

DAFTAR PUSTAKA

- Agrawal, J. P. (2010). *High Energy Materials: Propellants Explosives and Pyrotechnics*. John Wiley & Sons. <https://doi.org/10.1002/9783527628803>
- Ambekar, A., Kim, M., & Yoh, J. J. (2017). Characterization of display pyrotechnic propellants: colored light. *Applied Thermal Engineering*, 110, 1066–1074. <https://doi.org/10.1016/j.applthermaleng.2016.09.040>
- Ameer, A. A., Abdallh, M. S., Ahmed, A. A., & Yousif, E. A. (2013). Synthesis and characterization of polyvinyl chloride chemically modified by amines. *Open Journal of Polymer Chemistry*, 3(01), 11–15. <https://doi.org/10.4236/ojpcchem.2013.31003>
- Bekhouche, S., Trache, D., Abdelaziz, A., Chelouche, S., & Tarchoun, A. F. (2024). Towards understanding the effect of temperature and humidity on the safety and performance of tracer pyrotechnic composition. *FirePhysChem*, 4(3), 224–229. <https://doi.org/https://doi.org/10.1016/j.fpc.2023.12.002>
- Berger, B. (2004). Military pyrotechnics. *Chimia*, 58(6), 363. <https://doi.org/https://dx.doi.org/10.2533/000942904777677678>
- Bermana, S. B., Hafizah, M. A. E., Ruyat, Y., & Rosyida, E. D. I. (2024). Use of Explosives: Classification and Regulation. *Indonesian Journal of Interdisciplinary Research in Science and Technology*, 2(5), 545–556. <https://doi.org/https://doi.org/10.55927/marcopolo.v2i5.9019>
- Brusnahan, J. S., Shaw, A. P., Moretti, J. D., & Eck, W. S. (2017). Periodates as potential replacements for perchlorates in pyrotechnic compositions. *Propellants, Explosives, Pyrotechnics*, 42(1), 62–70. <https://doi.org/10.1002/prop.201600084>
- Cahyantari, L., Rif'ati Dina, H., & Supriyadi, B. (2017). Analisis Intensitas Pencahayaan di Ruang Kuliah Gedung Fisika Universitas Jember dengan Menggunakan Calculux Indoor 5.0 B. *Jurnal Pembelajaran Fisika*, 5(1), 77–78.
- Chang, H., Ba, S., Li, L., & Zhao, X. (2024). Study on Synergistic Radiation Yellow Light of Strontium Nitrate/Barium Nitrate-Based Illuminant. *Combustion Science and Technology*, 1–11. <https://doi.org/https://dx.doi.org/10.1080/00102202.2024.2400136>
- Charsley, E. L., Laye, P. G., & Brown, M. E. (2003). Chapter 14 -

- Pyrotechnics. In M. E. Brown & P. K. Gallagher (Eds.), *Applications to Inorganic and Miscellaneous Materials* (Vol. 2, pp. 777–815). Elsevier Science B.V. [https://doi.org/https://doi.org/10.1016/S1573-4374\(03\)80018-3](https://doi.org/https://doi.org/10.1016/S1573-4374(03)80018-3)
- Conkling, J. A. (1990). Pyrotechnics. *Scientific American*, 263(1), 96–105. <https://doi.org/https://doi.org/10.1038/scientificamerican0790-96>
- Conkling, J. A., & Mocella, C. J. (2019). Chemistry of Pyrotechnics: Basic Principles and Theory, Third Edition. In *Chemistry of Pyrotechnics: Basic Principles and Theory, Third Edition*. <https://doi.org/10.1201/9780429262135>
- Danali, S. M., Palaiah, R. S., & Raha, K. C. (2010). Developments in pyrotechnics. *Defence Science Journal*, 60(2), 152–158. <https://doi.org/https://doi.org/10.14429/dsj.60.333>
- Dewi, L., Hasanah, M., & Adi, N. P. (2021). Spektrum Cahaya Sebagai Alternatif Media Pembelajaran Praktikum Fisika. *Jurnal Kajian Pendidikan Sains*, 7(2), 141–146. <https://doi.org/http://dx.doi.org/10.32699/spektra.v7i2.216>
- Epure, C., Tiguanescu, T., Viorga, O., Munteanu, M., & Marin, A. (2021). The Contribution of the Polymeric Binder to the Improvement of the Mechanical Properties of Pyrotechnic Materials. *Journal of Military Technology*, Vol., 4(2). <https://doi.org/https://dx.doi.org/10.32754/jmt.2021.2.07>
- Ernst-Christian Koch, J. J. S., Poret Jay, C., & Moretti Jared, D. (2015). New pyrotechnic signal flare compositions based on cheap established and environmentally acceptable ingredients, in energetic materials: performance, safety and system applications. *Germany: Fraunhofer ICT*, 1–8.
- Focke, W. W., Tichapondwa, S. M., Montgomery, Y. C., Grobler, J. M., & Kalombo, M. L. (2019). Review of gasless pyrotechnic time delays. *Propellants, Explosives, Pyrotechnics*, 44(1), 55–93. <https://doi.org/10.1002/prop.201700311>
- FRILA DWI, U. (2023). Pengaruh oksidator kalium perklorat dan kalium periodat terhadap sifat termal, emisi spektrum, dan fasa yang terbentuk pada piroteknik berbasis Cu-PVC untuk aplikasi suar merah muda. *Fakultas Matematika dan Ilmu Pengetahuan Alam*. <http://digilib.unila.ac.id/id/eprint/72462>
- Grobler, J. M., Focke, W. W., Derrick, N. P., Oberholster, A. J., Kelly, C., &

- Labuschagne, G. (2020). Sensitising the micron-sized aluminium/potassium periodate thermite. *Journal of Energetic Materials*, 38(4), 455–466. <https://doi.org/https://doi.org/10.1080/07370652.2020.1732499>
- Gunaryo, G., Maharani, A., Budiman, A., Widyatama, S. A., Pratita, E., & Miwazuki, S. A. (2024). Yellow-Flare Performance Improvement of PVC Addition into Mg-Sodium Nitrate-Based Pyrotechnics. *Indonesian Journal of Chemical Studies*, 3(2), 66–71. <https://doi.org/https://doi.org/10.55749/ijcs.v3i2.60>
- Guo, Z., Guan, H., Shi, C., & Zhou, B. (2024). Study of combustion characteristics of Magnesium/Strontium Nitrate and Magnesium/Sodium Nitrate pyrotechnics under low pressure environment. *Combustion Science and Technology*, 196(15), 3365–3381. <https://doi.org/https://doi.org/10.1080/00102202.2023.2175608>
- Huang, Z., Xu, S., Chen, X., Wang, M., Yuan, H., Zhao, H., & Zhang, Y. (2021). Construction of a Novel Barium-Free Green-Light Emitting Illuminant Based on Boron Carbide. *Propellants, Explosives, Pyrotechnics*, 46(9), 1480–1488. <https://doi.org/10.1002/prop.202100038>
- Juknelevicius, D., Karvinen, E., Klapötke, T. M., Kubilius, R., Ramanavicius, A., & Rusan, M. (2015). Copper(I) Bromide: An Alternative Emitter for Blue-Colored Flame Pyrotechnics. *Chemistry - A European Journal*, 21(43), 15354–15359. <https://doi.org/10.1002/chem.201502752>
- Juknelevicius, D., Kubilius, R., & Ramanavicius, A. (2015). Oxidizer ratio and oxygen balance influence on the emission spectra of green-colored pyrotechnic flames. *European Journal of Inorganic Chemistry*, 2015(33), 5511–5515. <https://doi.org/10.1002/ejic.201501128>
- Juknelevicius, D., Mikoliunaite, L., Sakirzanovas, S., Kubilius, R., & Ramanavicius, A. (2014). A Spectrophotometric Study of Red Pyrotechnic Flame Properties Using Three Classical Oxidizers: Ammonium Perchlorate, Potassium Perchlorate, Potassium Chlorate. *Zeitschrift Fur Anorganische Und Allgemeine Chemie*, 640(12–13), 2560–2565. <https://doi.org/10.1002/zaac.201400299>
- Kang, X., Li, C., Zheng, Z., & Cui, X. (2019). Facile preparation of micrometer KClO₄/Zr energetic composite particles with enhanced light radiation. *Materials*, 12(2), 199. <https://doi.org/https://doi.org/10.3390/ma12020199>
- Kang, X., Zhang, J., Zhang, Q., Du, K., & Tang, Y. (2012). Studies on

- ignition and afterburning processes of KClO₄/Mg pyrotechnics heated in air. *Journal of Thermal Analysis and Calorimetry*, 109(3), 1333–1340. <https://doi.org/https://dx.doi.org/10.1007/s10973-011-1991-x>
- Khairunnisa, S., Amelza, R., Lubis, N. A., & Putri, M. D. (2023). Kajian Spektrometer Menggunakan Sensor Cahaya TCS3200. *GRAVITAS: Jurnal Pendidikan Fisika Dan Sains*, 6(01), 13–19. <https://doi.org/https://dx.doi.org/10.33059/gravitasi.jpfs.v6i01.7938>
- Klapötke, T. M., Radies, H., Stierstorfer, J., Tarantik, K. R., Chen, G., & Nagori, A. (2010). Coloring properties of various high-nitrogen compounds in pyrotechnic compositions. *Propellants, Explosives, Pyrotechnics*, 35(3), 213–219. <https://doi.org/https://dx.doi.org/10.1002/prep.201010018>
- Knapp, S., Giinthner, C., Kelzenberg, S., Roth, E., Raab, A., Weiser, V., Chemische, F. I., & Ict, T. (n.d.). *Emission Spectroscopy on Pyrotechnic Mixtures*. 273–290. <https://publica.fraunhofer.de/entities/publication/cca3f999-f59d-4f3b-907b-20b44e297bf0>
- Koch, E.-C. (2021). *High Explosives, Propellants, Pyrotechnics*. Walter de Gruyter GmbH & Co KG.
- Kosanke, K., Kosanke, B. J., Sturman, B., Shimizu, T., Wilson, M. A., Von Maltitz, I., Hancox, R. J., Kubota, N., Jennings-White, C., Chapman, D., & others. (2004). Pyrotechnic chemistry, pyrotechnic reference series, No. 4. *Journal of Pyrotechnics, Inc., Whitewater, CO, USA*.
- Ma, X., Zhao, W., Le, W., Li, J., Chen, P., & Jiao, Q. (2021). Synergetic effect of potassium oxysalts on combustion and ignition of Al/CuO composites. *Nanomaterials*, 11(12), 3366. <https://doi.org/https://dx.doi.org/10.3390/nano11123366>
- Martín-Alberca, C., & García-Ruiz, C. (2014). Analytical techniques for the analysis of consumer fireworks. *TrAC Trends in Analytical Chemistry*, 56, 27–36. <https://doi.org/https://doi.org/10.1016/j.trac.2013.12.010>
- Moretti, J. D., Sabatini, J. J., & Chen, G. (2012). Periodate salts as pyrotechnic oxidizers: development of barium-and perchlorate-free incendiary formulations. *Angewandte Chemie (International Ed. in English)*, 51(28), 6981–6983. <https://doi.org/https://doi.org/10.1002/anie.201202589>
- Moretti, J. D., Sabatini, J. J., & Poret, J. C. (2014). High-performing red-light-emitting pyrotechnic illuminants through the use of perchlorate-

- free materials. *Chemistry - A European Journal*, 20(28), 8800–8804. <https://doi.org/10.1002/chem.201402654>
- Muradi, M. (2015). Model pendanaan industri pertahanan dan peningkatan sumber daya manusia. *Jurnal Pertahanan Dan Bela Negara*, 5(2), 213–224. <https://doi.org/https://dx.doi.org/10.33172/jpbh.v5i2.365>
- Nowak, P., & Kościelniak, P. (2019). What color is your method? Adaptation of the RGB additive color model to analytical method evaluation. *Analytical Chemistry*, 91(16), 10343–10352. <https://doi.org/https://dx.doi.org/10.1021/acs.analchem.9b01872>
- Nurlina, F., & others. (2022). Analisis distribusi spektral daya dan spektral entropi pada data EEG (Electroencephalography) lansia. UIN Sunan Kalijaga Yogyakarta. <http://digilib.uin-suka.ac.id/id/eprint/52034>
- Patnaik, P. (2003). *Handbook of inorganic chemicals* (Vol. 529). McGraw-Hill New York. https://openlibrary.org/books/OL9250924M/Handbook_of_Inorganic_Chemicals
- Prianto, B. (2010). Produksi amonium perklorat (NH_4ClO_4) sebagai simbol kemajuan teknologi roket dan rudal. *Berita Dirgantara*, 9(1). [https://www.researchgate.net/publication/304111953Produksi amoni um perklorat \$\text{NH}_4\text{ClO}_4\$ sebagai simbol kemajuan teknologi roket dan rudal](https://www.researchgate.net/publication/304111953Produksi_amoni_um_perklorat_NH4ClO4_sebagai_simbol_kemajuan_teknologi_roket_dan_rudal)
- Provatas, A. (2000). *Energetic polymers and plasticisers for explosive formulations: a review of recent advances*. DSTO Aeronautical and Maritime Research Laboratory Melbourne. [https://www.researchgate.net/publication/27254366 Energetic Polym ers and Plasticisers for Explosive Formulations A Review of Recent Advances](https://www.researchgate.net/publication/27254366_Energetic_Polymers_and_Plasticisers_for_Explosive_Formulations_A_Review_of_Recent_Advances)
- Rao, J., & Li, H. (2010). Oxidation and ignition behavior of a magnesium alloy containing rare earth elements. *The International Journal of Advanced Manufacturing Technology*, 51, 225–231. <https://doi.org/https://dx.doi.org/10.1007/s00170-010-2612-8>
- Renjini, A., & Dileep, D. (2017). Spectrophotometry and Spectrometry-Concept and Applications. *International Journal of Advance Research and Innovative Ideas in Education*, 2(4), 96–100.
- Sabatini, J. J. (2018). A Review of Illuminating Pyrotechnics. *Propellants, Explosives, Pyrotechnics*, 43(1), 28–37. <https://doi.org/10.1002/prop.201700189>

- Sabatini, J. J., Koch, E. C., Poret, J. C., Moretti, J. D., & Harbol, S. M. (2015). Chlorine-Free Red-Burning Pyrotechnics. *Angewandte Chemie - International Edition*, 54(37), 10968–10970. <https://doi.org/10.1002/anie.201505829>
- Sabatini, J. J., & Moretti, J. D. (2018). *Perchlorate-free red pyrotechnic illuminant compositions*. Google Patents. <https://patents.google.com/patent/US9856181B1/en>
- Sadek, R., Kassem, M., Abdo, M., & Elbasuney, S. (2016). Spectrally Adapted Red Flares With Enhanced Color Quality and Luminous Intensity. *The International Conference on Chemical and Environmental Engineering*, 8(8th International Conference on Chemical & Environmental Engineering), 282–303. <https://doi.org/10.1016/j.dt.2016.12.001>
- Sadek, R., Kassem, M., Abdo, M., & Elbasuney, S. (2017a). Novel yellow colored flame compositions with superior spectral performance. *Defence Technology*, 13(1), 33–39. <https://doi.org/10.1016/j.dt.2016.12.001>
- Sadek, R., Kassem, M., Abdo, M., & Elbasuney, S. (2017b). Spectrally adapted red flare tracers with superior spectral performance. *Defence Technology*, 13(6), 406–412. <https://doi.org/10.1016/j.dt.2017.05.019>
- Sadek, R., Kassem, M., Abdo, M., & Elbasuney, S. (2018). Novel blue flare tracer with enhanced color quality and luminous intensity. *Journal of Luminescence*, 195(January 2017), 8–13. <https://doi.org/10.1016/j.jlumin.2017.10.080>
- Saidah, I. N., Fahad, R. E. W., Danurwendo, A., Suyatno, S., Rachmat, D. B., & Cahyono, Y. (2011). Analisis dan Perancangan Kontrol Pencahaya dalam Ruangan. *Jurnal Fisika Dan Aplikasinya*, 7(2), 110201–110208. <https://doi.org/http://dx.doi.org/10.12962/j24604682.v7i2.907>
- Sang Dam, Q. (2022). The preparation and characterization of the red flame composition based on strontium nitrate, magnesium, and polyvinyl chloride. *Journal of Science and Technique-ISSN*, 1859, 209. <https://doi.org/https://doi.org/10.56651/lqdtu.jst.v17.n03.355>
- Saputra, R. M., Somantri, G. R., Subroto, A., & others. (2024). The Niche Model of Defense Industry Analysis: Seeking The Sufficiency of Indonesia's Needs Main Equipment and Weaponery System (Alutsista). *Mandala: Jurnal Ilmu Hubungan Internasional*, 7(1), 77–87. <https://doi.org/murhttps://doi.org/10.33822/mjihi.v7i1.8038>

- Steinhauser, G., & Klapotke, T. M. (2010). Using the chemistry of fireworks to engage students in learning basic chemical principles: a lesson in eco-friendly pyrotechnics. *Journal of Chemical Education*, 87(2), 150–156. <https://doi.org/https://doi.org/10.1021/ed800057x>
- Strontium-nitrate @ pubchem.ncbi.nlm.nih.gov. (n.d.). <https://pubchem.ncbi.nlm.nih.gov/compound/Strontium-nitrate>
- Sudarsih, S. (2020). Peningkatan Kualitas Pembelajaran IPA Materi Sifat-Sifat Cahaya Melalui Penerapan Metode Kontekstual Pada Siswa Kelas V SD Negeri 4 Madurejo: Improvement Of The Quality Of Science Learning Material On The Properties Of Light Through The Application Of Con. *Bitnet: Jurnal Pendidikan Teknologi Informasi*, 5(1), 44–48.
- Suwandi, F. (2017). *TA: Perancangan Komunikasi Visual Revolt Industry Menggunakan Teknik Fotografi sebagai Upaya Meningkatkan Brand Awareness*. Institut Bisnis dan Informatika Stikom Surabaya. <http://repository.dinamika.ac.id/id/eprint/4601>
- Swanepoel, D., Del Fabbro, O., Focke, W. W., & Conradie, C. (2010). Manganese as fuel in slow-burning pyrotechnic time delay compositions. *Propellants, Explosives, Pyrotechnics*, 35(2), 105–113. <https://doi.org/10.1002/prep.200900005>
- Talawar, M. B., Sivabalan, R., Mukundan, T., Muthurajan, H., Sikder, A. K., Gandhe, B. R., & Rao, A. S. (2009). Environmentally compatible next generation green energetic materials (GEMs). *Journal of Hazardous Materials*, 161(2), 589–607. <https://doi.org/https://doi.org/10.1016/j.jhazmat.2008.04.011>
- Tro, N. J., & Neu, D. (2001). *Chemistry in focus: A molecular view of our world*. Brooks/Cole. https://doi.org/https://books.google.com/books/about/Chemistry_in_Focus.html?id=n9E8MwEACAAJ
- Van der Woerd, J. D., Wagner, M., Pietzsch, A., Andrae, M., & Gebbeken, N. (2022). Design methods of blast resistant façades, windows, and doors in Germany: a review. *Glass Structures & Engineering*, 7(4), 693–710. <https://doi.org/https://doi.org/10.1007/s40940-022-00213-w>