

## DAFTAR PUSTAKA

- Ali, S., Habchi, C., Menanteau, S., Lemenand, T., & Harion, J. L. (2017). Threedimensional numerical study of heat transfer and mixing enhancement in a circular pipe using self-sustained oscillating flexible vorticity generators. *Chemical Engineering Science*, 162, 152–174. <https://doi.org/10.1016/j.ces.2016.12.039>
- Cai, G., Xue, L., Zhang, H., & Lin, J. (2017). A review on *micromixers*. *Micromachines*, 8(9). <https://doi.org/10.3390/mi8090274>
- Cengel, Y. A., & Cimbala, J. M. (2014). Fluid Mechanics; Fundamental and Application. In *Angewandte Chemie International Edition*, 6(11), 951–952. (Issue Mi).
- Engler, M., Kockmann, N., Kiefer, T., & Woias, P. (2004). Numerical and experimental investigations on liquid mixing in static *micromixers*. *Chemical Engineering Journal*, 101(1–3), 315–322. <https://doi.org/10.1016/j.cej.2003.10.017>
- Hossain, S., & Kim, K. Y. (2017). Optimization of a *Micromixer* with Two-Layer Serpentine Crossing Channels at Multiple Reynolds Numbers. *Chemical Engineering and Technology*, 40(12), 2212–2220. <https://doi.org/10.1002/ceat.201700437>
- Hsieh, S. S., Lin, J. W., & Chen, J. H. (2013). Mixing efficiency of Y-type *micromixers* with different angles. *International Journal of Heat and Fluid Flow*, 44, 130–139. <https://doi.org/10.1016/j.ijheatfluidflow.2013.05.011>
- Kurniawati, putri. (2017). Pengolahan Citra Digital. *Universitas Nisantara PGRI Kediri*, 01, 1–7.
- Lee, C. Y., Wang, W. T., Liu, C. C., & Fu, L. M. (2016). Passive mixers in microfluidic systems: A review. *Chemical Engineering Journal*, 288, 146–160. <https://doi.org/10.1016/j.cej.2015.10.122>
- Li, H., & Xu, D. (2023). An overview of fluids mixing in T-shaped mixers. *Theoretical and Applied Mechanics Letters*, 13(4), 100466. <https://doi.org/10.1016/j.taml.2023.100466>

- Liao, W., & Jing, D. (2023). Experimental study on fluid mixing and pressure drop of mini-mixer with *Flexible Vortex Generator*. *International Communications in Heat and Mass Transfer*, 142(January), 106615. <https://doi.org/10.1016/j.icheatmasstransfer.2023.106615>
- Mahmud, F., Tamrin, K. F., Mohamaddan, S., & Watanabe, N. (2021). Effect of thermal energy and ultrasonication on mixing efficiency in passive micromixers. *Processes*, 9(5), 1–14. <https://doi.org/10.3390/pr9050891>
- Munadi, S. (1988). Pengukuran Kekasaran Permukaan. *Panduan Pengajar Buku Dasar-Dasar Metrologi Industri*, 1–25.
- Munson, B. R., Okiishi, T. H., Huebsch, W. W., Rothmayer, & P, A. (2013). Fundamentals of Fluid Mechanics Seventh Edition. In *Instrumentation, Measurements, and Experiments in Fluids*.
- Nuryadi, Astuti, T. D., Utami, E. S., & Budiantara, M. (2017). Buku Ajar Dasar-dasar Statistik Penelitian. In *Sibuku Media*.
- Razavi Bazaz, S., Sayyah, A., Hazeri, A. H., Salomon, R., Abouei Mehrizi, A., & Ebrahimi Warkiani, M. (2024). Micromixer research trend of active and passive designs. *Chemical Engineering Science*, 293(September 2023), 120028. <https://doi.org/10.1016/j.ces.2024.120028>
- Streeter, V. L., & Wylie, E. B. (1979). *Fluid mechanics (seventh ed.)*.
- Valdés, J. P., Kahouadji, L., & Matar, O. K. (2022). Current advances in liquid–liquid mixing in static mixers: A review. *Chemical Engineering Research and Design*, 177, 694–731. <https://doi.org/10.1016/j.cherd.2021.11.016>
- Yuan, X., Tao, Z., Li, H., & Tian, Y. (2016). Experimental investigation of surface roughness effects on flow behavior and heat transfer characteristics for circular microchannels. *Chinese Journal of Aeronautics*, 29(6), 1575–1581. <https://doi.org/10.1016/j.cja.2016.10.006>