

References

- [1] R. A. Scanlan, "NITROSAMINES," in *Encyclopedia of Food Sciences and Nutrition (Second Edition)*, B. Caballero, Ed., Oxford: Academic Press, 2003, pp. 4142–4147. doi: 10.1016/B0-12-227055-X/00831-2.
- [2] H. Robles, "Nitrosamines," in *Encyclopedia of Toxicology (Third Edition)*, P. Wexler, Ed., Oxford: Academic Press, 2014, pp. 584–585. doi: 10.1016/B978-0-12-386454-3.00523-6.
- [3] "Agents Classified by the IARC Monographs, Volumes 1–132 – *International Agency for Research on Cancer Monographs on the Identification of Carcinogenic Hazards to Humans*." Accessed: Aug. 23, 2022. [Online]. Available: <https://monographs.iarc.who.int/agents-classified-by-the-iarc/>
- [4] K. Li *et al.*, "Estimated Cancer Risks Associated with Nitrosamine Contamination in Commonly Used Medications," *International Journal of Environmental Research and Public Health*, vol. 18, no. 18, p. 9465, Sep. 2021, doi: 10.3390/ijerph18189465.
- [5] R. N. Loeppky, "Nitrosamine and N-Nitroso Compound Chemistry and Biochemistry," in *Nitrosamines and Related N-Nitroso Compounds*, vol. 553, 0 vols., in ACS Symposium Series, no. 553, vol. 553., American Chemical Society, 1994, pp. 1–18. doi: 10.1021/bk-1994-0553.ch001.
- [6] B. Spiegelhalder and R. Preussmann, "Occupational nitrosamine exposure. 1. Rubber and tyre industry," *Carcinogenesis*, vol. 4, no. 9, pp. 1147–1152, 1983, doi: 10.1093/carcin/4.9.1147.
- [7] O. Pinrayoon and W. Mae, "Migration of N-nitrosamines from rubber gloves for handling food - Effect of extraction media," *IOP Conference Series: Materials Science and Engineering*, vol. 548, no. 1, p. 012022, Jun. 2019, doi: 10.1088/1757-899X/548/1/012022.
- [8] A. Dorigato, D. Rigotti, and G. Fredi, "Recent advances in the devulcanization technologies of industrially relevant sulfur-vulcanized elastomers," *Advanced Industrial and Engineering Polymer Research*, vol. 6, no. 3, pp. 288–309, Jul. 2023, doi: 10.1016/j.aiepr.2022.11.003.
- [9] Y. Ikeda, "Understanding network control by vulcanization for sulfur cross-linked natural rubber (NR)," in *Chemistry, Manufacture and Applications of Natural Rubber*, Elsevier, 2014, pp. 119–134. doi: 10.1533/9780857096913.1.119.
- [10] B. Oury, J. C. Limasset, and J. C. Protois, "Assessment of exposure to carcinogenic N-nitrosamines in the rubber industry," *International Archives of Occupational and Environmental Health*, vol. 70, no. 4, pp. 261–271, 1997, doi: 10.1007/s004200050217.
- [11] N. J. Farren, N. Ramírez, J. D. Lee, E. Finessi, A. C. Lewis, and J. F. Hamilton, "Estimated Exposure Risks from Carcinogenic Nitrosamines in Urban Airborne Particulate Matter," *Environmental Science & Technology*, vol. 49, no. 16, pp. 9648–9656, Aug. 2015, doi: 10.1021/acs.est.5b01620.
- [12] *Commission Directive 93/11/EEC of 15 March 1993 concerning the release of the N-nitrosamines and N-nitrosatable substances from elastomer or rubber teats and soothers*, vol. 093. 1993. Available: <http://data.europa.eu/eli/dir/1993/11/oj/eng>

- [13] S.-J. Park, M.-J. Jeong, S.-R. Park, J. C. Choi, H. Choi, and M. Kim, "Release of N-nitrosamines and N-nitrosatable substances from baby bottle teats and rubber kitchen tools in Korea," *Food Science & Biotechnology*, vol. 27, no. 5, pp. 1519–1524, Oct. 2018, doi: 10.1007/s10068-018-0373-6.
- [14] L. C. Goss Jr., S. Monthey, and H.-M. Issel, "Review and the Latest Update of N-Nitrosamines in the Rubber Industry; the Regulated, the Potentially Regulated, and Compounding to Eliminate Nitrosamine Formation," *Rubber Chemistry and Technology*, vol. 79, no. 3, pp. 541–552, Jul. 2006, doi: 10.5254/1.3547950.
- [15] M. N. Alam, S. C. Debnath, O. Boondamnoen, K. N. Kumar, J. H. Kim, and J. Choi, "Synergistic combination of 2-mercaptobenzothiazole (MBT) and nitrosoamine-safe thiuram disulfide as advanced rubber vulcanizing accelerators," *Journal of Elastomers & Plastics*, vol. 54, no. 6, pp. 1061–1077, Oct. 2022, doi: 10.1177/00952443221118636.
- [16] M. Maciejewska and A. Sowińska-Baranowska, "The Synergistic Effect of Dibenzylidithiocarbamate Based Accelerator on the Vulcanization and Performance of the Silica-Filled Styrene-Butadiene Elastomer," *Materials (Basel)*, vol. 15, no. 4, p. 1450, Feb. 2022, doi: 10.3390/ma15041450.
- [17] A. Stevenson, "Vulcanizable rubber compositions containing xanthogen polysulfide and xanthate compounds," Sep. 22, 1987
- [18] D. S. Ohbi, T. S. Purewal, T. Shah, and E. Siores, "Curing of bromobutyl elastomer composition using a xanthogen polysulphide accelerator for medical drug delivery device applications," *Journal of applied polymer science*, vol. 106, no. 1, pp. 526–533, 2007.
- [19] S. C. Debnath and D. K. Basu, "Studies on the effect of thiuram disulfide on NR vulcanization accelerated by thiazole-based accelerator systems," *Journal of applied polymer science*, vol. 60, no. 6, pp. 845–855, 1996.
- [20] M. N. Alam, S. K. Mandal, and S. C. Debnath, "Effect of zinc dithiocarbamates and thiazole-based accelerators on the vulcanization of natural rubber," *Rubber Chemistry and Technology*, vol. 85, no. 1, pp. 120–131, 2012.
- [21] M. Kurien and A. P. Kuriakose, "Studies on sulphur vulcanisation of natural rubber using amidino thiourea," *Plastics, rubber and composites*, vol. 30, no. 6, pp. 263–269, 2001.
- [22] Q. Ahsan, N. Mohamad, and T. C. Soh, "Effects of accelerators on the cure characteristics and mechanical properties of natural rubber compounds." *International Journal of Automotive & Mechanical Engineering*, vol. 12, 2015.
- [23] M. Kamoun, A. Nassour, and N. Michael, "The effect of novel binary accelerator system on properties of vulcanized natural rubber," *Advances in Materials Science and Engineering*, vol. 2009, 2009.
- [24] A. S. Aprem, K. Joseph, T. Mathew, V. Altstaedt, and S. Thomas, "Studies on accelerated sulphur vulcanization of natural rubber using 1-phenyl-2, 4-dithiobutyl-tertiary butyl benzothiazole sulphenamide," *European Polymer Journal*, vol. 39, no. 7, pp. 1451–1460, 2003.
- [25] A. P. Susamma, V. T. E. Mini, and A. P. Kuriakose, "Studies on novel binary accelerator system in sulfur vulcanization of natural rubber," *Journal of applied polymer science*, vol. 79, no. 1, pp. 1–8, 2001.

- [26] C. V. Marykutty, G. Mathew, E. J. Mathew, and S. Thomas, "Studies on novel binary accelerator system in sulfur vulcanization of natural rubber," *Journal of applied polymer science*, vol. 90, no. 12, pp. 3173–3182, 2003.
- [27] A. S. Aprem, K. Joseph, R. Laxminarayanan, and S. Thomas, "Physical, mechanical, and viscoelastic properties of natural rubber vulcanizates cured with new binary accelerator system," *Journal of applied polymer Science*, vol. 87, no. 14, pp. 2193–2203, 2003.
- [28] K. B. Sakroborty, and R. Couchman, *Latex 2004 p. 75.*, vol. 20–21. Hamburg, 2004.
- [29] Y. Tanaka, "Structure and biosynthesis mechanism of natural polyisoprene," *Progress in Polymer Science*, vol. 14, no. 3, pp. 339–371, Jan. 1989, doi: 10.1016/0079-6700(89)90006-3.
- [30] B. Rodgers, Ed., *Rubber Compounding: Chemistry and Applications, Second Edition*, 2nd edition. Boca Raton: CRC Press, 2015.
- [31] B. Davies, "Natural rubber — Its engineering characteristics," *Materials & Design*, vol. 7, no. 2, pp. 68–74, Mar. 1986, doi: 10.1016/S0261-3069(86)80004-8.
- [32] M. Akiba and A. S. Hashim, "Vulcanization and crosslinking in elastomers," *Progress in Polymer Science*, vol. 22, no. 3, pp. 475–521, Jan. 1997, doi: 10.1016/S0079-6700(96)00015-9.
- [33] P. A. Ciullo and N. Hewitt, "Compounding Materials," in *The Rubber Formulary*, P. A. Ciullo and N. Hewitt, Eds., in *Plastics Design Library*. , Norwich, NY: William Andrew Publishing, 1999, pp. 4–49. doi: 10.1016/B978-081551434-3.50003-8.
- [34] K. S. Sisanth, M. G. Thomas, J. Abraham, and S. Thomas, "General introduction to rubber compounding," in *Progress in Rubber Nanocomposites*, Elsevier, 2017, pp. 1–39. doi: 10.1016/B978-0-08-100409-8.00001-2.
- [35] R. N. Datta, *Rubber curing systems*. in *Rapra review reports*, no. 12.2001,12. Shawbury, Shrewsbury: Rapra Technology Ltd, 2001.
- [36] G. Heideman, R. N. Datta, J. W. M. Noordermeer, and B. van Baarle, "Activators in Accelerated Sulfur Vulcanization," *Rubber Chemistry and Technology*, vol. 77, no. 3, pp. 512–541, Jul. 2004, doi: 10.5254/1.3547834.
- [37] A. Joseph, B. George, M. N, and R. Alex, "The Current Status of Sulphur Vulcanization And Devulcanization Chemistry: Devulcanization," *Rubber Science*, vol. 29, p. 62, Apr. 2016.
- [38] T. D. Skinner and A. A. Watson, "EV systems for NR. I. The purpose of efficient vulcanization and development of curing system," *Rubber Chemistry and Technology*, vol. 42, no. 2, pp. 404–417, 1969.
- [39] N. J. Morrison and M. Porter, "Temperature Effects on the Stability of Intermediates and Crosslinks in Sulfur Vulcanization," *Rubber Chemistry and Technology*, vol. 57, no. 1, pp. 63–85, Mar. 1984, doi: 10.5254/1.3536002.
- [40] D. G. Edirisinghe, "Chemical modification of rubber waste and characterization of their blends with natural rubber," May 2014, [Online]. Available: <http://dl.lib.uom.lk/handle/123/9959>
- [41] A. Y. Coran, "Vulcanization," in *The Science and Technology of Rubber*, Elsevier, 2013, pp. 337–381. doi: 10.1016/B978-0-12-394584-6.00007-8.
- [42] P. J. Flory, *Principles of Polymer Chemistry*. Cornell University Press, Ithaca, New York (Chapter 11). 1953.

- [43] A. N. Gent, "Chapter 1 - Rubber Elasticity: Basic Concepts and Behavior," in *Science & Technology of Rubber*, F. R. Eirich, Ed., Academic Press, 1978, pp. 1–21. doi: 10.1016/B978-0-12-234360-5.50006-7.
- [44] M. Porter, "Vulcanization of Rubber," in *Organic Chemistry of Sulfur*, S. Oae, Ed., Boston, MA: Springer US, 1977, pp. 71–118. doi: 10.1007/978-1-4684-2049-4_3.
- [45] R. Ding and A. I. Leonov, "A kinetic model for sulfur accelerated vulcanization of a natural rubber compound," *Journal of Applied Polymer Science*, vol. 61, no. 3, pp. 455–463, 1996, doi: 10.1002/(SICI)1097-4628(19960718)61:3<455::AID-APP8>3.0.CO;2-H.
- [46] M. R. Krejsa and J. L. Koenig, "A Review of Sulfur Crosslinking Fundamentals for Accelerated and Unaccelerated Vulcanization," *Rubber Chemistry and Technology*, vol. 66, no. 3, pp. 376–410, Jul. 1993, doi: 10.5254/1.3538317.
- [47] B. Vega Sánchez, "New insights in vulcanization chemistry using microwaves as heating source," Ph.D. Thesis, Universitat Ramon Llull, 2008. Accessed: Aug. 26, 2022. [Online]. Available: <http://www.tdx.cat/handle/10803/9292>
- [48] P. J. Nieuwenhuizen, "Zinc accelerator complexes.: Versatile homogeneous catalysts in sulfur vulcanization," *Applied Catalysis A: General*, vol. 207, no. 1–2, pp. 55–68, 2001.
- [49] G. Heideman, J. W. M. Noordermeer, R. N. Datta, and B. van Baarle, "Effect of Zinc Complexes as Activator for Sulfur Vulcanization in Various Rubbers," *Rubber Chemistry and Technology*, vol. 78, no. 2, pp. 245–257, May 2005, doi: 10.5254/1.3547881.
- [50] V. Ducháček, A. Kuta, and P. Pribyl, "Efficiency of metal activators of accelerated sulfur vulcanization," *Journal of Applied Polymer Science*, vol. 47, no. 4, pp. 743–746, 1993, doi: 10.1002/app.1993.070470418.
- [51] P. Ghosh, S. Katare, P. Patkar, J. M. Caruthers, V. Venkatasubramanian, and K. A. Walker, "Sulfur Vulcanization of Natural Rubber for Benzothiazole Accelerated Formulations: From Reaction Mechanisms to a Rational Kinetic Model," *Rubber Chemistry and Technology*, vol. 76, no. 3, pp. 592–693, Jul. 2003, doi: 10.5254/1.3547762.
- [52] E. H. Farmer and F. W. Shipley, "The reaction of sulphur and sulphur compounds with olefinic substances. Part I. The reaction of sulphur with mono-olefins and with 1 : 5-diolefins," *Journal of the Chemical Society.*, no. 0, pp. 1519–1532, Jan. 1947, doi: 10.1039/JR9470001519.
- [53] L. Bateman, C. G. Moore, and M. Porter, "The reaction of sulphur and sulphur compounds with olefinic substances. Part XI. The mechanism of interaction of sulphur with mono-olefins and 1 : 5-dienes," *Journal of the Chemical Society.*, no. 0, pp. 2866–2879, Jan. 1958, doi: 10.1039/JR9580002866.
- [54] B. Morgan and W. J. McGill, "Benzothiazole-accelerated sulfur vulcanization. III. 2-Bisbenzothiazole-2,2'-disulfide as accelerator for 2,3-dimethyl-2-butene," *Journal of Applied Polymer Science*, vol. 76, no. 9, pp. 1395–1404, 2000, doi: 10.1002/(SICI)1097-4628(20000531)76:9<1395::AID-APP4>3.0.CO;2-8.
- [55] A. Y. Coran, "Vulcanization. Part V. The Formation of Crosslinks in the System: Natural Rubber-Sulfur-MBT-Zinc Ion," *Rubber Chemistry and Technology*, vol. 37, no. 3, pp. 679–688, Jul. 1964, doi: 10.5254/1.3540360.

- [56] A. Y. Coran, "Vulcanization. Part VII. Kinetics of Sulfur Vulcanization of Natural Rubber in Presence of Delayed-Action Accelerators," *Rubber Chemistry and Technology*, vol. 38, no. 1, pp. 1–14, Mar. 1965, doi: 10.5254/1.3535628.
- [57] F. W. H. Kruger and W. J. McGill, "A study of curative interactions in cis-1,4-polyisoprene. VIII. Network maturing reactions in the cis-1,4-polyisoprene/tetramethylthiuram disulfide/ZnO system," *Journal of Applied Polymer Science*, vol. 45, no. 4, pp. 573–578, 1992, doi: 10.1002/app.1992.070450402.
- [58] C. G. Moore and B. R. Trego, "Structural characterization of vulcanizates. Part IV. Use of triphenylphosphine and sodium di-n-butyl phosphite to determine the structures of sulfur linkages in natural rubber, cis-1,4-polyisoprene, and ethylene-propylene rubber vulcanizate networks," *Journal of Applied Polymer Science*, vol. 8, no. 5, pp. 1957–1983, 1964, doi: 10.1002/app.1964.070080504.
- [59] R. W. Layer, "Recuring Vulcanizates. I. A Novel Way to Study the Mechanism of Vulcanization," *Rubber Chemistry and Technology*, vol. 65, no. 1, pp. 211–222, Mar. 1992, doi: 10.5254/1.3538601.
- [60] R. W. Layer, "Recuring Vulcanizates. II. Effect of Added Accelerators," *Rubber Chemistry and Technology*, vol. 65, no. 4, pp. 822–835, Sep. 1992, doi: 10.5254/1.3538644.
- [61] M. Andreis, J. Liu, and J. L. Koenig, "Solid-state carbon-13 NMR Studies of vulcanized elastomers. V. Observation of new structures in sulfur-vulcanized natural rubber," *Journal of Polymer Science Part B: Polymer Physics*, vol. 27, no. 7, pp. 1389–1404, 1989, doi: 10.1002/polb.1989.090270702.
- [62] G. P. McSwkeeney and N. J. Morrison, "The Thermal Stability of Monosulfidic Crosslinks in Natural Rubber," *Rubber Chemistry and Technology*, vol. 56, no. 2, pp. 337–343, May 1983, doi: 10.5254/1.3538129.
- [63] I. Kende, T. L. Pickering, and A. V. Tobolsky, "The Dissociation Energy of the Tetrasulfide Linkage," *Journal of the American Chemical Society*, vol. 87, no. 24, pp. 5582–5586, Dec. 1965, doi: 10.1021/ja00952a012.
- [64] T. L. Pickering, K. J. Saunders, and A. V. Tobolsky, "Disproportionation of organic polysulfides," *Journal of the American Chemical Society*, vol. 89, no. 10, pp. 2364–2367, May 1967, doi: 10.1021/ja00986a021.
- [65] A. Y. Coran, "Chemistry of the vulcanization and protection of elastomers: A review of the achievements," *Journal of Applied Polymer Science*, vol. 87, no. 1, pp. 24–30, 2003, doi: 10.1002/app.11659.
- [66] R. H. Campbell and R. W. Wise, "Vulcanization. Part I. Fate of Curing System during the Sulfur Vulcanization of Natural Rubber Accelerated by Benzothiazole Derivatives," *Rubber Chemistry and Technology*, vol. 37, no. 3, pp. 635–649, Jul. 1964, doi: 10.5254/1.3540356.
- [67] R. H. Campbell and R. W. Wise, "Vulcanization. Part II. Fate of Curing System during Sulfur Curing of NR Accelerated by MBT Derivatives and Activated by Zinc Stearate," *Rubber Chemistry and Technology*, vol. 37, no. 3, pp. 650–667, Jul. 1964, doi: 10.5254/1.3540357.
- [68] E. Morita and E. J. Young, "A study of sulfenamide acceleration," *Rubber Chemistry and Technology*, vol. 36, no. 3, pp. 844–862, 1963.
- [69] P. Versloot, J. G. Haasnoot, J. Reedijk, M. van Duin, and J. Put, "Sulfur Vulcanization of Simple Model Olefins, Part IV: Vulcanizations of 2,3-Dimethyl-2-Butene with TMTD and Activated Zinc Dithiocarbamate/Xanthate Accelerators at

- Different Temperatures," *Rubber Chemistry and Technology*, vol. 68, no. 4, pp. 563–572, Sep. 1995, doi: 10.5254/1.3538757.
- [70] J. R. Wolfe Jr., "The Chemistry of Sulfur Curing. IV. Effects of Organic Accelerators on the Reaction of Cyclohexene with Sulfur," *Rubber Chemistry and Technology*, vol. 41, no. 5, pp. 1339–1347, Nov. 1968, doi: 10.5254/1.3539200.
- [71] M. Geyser and W. J. McGill, "A study of the rate of formation of polysulfides of tetramethylthiuram disulfide," *Journal of Applied Polymer Science*, vol. 55, no. 2, pp. 215–224, 1995, doi: 10.1002/app.1995.070550204.
- [72] C. G. Moore, B. Saville, and A. A. Watson, "An interpretation of acceleration by thiourea and related compounds of the tetramethylthiuram disulfide vulcanization of natural rubber," *Journal of Applied Polymer Science*, vol. 3, no. 9, pp. 373–374, 1960, doi: 10.1002/app.1960.070030921.
- [73] G. M. Bristow and W. F. Watson, *The Chemistry and Physics of Rubber-Like Substances*. 1963.
- [74] V. Ducháček, "Prevulcanization inhibitor of sulfur-free thiuram vulcanization," *Journal of Applied Polymer Science*, vol. 16, no. 12, pp. 3245–3251, 1972, doi: 10.1002/app.1972.070161216.
- [75] A. A. Watson, "The Chemistry of Vulcanisation of Olefinic Rubbers by Means of Tetramethylthiuram Disulphide-Zinc Oxide and Related Systems," PhD Thesis, University of London 1965., 1965.
- [76] M. Geyser and W. J. McGill, "Thiuram-accelerated sulfur vulcanization. I. The formation of the active sulfuring agent," *Journal of Applied Polymer Science*, vol. 60, no. 3, pp. 425–430, 1996, doi: 10.1002/(SICI)1097-4628(19960418)60:3<425::AID-APP16>3.0.CO;2-1.
- [77] A. Y. Coran, "The Art Of Sulfur Vulcanisation," 1983.
- [78] A. Y. Coran, *Science and technology of rubber*, FR Eirich, Ed., Academic, New York, 1978, 670 pp.
- [79] J. R. Wolfe Jr, T. L. Pugh, and A. S. Killian, "The Chemistry of Sulfur Curing. III. Effects of Zinc Oxide on the Mechanism of the Reaction of Cyclohexene with Sulfur," *Rubber Chemistry and Technology*, vol. 41, no. 5, pp. 1329–1338, 1968.
- [80] R. B. Woodward and R. Hoffmann, "Stereochemistry of Electrocyclic Reactions," *Journal of the American Chemical Society. Soc.*, vol. 87, no. 2, pp. 395–397, Jan. 1965, doi: 10.1021/ja01080a054.
- [81] C. J. Rostek, H.-J. Lin, D. J. Sikora, A. R. Katritzky, W. Kuzmierkiewicz, and N. Shobana, "Novel Sulfur Vulcanization Accelerators Based on Mercapto-Pyridine, -Pyrazine, and -Pyrimidine," *Rubber Chemistry and Technology*, vol. 69, no. 2, pp. 180–202, May 1996, doi: 10.5254/1.3538364.
- [82] V. Ducháček, "Kinetics of Sulfur-Free Thiuram Vulcanization," *Rubber Chemistry and Technology*, vol. 45, no. 4, pp. 945–954, 1972.
- [83] H. K. Frensdorff, "Vulcanization of an Ethylene Propylene Diene Rubber," *Rubber Chemistry and Technology*, vol. 41, no. 2, pp. 316–329, 1968.
- [84] B. Dogadkin and I. Beniska, "The action of vulcanization activators," *Rubber Chemistry and Technology*, vol. 31, no. 2, pp. 329–342, 1958.
- [85] L. Bateman, R. W. Glazebrook, and C. G. Moore, "The reaction of sulfur and sulfur compounds with olefinic substances. Part XII. Effects of vulcanizing additives on the reaction of sulfur with 2, 6-dimethylocta-2, 6-diene, and their

- bearing on the mechanism of sulfur vulcanization of natural rubber," *Journal of Applied Polymer Science*, vol. 1, no. 3, pp. 257–266, 1959.
- [86] J. C. Beard and T. M. Swager, "An organic chemist's guide to N-nitrosamines: Their structure, reactivity, and role as contaminants," *The Journal of Organic Chemistry*, vol. 86, no. 3, pp. 2037–2057, 2021.
- [87] J.-P. ANSELME, "The organic chemistry of N-nitrosamines: A brief review," 1979.
- [88] G. Eisenbrand and C. Janzowski, "Potential mechanism of action of nitrosamines with hydroxy, oxo, or carboxy groups," *ACS symposium series (USA)*, 1994, Available: https://scholar.google.com/scholar_lookup?title=Potential+mechanism+of+action+of+nitrosamines+with+hydroxy%2C+oxo%2C+or+carboxy+groups&author=Eisenbrand%2C+G.+%28University+of+Kaiserslautern%2C+Kaiserslautern%2C+Germany.%29&publication_year=1994
- [89] C. Crews, "Processing Contaminants: N-Nitrosamines," in *Encyclopedia of Food Safety*, Elsevier, 2014, pp. 409–415. doi: 10.1016/B978-0-12-378612-8.00217-1.
- [90] J. M. Fajen *et al.*, "N-nitrosamines in the rubber and tire industry," *Science*, vol. 205, no. 4412, pp. 1262–1264, 1979.
- [91] B. Spiegelhalder and R. Preussmann, "Occupational nitrosamine exposure. 1. Rubber and tyre industry," *Carcinogenesis*, vol. 4, no. 9, pp. 1147–1152, 1983.
- [92] F. W. Yeager, N. N. Van Gulick, and B. A. Lasoski, "Dialkyl nitrosamines in elastomers," *American Industrial Hygiene Association Journal*, vol. 41, no. 2, pp. 148–150, 1980.
- [93] L. Lakritz and W. Kimoto, "N-Nitrosamines—contaminants in blood-collection tubes," *Food and cosmetics toxicology*, vol. 18, no. 1, pp. 31–34, 1980.
- [94] G. Eisenbrand, A. Fuchs, and W. Koehl, "N-nitroso compounds in cosmetics, household commodities and cutting fluids," *European Journal of Cancer Prevention*, vol. 5 Suppl 1, pp. 41–46, Sep. 1996.
- [95] D. C. Havery and T. Fazio, "Estimation of volatile N-nitrosamines in rubber nipples for babies' bottles," *Food and chemical toxicology: an international journal published for the British Industrial Biological Research Association*, vol. 20, no. 6, pp. 939–944, 1982.
- [96] J. I. Gray and M. A. Stachiw, "Gas chromatographic-thermal energy analysis method for determination of volatile N-nitrosamines in baby bottle rubber nipples: collaborative study," *Journal of the Association of Official Analytical Chemists*, vol. 70, no. 1, pp. 64–68, 1987.
- [97] H. C. Thompson Jr, S. M. Billedeau, B. J. Miller, and C. C. S. F. M. H. J. M. B. Y. W, "Gas Chromatographic-Thermal Energy Analysis Method for iV-Nitrosodibutylamine in Latex Infant Pacifiers: Collaborative Study," *Journal of the Association of Official Analytical Chemists*, vol. 69, no. 3, pp. 504–507, 1986.
- [98] J. B. Westin, "Ingestion of carcinogenic N-nitrosamines by infants and children," *Archives of Environmental Health: An International Journal*, vol. 45, no. 6, pp. 359–363, 1990.
- [99] N. P. Sen, P. A. Baddoo, and S. W. Seaman, "Volatile nitrosamines in cured meats packaged in elastic rubber nettings," *Journal of agricultural and food chemistry*, vol. 35, no. 3, pp. 346–350, 1987.

- [100] B. D. Reh and J. M. Fajen, "Worker exposures to nitrosamines in a rubber vehicle sealing plant," *American Industrial Hygiene Association Journal*, vol. 57, no. 10, pp. 918–923, 1996.
- [101] F. de Vocht *et al.*, "Occupational exposure to NDMA and NMor in the European rubber industry," *Journal of Environmental Monitoring*, vol. 9, no. 3, pp. 253–259, Mar. 2007, doi: 10.1039/B615472G.
- [102] "Commission Directive 93/11/EEC, 1993. The release of N-nitrosamines and N-nitrosatable substances from elastomer or rubber teats and soothers. Official Journal of the European Communities No. L 93/37".
- [103] H.-J. Kim and H.-S. Shin, "Determination of tobacco-specific nitrosamines in replacement liquids of electronic cigarettes by liquid chromatography–tandem mass spectrometry," *Journal of Chromatography A*, vol. 1291, pp. 48–55, May 2013, doi: 10.1016/j.chroma.2013.03.035.
- [104] W. Xiong, H. Hou, X. Jiang, G. Tang, and Q. Hu, "Simultaneous determination of four tobacco-specific N-nitrosamines in mainstream smoke for Chinese Virginia cigarettes by liquid chromatography–tandem mass spectrometry and validation under ISO and 'Canadian intense' machine smoking regimes," *Analytica chimica acta*, vol. 674, no. 1, pp. 71–78, 2010.
- [105] A. D. Ngongang, S. V. Duy, and S. Sauvé, "Analysis of nine N-nitrosamines using liquid chromatography–accurate mass high resolution-mass spectrometry on a Q-Exactive instrument," *Analytical Methods*, vol. 7, no. 14, pp. 5748–5759, 2015.
- [106] Y. Qian *et al.*, "Determination of 14 nitrosamines at nanogram per liter levels in drinking water," *Analytical chemistry*, vol. 87, no. 2, pp. 1330–1336, 2015.
- [107] C. Wang, X. Zhang, J. Wang, and C. Chen, "Detecting N-nitrosamines in water treatment plants and distribution systems in China using ultra-performance liquid chromatography–tandem mass spectrometry," *Frontiers of Environmental Science & Engineering*, vol. 6, no. 6, pp. 770–777, 2012.
- [108] J.-H. Lee, S.-U. Lee, and J.-E. Oh, "Analysis of nine nitrosamines in water by combining automated solid-phase extraction with high-performance liquid chromatography–atmospheric pressure chemical ionisation tandem mass spectrometry," *International Journal of Environmental Analytical Chemistry*, vol. 93, no. 12, pp. 1261–1273, 2013.
- [109] S. S. Herrmann, L. Duedahl-Olesen, and K. Granby, "Simultaneous determination of volatile and non-volatile nitrosamines in processed meat products by liquid chromatography tandem mass spectrometry using atmospheric pressure chemical ionisation and electrospray ionisation," *Journal of Chromatography A*, vol. 1330, pp. 20–29, 2014.
- [110] C. Ripollés, E. Pitarch, J. V. Sancho, F. J. López, and F. Hernández, "Determination of eight nitrosamines in water at the ng L⁻¹ levels by liquid chromatography coupled to atmospheric pressure chemical ionization tandem mass spectrometry," *Analytica chimica acta*, vol. 702, no. 1, pp. 62–71, 2011.
- [111] A. Ishizaki and H. Kataoka, "Online In-Tube Solid-Phase Microextraction Coupled to Liquid Chromatography–Tandem Mass Spectrometry for the Determination of Tobacco-Specific Nitrosamines in Hair Samples," *Molecules*, vol. 26, no. 7, p. 2056, 2021.

- [112] R. Raina and P. Hall, "Comparison of gas chromatography-mass spectrometry and gas chromatography-tandem mass spectrometry with electron ionization and negative-ion chemical ionization for analyses of pesticides at trace levels in atmospheric samples," *Analytical chemistry insights*, vol. 3, p. ACI-S1005, 2008.
- [113] M. Li, Y. Zhu, L. Li, W. Wang, Y. Yin, and Q. Zhu, "Molecularly imprinted polymers on a silica surface for the adsorption of tobacco-specific nitrosamines in mainstream cigarette smoke," *Journal of Separation Science*, vol. 38, no. 14, pp. 2551–2557, 2015.
- [114] W. Wang, J. Hu, J. Yu, and M. Yang, "Determination of N-nitrosodimethylamine in drinking water by UPLC-MS/MS," *Journal of Environmental Sciences*, vol. 22, no. 10, pp. 1508–1512, 2010.
- [115] W. Li *et al.*, "Online coupling of tandem liquid-phase extraction with HPLC-UV for the determination of trace N-nitrosamines in food products," *Analytical Methods*, vol. 10, no. 15, pp. 1733–1739, 2018.
- [116] M. Iammarino, M. Mangiacotti, and A. E. Chiaravalle, "Anion exchange polymeric sorbent coupled to high-performance liquid chromatography with UV diode array detection for the determination of ten N-nitrosamines in meat products: a validated approach," *International Journal of Food Science & Technology*, vol. 55, no. 3, pp. 1097–1109, 2020.
- [117] M. Al-Kaseem, Z. Al-Assaf, and F. Karabeet, "A rapid, validated RP-HPLC method for the determination of seven volatile N-nitrosamines in meat," *Pharmacology & Pharmacy*, vol. 2014, 2014.
- [118] M. M. Sanagi, M. H. Chong, S. Endud, W. A. W. Ibrahim, and I. Ali, "Nano iron porphyrinated poly (amidoamine) dendrimer mobil composition matter-41 for extraction of N-nitrosodiphenylamine nitrosamine from water samples," *Microporous and Mesoporous Materials*, vol. 213, pp. 68–77, 2015.
- [119] H. Kodamatani *et al.*, "Rapid method for monitoring N-nitrosodimethylamine in drinking water at the ng/L level without pre-concentration using high-performance liquid chromatography-chemiluminescence detection," *Journal of Chromatography A*, vol. 1460, pp. 202–206, 2016.
- [120] H. Kodamatani *et al.*, "An inline ion-exchange system in a chemiluminescence-based analyzer for direct analysis of N-nitrosamines in treated wastewater," *Journal of Chromatography A*, vol. 1553, pp. 51–56, 2018.
- [121] H. Kodamatani *et al.*, "Highly sensitive method for determination of N-nitrosamines using high-performance liquid chromatography with online UV irradiation and luminol chemiluminescence detection," *Journal of Chromatography A*, vol. 1216, no. 1, pp. 92–98, 2009.
- [122] O. Chienthavorn, P. Subprasert, and W. Insuan, "Nitrosamines extraction from frankfurter sausages by using superheated water," *Separation Science and Technology*, vol. 49, no. 6, pp. 838–846, 2014.
- [123] X. Chen, S. Yang, Q. Hu, H. Cheng, Z. Chen, and G. Ouyang, "Efficient sampling and determination of airborne N-nitrosamines by needle trap device coupled with gas chromatography-mass spectrometry," *Microchemical Journal*, vol. 139, pp. 480–486, 2018.

- [124] O. Chienthavorn, N. Ramnut, P. Subprasert, A. Sasook, and W. Insuan, "Effective and reusable monolith capillary trap of nitrosamine extraction by superheated water from frankfurter sausage," *Journal of agricultural and food chemistry*, vol. 62, no. 6, pp. 1240–1246, 2014.
- [125] J. Seo, J. Park, J. Lee, and H. Kwon, "Determination of seven N-nitrosamines in agricultural food matrices using GC-PCI-MS/MS," *Food Analytical Methods*, vol. 9, no. 6, pp. 1595–1605, 2016.
- [126] T. H. Seyler, J. G. Kim, J. A. Hodgson, E. A. Cowan, B. C. Blount, and L. Wang, "Quantitation of urinary volatile nitrosamines from exposure to tobacco smoke," *Journal of Analytical Toxicology*, vol. 37, no. 4, pp. 195–202, 2013.
- [127] N. R. Choi, Y. P. Kim, W. H. Ji, G.-S. Hwang, and Y. G. Ahn, "Identification and quantification of seven volatile n-nitrosamines in cosmetics using gas chromatography/chemical ionization–mass spectrometry coupled with head space-solid phase microextraction," *Talanta*, vol. 148, pp. 69–74, 2016.
- [128] J. Park, J. Seo, J. Lee, and H. Kwon, "Distribution of seven N-nitrosamines in food," *Toxicological research*, vol. 31, no. 3, pp. 279–288, 2015.
- [129] C. Reyes-Contreras, C. Domínguez, and J. M. Bayona, "Determination of nitrosamines and caffeine metabolites in wastewaters using gas chromatography mass spectrometry and ionic liquid stationary phases," *Journal of Chromatography A*, vol. 1261, pp. 164–170, Oct. 2012, doi: 10.1016/j.chroma.2012.05.082.
- [130] Y.-B. Luo *et al.*, "Simultaneous determination of polycyclic aromatic hydrocarbons and tobacco-specific N-nitrosamines in mainstream cigarette smoke using in-pipette-tip solid-phase extraction and on-line gel permeation chromatography–gas chromatography–tandem mass spectrometry," *Journal of chromatography A*, vol. 1460, pp. 16–23, 2016.
- [131] N. Campillo, P. Viñas, N. Martínez-Castillo, and M. Hernández-Córdoba, "Determination of volatile nitrosamines in meat products by microwave-assisted extraction and dispersive liquid–liquid microextraction coupled to gas chromatography–mass spectrometry," *Journal of Chromatography A*, vol. 1218, no. 14, pp. 1815–1821, 2011.
- [132] D. Feng, L. Liu, L. Zhao, Q. Zhou, and T. Tan, "Determination of volatile nitrosamines in latex products by HS-SPME–GC–MS," *Chromatographia*, vol. 74, no. 11, pp. 817–825, 2011.
- [133] J. A. McDonald, N. B. Harden, L. D. Nghiem, and S. J. Khan, "Analysis of N-nitrosamines in water by isotope dilution gas chromatography–electron ionisation tandem mass spectrometry," *Talanta*, vol. 99, pp. 146–154, 2012.
- [134] M. Al-Kaseem, Z. Al-Assaf, and F. Karabeet, "A rapid, validated RP-HPLC method for the determination of seven volatile N-nitrosamines in meat," *Pharmacology & Pharmacy*, vol. 2014, 2014.
- [135] D. N. Orony, J. O. Lalah, and I. O. Jondiko, "Determination of carcinogenic polycyclic aromatic hydrocarbons (PAHs), aflatoxins, and nitrosamines in processed fish from the Winam Gulf Area of Kenya and estimated potential exposure in human," *Polycyclic aromatic compounds*, vol. 36, no. 4, pp. 295–317, 2016.
- [136] M. Z. Ozel, F. Gogus, S. Yagci, J. F. Hamilton, and A. C. Lewis, "Determination of volatile nitrosamines in various meat products using comprehensive gas chromatography–nitrogen chemiluminescence detection," *Food and Chemical Toxicology*, vol. 48, no. 11, pp. 3268–3273, 2010.

- [137] N. Ramírez, M. Z. Özel, A. C. Lewis, R. M. Marcé, F. Borrull, and J. F. Hamilton, "Determination of nicotine and N-nitrosamines in house dust by pressurized liquid extraction and comprehensive gas chromatography—Nitrogen chemiluminescence detection," *Journal of Chromatography A*, vol. 1219, pp. 180–187, 2012.
- [138] G. Drabik-Markiewicz *et al.*, "Evaluation of the influence of proline, hydroxyproline or pyrrolidine in the presence of sodium nitrite on N-nitrosamine formation when heating cured meat," *Analytica chimica acta*, vol. 657, no. 2, pp. 123–130, 2010.
- [139] G. Drabik-Markiewicz, B. Dejaegher, E. De Mey, T. Kowalska, H. Paelinck, and Y. Vander Heyden, "Influence of putrescine, cadaverine, spermidine or spermine on the formation of N-nitrosamine in heated cured pork meat," *Food chemistry*, vol. 126, no. 4, pp. 1539–1545, 2011.
- [140] B. Jurado-Sánchez, E. Ballesteros, and M. Gallego, "Screening of N-nitrosamines in tap and swimming pool waters using fast gas chromatography," *Journal of Separation Science*, vol. 33, no. 4–5, pp. 610–616, 2010.
- [141] R. W. Layer and D. W. Chasar, "Minimizing nitrosamines using sterically hindered thiuram disulfides/dithiocarbamates," *Rubber chemistry and technology*, vol. 67, no. 2, pp. 299–313, 1994.
- [142] C. D. Wacker, B. Spiegelhalter, and R. Preussmann, "New sulfenamide accelerators derived from 'safe' amines for the rubber and tyre industry.," *International Agency for Research on Cancer Scientific Publications*, no. 105, pp. 592–594, 1991.
- [143] C. D. Wacker, B. Spiegelhalter, M. Börzsönyi, G. Brune, and R. Preussmann, "Prevention of exposure to N-nitrosamines in the rubber industry: new vulcanization accelerators based on 'safe' amines.," *IARC Scientific Publications*, no. 84, pp. 370–374, 1987.
- [144] R. M. Mariano, H. M. da Costa, M. R. Oliveira, M. M. Rubinger, and L. L. Visconte, "The behavior of dithiocarbamate derivative as safety accelerator of natural rubber compounds," *Journal of applied polymer science*, vol. 110, no. 4, pp. 1938–1944, 2008.
- [145] S. C. Debnath and D. K. Basu, "Studies on cure synergism. I. Effect of safe zinc dithiocarbamates on NR vulcanization accelerated by thiazole-based accelerators," *Journal of applied polymer science*, vol. 52, no. 5, pp. 597–603, 1994.
- [146] S. C. Debnath, S. K. Mandal, and D. K. Basu, "A new synergistic combination of safe accelerators for the improvement of physical properties in gum and filled vulcanizates," *Journal of applied polymer science*, vol. 57, no. 5, pp. 555–562, 1995.
- [147] M. N. Alam, S. K. Mandal, and S. C. Debnath, "Effect of zinc dithiocarbamates and thiazole-based accelerators on the vulcanization of natural rubber," *Rubber Chemistry and Technology*, vol. 85, no. 1, pp. 120–131, 2012.
- [148] M. Alam, S. K. Mandal, K. Roy, and S. C. Debnath, "Synergism of novel thiuram disulfide and dibenzothiazyl disulfide in the vulcanization of natural rubber: curing, mechanical and aging resistance properties," *International Journal of Industrial Chemistry*, vol. 5, no. 1, pp. 1–11, 2014.
- [149] M. N. Alam, S. C. Debnath, and J. Choi, "Nitrosamine-safe thiuram disulfide and benzothiazole sulfenamide as a synergistic pair of accelerators for the vulcanization of rubber," *Journal of Polymer Research*, vol. 28, no. 8, pp. 1–10, 2021.

- [150] K. Abhitha, T. Kurian, P. Kurian, and L. Jayabalan, "Efficient Vulcanisation of Natural Rubber using Safe (Non-carcinogenic) Accelerator System".
- [151] K. Abhitha, P. Kurian, T. Kurian, and L. Jayabalan, "Studies on non-regulated safe binary accelerator system for efficient vulcanisation of natural rubber," *Progress in Rubber Plastics and Recycling Technology*, vol. 29, no. 2, pp. 99–108, 2013.
- [152] "D. J. Beaver (Monsanto Chemicals Ltd., Monsanto Chemical Co), US2453689A, 1948"
- [153] "Patented July 5, 1927. United States 1,634,924 Patent Office. George Stafford Whitby, Of Montreal, Quebec, Canada, Assignor To The Roessler & Hasslacher Chemical Co., Of New York, N.Y., A Corporation Of New York."
- [154] D. Lucas, J. Virreira, and P. Cacioli, "Polyisoprene condom," US20030161975A1, Aug. 28, 2003 Accessed: Sep. 02, 2022. [Online]. Available: <https://patents.google.com/patent/US20030161975A1/en?q=US+2003%2f0161975+A1++Lucas+et+al.+43+Pub.+Date:+Aug.+28%2c+2003>
- [155] K. B. Sakroborty, and R. Couchman, *Latex 2004, Hamburg, 20-21, April 2004*, p.75. iSmithers Rapra Publishing, 2004.
- [156] E. J. Van, "Latex accelerator composition," WO2007017368A1, Feb. 15, 2007 Accessed Sep. 02, 2022. [Online]. Available: <https://patents.google.com/patent/WO2007017368A1/en>
- [157] B. Ellis and G. N. Welding, "Estimation, from swelling, of the structural contribution of chemical reactions to the vulcanization of natural rubber. Part II. Estimation of equilibrium degree of swelling," *Rubber Chemistry and Technology*, vol. 37, no. 2, pp. 571–575, 1964.
- [158] F. P. J, "Crosslink density equation," *The Journal of Chemical Physics.*, vol. 11, p. 5120, 1943.
- [159] K. Boonkerd, C. Deeprasertkul, and K. Boonsomwong, "Effect of sulfur to accelerator ratio on crosslink structure, reversion, and strength in natural rubber," *Rubber chemistry and technology*, vol. 89, no. 3, pp. 450–464, 2016.
- [160] "Sheele, L. KatuschGummiKunst 1965, 43, 138".
- [161] D. S. Ohbi, T. S. Purewal, T. Shah, and E. Siores, "Curing of bromobutyl elastomer composition using a xanthogen polysulphide accelerator for medical drug delivery device applications," *Journal of applied polymer science*, vol. 106, no. 1, pp. 526–533, 2007.
- [162] J. S. Dick and H. Pawlowski, "Applications for the curemeter maximum cure rate in rubber compound development process control and cure kinetic studies," *Polymer Testing*, vol. 15, no. 3, pp. 207–243, 1996.
- [163] N. Chueangchayaphan, N. Nithi-Uthai, K. Techakittiroj, and H. Manuspiya, "Evaluation of dielectric cure monitoring for in situ measurement of natural rubber vulcanization," *Advances in Polymer Technology*, vol. 37, no. 8, pp. 3384–3391, 2018.
- [164] K. Formela, D. Wąsowicz, M. Formela, A. Hejna, and J. Haponiuk, "Curing characteristics, mechanical and thermal properties of reclaimed ground tire rubber cured with various vulcanizing systems," *Iranian Polymer Journal*, vol. 24, no. 4, pp. 289–297, 2015.

- [165] S. Palaty and R. Joseph, "Studies on xanthate–zinc diethyl dithiocarbamate accelerator combination in natural rubber," *Plastics, rubber and composites*, vol. 30, no. 6, pp. 270–274, 2001.
- [166] A. M. Sadequl, U. S. Ishiaku, H. Ismail, and B. T. Poh, "The effect of accelerator/sulphur ratio on the scorch time of epoxidized natural rubber," *European polymer journal*, vol. 34, no. 1, pp. 51–57, 1998.
- [167] M. D. Morris and A. G. Thomas, "Solubility of sulfur and dithiocarbamates in natural rubber," *Rubber Chemistry and Technology*, vol. 68, no. 5, pp. 794–803, 1995.
- [168] K. B. Chakraborty, T. D. Stephens, and R. Couchman, "High Performance Environmentally Safer Accelerator for Elastomers," p. 13.
- [169] H.W. Greensmith, L. Mullins and A.G. Thomas, *The Chemistry and Physics of Rubber-like substances* ‘‘, Ed L. Batman, Applied Science., London (1963) Chap. 10.
- [170] L. González Hernández, A. Rodríguez Díaz, J. L. Valentín, Á. Marcos-Fernández, and P. Posadas, "Conventional and efficient crosslinking of natural rubber: Effect of heterogeneities on the physical properties," 2005.
- [171] L. Mullins, "Relation between structure and properties ‘‘," in *Proc. NRPA Jubilee Conf. Cambridge*, 1964.
- [172] J. Lal, "Effect of crosslink structure on properties of natural rubber," *Rubber chemistry and technology*, vol. 43, no. 3, pp. 664–686, 1970.
- [173] A. M. Joseph, N. Presannan, and K. N. Madhusoodanan, "Mechanical devulcanization of carbon black filled natural rubber vulcanizates: effect of crosslink density," *Rubber Sci*, vol. 30, pp. 169–180, 2017.
- [174] B. T. Poh and M. Jalaluddin, "Tensile, tear and swelling properties of ENR 50/SBR blend," *International Journal of Polymeric Materials and Polymeric Biomaterials*, vol. 46, no. 3–4, pp. 663–672, 2000.
- [175] A. Y. Coran, "7 - Vulcanization," in *Science and Technology of Rubber (Third Edition)*, J. E. Mark, B. Erman, and F. R. Eirich, Eds., Burlington: Academic Press, 2005, pp. 321–366. doi: 10.1016/B978-012464786-2/50010-9.
- [176] R. Viridi, B. Grover, and K. Ghuman, "'NITROSAMINE SAFE' THIURAM DISULFIDE," *Rubber Chemistry and Technology*, vol. 92, no. 1, pp. 90–109, Jan. 2019, doi: 10.5254/rct.18.82617.
- [177] K. Boonkerd, C. Deeprasertkul, and K. Boonsomwong, "Effect of Sulfur to Accelerator Ratio on Crosslink Structure, Reversion, And Strength in Natural Rubber," *Rubber Chemistry and Technology*, vol. 89, no. 3, pp. 450–464, Sep. 2016, doi: 10.5254/rct.16.85963.
- [178] A. E. Somers, T. J. Bastow, M. I. Bugar, M. Forsyth, and A. J. Hill, "Quantifying rubber degradation using NMR," *Polymer degradation and stability*, vol. 70, no. 1, pp. 31–37, 2000.
- [179] N. M. Mathew and S. K. De, "Thermo-oxidative ageing and its effect on the network structure and fracture mode of natural rubber vulcanizates," *Polymer*, vol. 24, no. 8, pp. 1042–1054, 1983.
- [180] F. Grasland, L. Chazeau, and J.-M. Chenal, "About thermo-oxidative ageing at moderate temperature of conventionally vulcanized natural rubber," *Polymer Degradation and Stability*, vol. 161, pp. 74–84, 2019.

- [181] N. M. Mathew and S. K. De, "Thermo-oxidative ageing and its effect on the network structure and fracture mode of natural rubber vulcanizates," *Polymer*, vol. 24, no. 8, pp. 1042–1054, Aug. 1983, doi: 10.1016/0032-3861(83)90158-1.
- [182] H. Nabil, H. Ismail, and A. R. Azura, "Effects of virgin Ethylene–Propylene–Diene–Monomer and its preheating time on the properties of natural rubber/recycled Ethylene–Propylene–Diene–Monomer blends," *Materials & Design*, vol. 50, pp. 27–37, 2013.
- [183] P. Sae-oui, C. Sirisinha, U. Thepsuwan, and P. Thapthong, "Influence of accelerator type on properties of NR/EPDM blends," *Polymer Testing*, vol. 26, no. 8, pp. 1062–1067, 2007.
- [184] T. M. Nair, M. G. Kumaran, G. Unnikrishnan, and V. B. Pillai, "Dynamic mechanical analysis of ethylene–propylene–diene monomer rubber and styrene–butadiene rubber blends," *Journal of Applied Polymer Science*, vol. 112, no. 1, pp. 72–81, 2009.
- [185] M. Jacob, B. Francis, S. Thomas, and K. T. Varughese, "Dynamical mechanical analysis of sisal/oil palm hybrid fiber-reinforced natural rubber composites," *Polymer Composites*, vol. 27, no. 6, pp. 671–680, 2006.
- [186] H. Nabil, H. Ismail, and N. Tebal, "Dynamic mechanical behavior of natural rubber/waste ethylene-propylene-diene rubber blends," *KGK-KAUTSCHUK GUMMI KUNSTSTOFFE*, vol. 67, no. 7–8, pp. 33–39, 2014.
- [187] S. Poompradub *et al.*, "Mechanism of strain-induced crystallization in filled and unfilled natural rubber vulcanizates," *Journal of applied physics*, vol. 97, no. 10, p. 103529, 2005.
- [188] F. Zhao, W. Bi, and S. Zhao, "Influence of crosslink density on mechanical properties of natural rubber vulcanizates," *Journal of Macromolecular Science, Part B*, vol. 50, no. 7, pp. 1460–1469, 2011.
- [189] P. Zhang, F. Zhao, Y. Yuan, X. Shi, and S. Zhao, "Network evolution based on general-purpose diene rubbers/sulfur/TBBS system during vulcanization (I)," *Polymer*, vol. 51, no. 1, pp. 257–263, 2010.
- [190] P. Khunkamchoo, "Inter-property relationships for natural rubber compounds," PhD Thesis, Loughborough University, 1993.
- [191] \Lukasz Zedler, M. Przybysz, M. Klein, M. R. Saeb, and K. Formela, "Processing, physico-mechanical and thermal properties of reclaimed GTR and NBR/reclaimed GTR blends as function of various additives," *Polymer Degradation and Stability*, vol. 143, pp. 186–195, 2017.
- [192] M. Maciejewska and M. Siwek, "The influence of curing systems on the cure characteristics and physical properties of styrene–butadiene elastomer," *Materials*, vol. 13, no. 23, p. 5329, 2020.
- [193] G. Marković, B. Radovanović, M. Marinović-Cincović, and J. Budinski-Simendić, "The effect of accelerators on curing characteristics and properties of natural rubber/chlorosulphonated polyethylene rubber blend," *Materials and Manufacturing Processes*, vol. 24, no. 10–11, pp. 1224–1228, 2009.
- [194] J.-M. Chenal, L. Chazeau, L. Guy, Y. Bomal, and C. Gauthier, "Molecular weight between physical entanglements in natural rubber: A critical parameter during strain-induced crystallization," *Polymer*, vol. 48, no. 4, pp. 1042–1046, 2007.

- [195] M. Tosaka *et al.*, "Orientation and crystallization of natural rubber network as revealed by WAXD using synchrotron radiation," *Macromolecules*, vol. 37, no. 9, pp. 3299–3309, 2004.
- [196] S. Samaržija-Jovanović, V. Jovanović, G. Marković, I. Zeković, and M. Marinović-Cincović, "Properties of vulcanized polyisoprene rubber composites filled with opalized white tuff and precipitated silica," *The Scientific World Journal*, vol. 2014, 2014.
- [197] G. R. Hamed, "Materials and Compounds," in *Engineering with Rubber*, 3rd ed., München: Carl Hanser Verlag GmbH & Co. KG, 2012, pp. 11–36. doi: 10.3139/9783446428713.002.
- [198] S. Howse, C. Porter, T. Mengistu, I. Petrov, and R. J. Pazur, "Experimental Determination of the Quantity and Distribution of Chemical Crosslinks in Unaged and Aged Natural Rubber. II: A Sulfur Donor System," *Rubber Chemistry and Technology*, vol. 92, no. 3, pp. 513–530, Jul. 2019, doi: 10.5254/rct.19.81473.
- [199] D. S. Ohbi, T. S. Purewal, T. Shah, and E. Siores, "Crosslinking reaction mechanism of diisopropyl xanthogen polysulfide accelerator in bromobutyl elastomer for medical device applications," *Journal of applied polymer science*, vol. 107, no. 6, pp. 4013–4020, 2008.
- [200] B. Rodgers, S. Solis, N. Tambe, B. B. Sharma, and H. Waddel, "Rubber World 2006, 233, 29." [Online]. Available: -
- [201] S.-H. Chough and D.-H. Chang, "Kinetics of sulfur vulcanization of NR, BR, SBR, and their blends using a rheometer and DSC," *Journal of Applied Polymer Science*, vol. 61, no. 3, pp. 449–454, 1996, doi: 10.1002/(SICI)1097-4628(19960718)61:3<449::AID-APP7>3.0.CO;2-I.
- [202] S. Mostoni, P. Milana, B. Di Credico, M. D'Arienzo, and R. Scotti, "Zinc-Based Curing Activators: New Trends for Reducing Zinc Content in Rubber Vulcanization Process," *Catalysts*, vol. 9, no. 8, Art. no. 8, Aug. 2019, doi: 10.3390/catal9080664.
- [203] K. B. Chakraborty and R. Couchman, "In The North European International Conference—IRC 2005; Media Business Press: Maastricht, The Netherlands, 2005; p 8,"