

DAFTAR PUSTAKA

- Adamson, A.W., 1990, *Physical Chemistry of Surface*, 5th Ed., John Wiley and Sons Inc., New York.
- Alloway B.J., 2013, Heavy Metals in Soils, *Environmental Pollution*, 22, 11-20.
- Arini, T.D., 2015, Adsorpsi Simultan Ion Logam Zn(II) dan Ca(II) pada Abu Dasar Batubara Terimobilisasi Ditizon, *Skripsi*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Atkins, P., and De Paula, J., 2006, *Physical Chemistry*, 2nd Ed., Oxford University Press, Oxford.
- Bachtiar, A.R., 2008, Penurunan Kesadahan Air Menggunakan Serbuk Sekam Padi Perlakuan dengan NaOH, *Skripsi*, Departemen Kimia Universitas Diponegoro, Semarang
- Babel, S. and Kurniawan, T.S., 2003, Low-cost Adsorbent for heavy metals uptake from contaminated water: a riview, *J. Hazard. Mater.*, 97, 219-243.
- Balderas, H.P., Roa, M. G., Ramiras, S.M.T., Romero, M.M., Roudrigues, S.E., Esparza, S.J.M., and Juarez, G.J., 2017, Effective Mercury(II) Bioremoval From Aqueous Solution and its Electrochemical Determination, *Chemosphere*, 167, 314-321.
- Booth, S. and Zeller, D., 2005, Mercury, Food, Welas, and Marine Mammals: Implication of Diet and Climate Change for Human Health, *J. Environ. Health Perspect.*, 113(5), 521-526.
- Carrado, K.A., Xu, L., Csenesits, R. and Muntean, J.V., 2001, Use of Organo and Alkoxysilanes in the synthesis of Grafted and Pristine Clays, *Chem. Mater.*, 13, 3766-3773
- Chenghuan, Q., Ren, W. and Wei, M., 2000, Characteristics of Calsium Adsorption by Ca-Selectivity Zeolite in Fixed-pH and in a Range of Ph, *Chem. Eng. J.*, 156, 540-545.
- Choi, Hee-Jeong, Yu, Seng-Whan, Kim, K. H., 2016, Efficient Use of Mg-Modified Zeolite in The Treatment of Aqueous Solution contaminated With Heavy Metal Toxic ions, *J. Taiwan Inst. Chem. E.*, 63, 482-489.

- Darjito, F.L.S., dan Khunur, M.M., 2013, Pengaruh pH dan Lama Waktu Kontak Pada Adsorpsi Ca²⁺ Menggunakan Adsorben Kitin Terfosfolirasi dari Limbah Cangkang Bekicot, *J. Chem. Educ.*, 1, 201-207.
- Edgar, E. L., 1993, *Prionic Table of The Element VI*, I, Boston
- Hamad, H., Ezzeddine Z., Lakis, F., Rammal, H., Srour, M., and Hijazi, A., 2016, An Insight Into The Removal of Cu(II) and Pb(II) by Aminopropyl-Modified Mesoporous Carbon CMK-3: Adsorption Capacity and Mechanism, *Mater. Chem. Phys.*, 178, 57-64.
- Han, Y.S., Matsumoto, H., and Yamanaka, S., 1997, Preparation of New Silica Sol-based Pillared Clays with High Surface Area and High Thermal Stability, *Chem. Mater.*, 9, 2013-2018.
- Herald, E., Hisyam, S.W., dan Sulistiyono, 2003, Characterization and Activation of Natural Zeolite from Ponorogo Indonesian, *J. Chem. Educ.*, 3, 66-70.
- Ho, Y. S., 2004, Citation Riview of Lagergren Kinetic Rate Equation on Adsorption Reaction, *Scientometrics*, 59, 171-177.
- Hutagalung, H.P., 1984, Logam Berat dalam Lingkungan Laut, *Pewarta Oseana*, 9, 12-19.
- Karelius, 2008, Imobilisasi ditizon pada zeolit alam dan pemanfaatannya sebagai adsorben Hg(II), *Tesis*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Katsou, E., Malamis, S., Tzanoudaki, M., Haralambous, K.J. and Loizidou, M., 2010, Regeneration of Natural Zeolit Polluted by Lead and Zinc in Waste Water Treatment System, *J. Hazard. Mater.*, 189, 773-786.
- Kiuk, Irman Juferi, 2008, Penyediaan Air Bersih di Wilayah Pesisir Dengan Menggunakan Filter Tembikar Studi Kasus Pantai Kenjeran Surabaya, *Skripsi*, FMIPA, ITS, Surabaya.
- Kragovic, M., Dakovic, A., Markovic, M., Krstic, J., Gatta, G. D. and Rotiroti, N., 2013, Characterization of Lead Sorption by Natural and Fe(III)-Moddified Zeolite, *Appl. Surf. Sci.*, 283, 764-774.
- Kyzas, G.Z., Travlou, N.A. and Deliyanni, E.A., 2013, The Role of Chitosan as Nanofiller of Graphite Oxide For The Removel of Toxic Mercury Ions, *Colloids Surf., B*, 113, 467-476.
- Lu, F.C., 2010, *Toksisitas Dasar Asas, Organ Sasaran dan Penilaian Resiko*, UI, Jakarta.

- Madejova, J., 2003, Review: FTIR Techniques in Clay Mineral Studies, *Vib. Spectrosc.*, 31, 1-10.
- Mahmet, F.F., 2016, A DFT Study of Hydrogen Adsorption on Be, Mg, and Ca Frameworks in Erionite Zeolite, *Appl. Surf. Sci.*, 394, 9-15.
- Merrikhpour, H., and Jalali, M., 2012, Comparative and competitive adsorption of Cadmiu, Copper, Nickel, and Lead ions by Iranian Natural Zeolite, *Clean Thechn. Environ. Policy*, 15, 303-316.
- McNeely, R.N., 1979, *Water Quality Source Book: A Guide to Water Quality Parameter*, Inland Water Directorate Water Quality Branch, Ottawa.
- Mohamoud, E.M., Osman, M.M., Hafez, O.F., Hegazi, A.H., and Elmelgy, E., 2009, Removal and Preconsentration of Lead (II) and Other Heavy Metals From Water by Almina Adaorben Developed by Surface-Adsorben-Ditizon, *Desalination*, 251, 123-130.
- Mudasir, Karelius, Aprilita, N.H. dan Wahyuni, E.T., 2016, Adsorption of Mercury on Ditizon-Immobilized Natural Zeolit, *J. Environ. Eng.*, 4, 1839-1849.
- Needleman, H., 2004, Lead Poisoning, *Annu. Rev. Meter. Sci.*, 55, 209– 222.
- Niu, Y., Zhao, S., Chen, G., Qu, R., Zhou, C., Wang, L. and Feng, S., 2016, Combined Theoretical and Experiment Study on The Adsorption Mechanism of poly (4-vinylbenzyl 2-hydroxyethyl) Sulfide, Sulfoxide, and Sulfon for Hg(II) and Pb(II), *J. Mol. Liq.*, 219, 1065-1070.
- Ola, P.D., 2006, Imobilisasi Ditizon pada Zeolit Alam Dengan Menggunakan Cara Refluks Untuk Adsorpsi ion Pb(II) dan Cd(II), *Tesis*, Program PascaSarjana Kimia UGM, Yogyakarta.
- Oscik, J., 1982, *Adsorption*, Jhon Wiley and Sons, Inc., New York.
- Palar, H., 1994, *Pencemaran dan Toksikologi Logam Berat*, Rineka Cipta, Jakarta.
- Pearson, R. G. and Basolo, F., 1967, *Mecanism of Inorganic Reaction : A Study of Metal Complexes in Sulation*, 2nd Ed., Wiley Eastrn Private Ltd., New Delhi, 23-26
- Prasasti, D., 2011, Studi Adsorpsi-Reduksi pada asam humat, asam humat Tereseterifikasi, Asam Humat Tereterifikasi, *Tesis*, Program PascaSarjana Kimia UGM, Yogyakarta.

- Pyrzynska, K., 2012, Sorbent Material for Separation and Preconcentration of Gold in Environmental and Geological Samples-A Review, *Anal. Chim. Acta.*, 9-14
- Rahyami, Yuli, 2013, Penentuan Cu, Cd, dan Pb, dengan AAS Menggunakan Solid Phase Extraction, *Jurnal Inovasi dan Kewirausahaan*, 2, 19-25.
- Rinting, L., 2011, Imobilisasi Ditizon Secara Fisika pada Zeolit Alam dan Aplikasinya Terhadap Adsorpsi Ion Logam Ag(I) dan Zn(II), *Tesis*, Program Pascasarjana Kimia UGM, Yogyakarta.
- Salih, B., Denizil, A., Kavakli, C., Say, R., and Piskin, E., 1998, Adsorption of Heavy Metal Ion onto Ditizon-anchored Poly (EDGMA-HEMA) Microbeads, *Talanta*, 46, 1205-1213.
- Sepehr, M.N., Yetilmezsoy, K.S., Zarrabi, M., Ghaffari, H.R., Fingas, M., and Foroughi, M., 2014, Synthesis of Nanosheet Layered Double Hydroxides at Lower pH: Optimization of Hardness and Sulfate Removal From Drinking Water Samples, *J. Taiwan Inst. Chem. E.*, 45, 2786-2800.
- Shavandi, M. A., Haddadian, Z., Ismail, M. H. S., Abdullah, N., and Abidin, Z. Z., 2012, Removal of Residual Oils from Palm Oil Mill Effluent by Adsorption on Natural Zeolite, *Water, Air, Soil, Pollut*, 223, 4017-4027.
- Shirzadi, H. and Nezamzadeh E.A., 2017, An Efficient Modified Zeolite for Simultaneous Removal of Pb and Hg from Aqueous Solution, *J. Mol. Liq.*, 230, 221-229.
- Stum, W. and Morgan J. J., 1981, *Aquatic Chemistry*, John Wiley and Son Inc. New York.
- Sulestio, Tri, 2015, Adsorpsi Simultan Ion Logam Pb(II) dan Cd(II) pada Abu Dasar Batubara Terimobilisasi Dithizon. *Tesis*. Departemen Kimia FMIPA, UGM, Yogyakarta.
- Sulistiyana and Ulfin, I., 2010, Studi Pendahuluan Adsorpsi Kation Ca dan Mg (Penyebab Kسادahan) Menggunakan Selulosa Bakteri Nata De Coco Dengan Metode Batch, *Skripsi*, Jurusan Kimia FMIPA, ITS, Surabaya.
- Sutardi, Santosa, S.J. dan Suyanta, 2014, Adsorpsi Hg(II) Dengan Adsorben Zeolit MCM-41 Termodifikasi, *Jurnal Kimia*, X, 1-10.
- Suseno, H. dan Panggabean, S.M, 2007, Merkuri: Spesiasi dan Bioakumulasi Pada Sistem Biota Laut, *Jurnal Teknologi Pengolahan Limbah*, 10, 66-78.

- Suseno, H., 2006. Immobilisasi Ditizon secara Fisika pada Zeolit Alam dan Studi Awal Kemampuannya terhadap Logam Pb(II) dan Cd(II), Tesis, Program Pascasarjana Kimia UGM, Yogyakarta.
- Yu, Hong-Mei, Song, H., Chen and Ming-Li, 2011, Ditizone Immobilized Silica Gel On-Line Preconcentration of Trace Copper With Detection by Flame Atomic Adsorption Spectrometry, *Talanta*, 85, 625-630.
- Zanin, E., Scapinello, J., De Oliveira, M., Rambo, C. L., Franscescon, F., Freitas, L., De Mello, J. M. M., Fiori, M. A., Oliveira, J. V., and Magro, J. D., 2017, Adsorption of Heavy Metal From Wastewater Graphic Industry Using Clinoptilolite Zeolite as Adsorbent, *Process Saf. Environ. Prot.*, 105, 194-200.