friction course and underlying layer. *Constr. Build. Mater.* 101, 527–535. <https://doi.org/10.1016/J.CONBUILDMAT.2015.10.036>
- Song, X., Liang, F., Walubita, L.F., 2011. Laboratory Performance Evaluation of an Asphalt Mix Modified with Qingchuan Rock Asphalt, dalam: *Road Materials and New Innovations in Pavement Engineering*. American Society of Civil Engineers, Reston, VA, hlm. 65–72. [https://doi.org/10.1061/47634\(413\)9](https://doi.org/10.1061/47634(413)9)
- Sufian, A.A., Swiertz, D., Bahia, H.U., Mohammad, L., Akentuna, M., 2021. Factors Affecting the Interlayer Shear Strength of Laboratory and Field Samples. *Transportation Research Record: Journal of the Transportation Research Board* 2675, 234–244. <https://doi.org/10.1177/0361198120975414>
- Sunke, N., Schultmann, F., 2009. Requirements for Sustainable Construction Materials and Components, dalam: Durmisevic, E. (Ed.), *Lifecycle Design of Buildings, Systems and Materials*. International Council for Building Research Studies, Netherlands, hlm. 24–28.
- Takamura, K., James, A., 2015. Paving with asphalt emulsions, dalam: *Advances in Asphalt Materials*. Elsevier, hlm. 393–426. <https://doi.org/10.1016/B978-0-08-100269-8.00013-1>
- Thiam, B.B., Samb, F., Dione, A., 2018. Determination of an Equivalent Loading Circle Which May Represent the Loading of the Dual Wheels. *Open Journal of Civil Engineering* 08, 234–244. <https://doi.org/10.4236/ojce.2018.82018>
- Thom, N., 2014. *Principles of Pavement Engineering*, Second. ed. ICE, London.
- Tseng, E., 2019. Review of Applicable Bond Strength Tests for Assessing Delamination Potential.
- Varamini, S., Cormier, A., Sweezie, M., Barclay, R., Kucharek, Anton.S., 2019. New Brunswick Field Study on Optimization of Tack Coat Rate to Enhance Interface Bonding of Asphalt Layers, dalam: *2019 Joint Conference and Exhibition of The Transportation Association of Canada and Intelligent Transport Systems Society of Canada*. Halifax, Nova Scotia.
- Wang, D., An, L., Zhang, J., Cui, W., Xu, Y., Tong, T., 2015. The synthesis and application of a amide cationic asphalt emulsifier. *Shiyou Huagong Gaodeng Xuexiao Xuebao/Journal*

of Petrochemical Universities 28, 16–19 and 26. <https://doi.org/10.3969/j.issn.1006-396X.2015.01.004>

- Wang, M., Xing, C., 2021. Evaluation of microstructural features of Buton rock asphalt components and rheological properties of pure natural asphalt modified asphalt. *Constr. Build. Mater.* 267, 121132. <https://doi.org/10.1016/J.CONBUILDMAT.2020.121132>
- Wang, P., Qin, Y., Wang, J., Zeng, W., Chang, R., Zhang, Y., Huang, W., 2023. Polyurethane trackless emulsified asphalt tack coats with self-migration properties for tracking resistance and shear resistance enhancement. *Mater. Lett.* 332, 133553. <https://doi.org/10.1016/J.MATLET.2022.133553>
- Wei, X., Chen, H., Wu, Y., Yuan, T., 2015. Investigation into Influence Factors on Shear Properties between Layers of Asphalt Pavement, dalam: *New Frontiers in Road and Airport Engineering*. American Society of Civil Engineers, Reston, VA, hlm. 132–142. <https://doi.org/10.1061/9780784414255.013>
- Wen, Y., Xu, L., Xie, M., Jiang, Z., 2022. Experimental study on high temperature performance of PU-SBS composite modified asphalt. *Tumu yu Huanjing Gongcheng Xuebao/Journal of Civil and Environmental Engineering* 44, 162 – 169. <https://doi.org/10.11835/j.issn.2096-6717.2022.005>
- White, G., 2017. State of the art: interface shear resistance of asphalt surface layers. *International Journal of Pavement Engineering* 18, 887–901. <https://doi.org/10.1080/10298436.2015.1126270>
- White, G., 2016. Shear stresses in an asphalt surface under various aircraft braking conditions. *International Journal of Pavement Research and Technology* 9, 89–101. <https://doi.org/10.1016/j.ijprt.2016.02.002>
- Widarsono, B., Sunarjanto, D., Susantoro, T.M., Suliantara, S., Setiawan, H.L., Wahyudi, P., Sugihardjo, S., Romli, M., Dwiyanarti, D., 2023. Integrated Approach to Investigate the Potential of Asphalt/Tar Sand on Buton Island, Indonesia. *Scientific Contributions Oil and Gas* 46, 64–85. <https://doi.org/10.29017/SCOG.46.2.1583>
- Wruck, B.M., Coleri, E., Sreedhar, S., Kumar, V., 2023. Impact of Emulsion Type, Application Rate, and Adverse Construction Conditions on Tack Coat Performance. *Transportation*

Research Record: Journal of the Transportation Research Board 2677, 535–550.

<https://doi.org/10.1177/03611981221115733>

- Wu, H., Yang, M., Song, W., Wu, Z., Chen, D., Chen, X., 2024. Mechanical and rheological properties of polyurethane-polyurea (PU-PUa) modified asphalt binder. *Constr. Build. Mater.* 411, 134798. <https://doi.org/10.1016/j.conbuildmat.2023.134798>
- Yamin, H.R.A., Faizal, N., 2012. PERKIRAAN SUMBER DAYA ASBUTON DENGAN PENDEKATAN INTERPLOASI KERNEL PADA NILAI TAHANAN JENIS. *Jalan dan Jembatan* 29.
- Yan, C., Yu, X., Tao, Y., Zhou, S., Zhan, Y., 2023. Influence of the Instrumental Inertia Effect on the Asphalt Binder Oscillation Measurement. *Journal of Materials in Civil Engineering* 35. <https://doi.org/10.1061/JMCEE7.MTENG-14509>
- Yin, H., Zhu, Y.T., Yin, C.L., 2013. Study on the Mechanical Properties of Tack Coat between Asphalt Layers by Interlaminar Shear Tests. *Applied Mechanics and Materials* 361–363, 1490–1494. <https://doi.org/10.4028/www.scientific.net/AMM.361-363.1490>
- Zhang, H., Li, Y., Zhang, J., Li, Z., Chen, Z., Pei, J., Wang, M., 2024. Examining the rheological and adhesion performance of asphalt: Insights into the influence of SARA components. *Case Studies in Construction Materials* 21. <https://doi.org/10.1016/j.cscm.2024.e03427>
- Zhang, W., 2017a. Effect of tack coat application on interlayer shear strength of asphalt pavement: A state-of-the-art review based on application in the United States. *International Journal of Pavement Research and Technology* 10, 434–445. <https://doi.org/10.1016/J.IJPRT.2017.07.003>
- Zhang, W., 2017b. Effect of tack coat application on interlayer shear strength of asphalt pavement: A state-of-the-art review based on application in the United States. *International Journal of Pavement Research and Technology* 10, 434–445. <https://doi.org/10.1016/j.ijprt.2017.07.003>
- Zhang, Y., Lu, W., Han, D., Guo, H., Peng, X., Zhu, W., Xie, N., Zuo, X., Zhang, H., Pan, Q., Xie, M., 2023. Laboratory investigation of modified asphalt containing buton rock asphalt



EVALUASI KUAT GESER ANTAR LAPISAN PERKERASAN ASPAL DENGAN LAPIS PEREKAT (TACK COAT) ASBUTON MURNI

HUTAMA SEKTIAJI, Ir. Taqia Rahman, S.T., M.Sc., Ph.D.; Ir. Latif Budi Suparma, M.Sc., Ph.D

Universitas Gadjah Mada, 2026 | Diunduh dari <http://etd.repository.ugm.ac.id/>

UNIVERSITAS
GADJAH MADA

or ash from buton rock asphalt. Case Studies in Construction Materials 18, e02124.

<https://doi.org/10.1016/J.CSCM.2023.E02124>

Zhu, J., Birgisson, B., Kringos, N., 2014. Polymer modification of bitumen: Advances and challenges. Eur. Polym. J. 54, 18–38. <https://doi.org/10.1016/j.eurpolymj.2014.02.005>