

## DAFTAR PUSTAKA

- Arif, J., & Baker, T. (2004). Gold Paragenesis and Chemistry at Batu Hijau, Indonesia : Implications for Gold-rich Porphyry Copper Deposits. *Mineralium Deposita*, Volume 39, 523-535.
- Aye, T. M., Pramumijoyo, S., Idrus, A., Setijadji, L. D., Imai, A., Araki, N., et al. (2011). The Mineralogy of Gold-Copper Skarn Related Porphyry at The Batu Hijau Deposit, Sumbawa, Indonesia. *South East Asian Applied Geology*, Jan-Jun 2011, Volume 3(1), 12-22.
- Bakti, H., Lubis, R. F., Delinom, R., & Naili, W. (2012). Identifikasi Keluaran Airtanah Lepas Pantai (KALP) di Pesisir Aluvial Pantai Lombok Utara, Nusa Tenggara Barat. *Jurnal Lingkungan dan Bencana Geologi*, pp.133-149). Bandung: Pusat Penelitian Geoteknologi.
- Ballhaus, C.& Sylvester, P. (2000). PGE Enrichment Processes in The Merensky Reef, Bushveld Complex. *Journal of Petrology*, 454-561.
- Bateman, A.M. & Jensen, M.L., 1981. *Economic Mineral Deposit*, John Wiley & Sons Inc., New York.
- Bemmelen, R. W. (1949). *The Geology of Indonesia*, Volume 1A. General Geology. Den Haag: Government Printing Office.
- Bodnar, R.J., 1993, Revised Equation and Table for Determining The Freezing Point Depression of H<sub>2</sub>O-NaCl Solutions, *Geochimica et Cosmochimica Acta*, Vol. 57, Pergamon Press Ltd., pp. 683 – 684.
- Burnham, C.W., 1979, Magmas and hydrothermal fluids: in Barnes, H.L., eds., *Geochemistry of hydrothermal ore deposits*: New York, United States, John Wiley & Sons, p. 71-136.
- Bühl, A. and Zöfel, P., 1999. SPSS version. *Einführung in Die Moderne Datenanalyse Unter Windows*: Bonn, Addison-Wesley Longmann.
- Cathelineau, M., (1988). *Cation Site Occupancy in Chlorite and Illites as a Function of Temperature*.
- Cathles, L.M., 1977, An analysis of the cooling of intrusives by ground-water convection which includes boiling: *Economic Geology*, v. 72, p. 804-826.
- Chryssoulis, S. L. (2001). Using Mineralogy to Optimize Gold Recovery by Flotation. *Journal of Minerals, Metals, and Materials Society*, p.48-50.
- Clode, C., Proffett, J., Mitchell, P., & Munajat, I. (1999). Relationships of Intrusion, Wall-rock Alteration and Mineralization in The Batu Hijau

Copper Gold Porphyry Deposit. *International Congress on Earth Science, Exploration and Mining around Pacific rim* (pp. 485-498). Bali: Australasian Institute of Mining and Metallurgy Publication.

- Clode C.H, & Pratama B, 2002. Application of PIMA Technology in Defining Gold and Copper Exploration Targets in Island Arc Settings: A Case Study from Sumbawa and Lombok, Indonesia. *Proceedings of the 31<sup>st</sup> Annual Convention of Indonesian Association of Geologists*, Vol. 1, pp. 954-967.
- Corbett G.J, T.J., L., Stewart, R., & Fulton, B. (1996). The Porgera gold deposit: Structure, alteration and Mineralization. *Pacific Rim Congress* (pp. 151-156). New Zealand: The Australasian Institute of Mining and Metallurgy. Hamilton, W.B., 1979. Tectonics of the Indonesian region. *US Geological Survey Professional Paper*, 1078, 345pp.
- Corbett, G. (2008). Influence of magmatic arc geothermal systems on porphyry-epithermal Au-Cu-Ag exploration model. *Terry Leach Symposium*, p.25-43.
- Corbett, G. (2012). *Structural Controls to, and Exploration for, Epithermal Au-Ag Deposits*. p.43-47.
- Corbett, G. J., & Leach, T. M. (1998). Southwest Pacific Rim Gold-Copper Systems: Structure, Alteration, and Mineralization. *Special Publications of The Society of Economic Geologists*, Volume 6 (pp. 137-200). Phoenix: Society of Economic Geologists.
- De La Roche, H., Leterrier, J., Grandclaude, P., Marchal, M. (1980). A classification of volcanic Ana plutonic rocks using R1R2 -diagram and major element analyses - its relationships with current nomenclature: *Chemical Geology*, v. 29, p. 183-210.
- Driesner, T., & Heinrich, C.A. (2007): The System H<sub>2</sub>O-NaCl. I. Correlations for molar volume, enthalpy, and isobaric heat capacity from 0 to 1000 degrees C, 1 to 5000 bar, and 0 to 1 X-NaCl. *Geochimica et Cosmochimica Acta* 71, 4902-4919.
- Elders, W. A., Bird, D. K., Williams, A. E., & Schiffman, P. (1982). A Model for The Heat Source of The Cerro Prieto Magma-Hydrothermal System, Baja California. Fourth Symposium on The Cerro Prieto Geothermal Field. Mexico: *The Cerro Prieto Geothermal Field Press*.
- Evans, A. M. (1993). *Ore Geology and Industrial Minerals, an Introduction*. Oxford: Blackwell Science.
- Garwin, S.L., 2000. *The Setting, Geometry and Timing of Intrusion-Related Hydrothermal Systems in The Vicinity of Batu Hijau Porphyry Copper-Gold*

*Deposits, Sumbawa, Indonesia*. Disertasi Doktor di University of Western Australia.

- Garwin, S. (2002). The Geologic Setting of Intrusion-related Hydrothermal Systems Near The Batu Hijau Porphyry Copper-Gold Deposit, Sumbawa, Indonesia. *Integrated Methods for Discovery: Global Exploration in the Twenty-First Century* (pp. 333-366). Littleton: Society of Economic Geologists.
- Giggenbach, W.F., 1997. The Origin and Evolution of Fluids in Magmatic-Hydrothermal System dalam Barnes, H.L., 1997. *Geochemistry of Hydrothermal Ore Deposits*, Third Edition, John Wiley & Sons, Inc. New York, Chichester, Weinheim, Brisbane, Singapore, Toronto, 972 p.
- Grant, J.A., 1986, The Isocon Diagram; A Simple Solution to Gresen's Quation for Metasomatic Alteration, *Economic Geology*, v.81, p. 1976-1982.
- Grant, J.A., 2005. Isocon Analysis: A Brief Review of the Method and Application, *Physics and Chemistry of the Earth* 30 (2005) 997-1004.
- Gresens, R.L., 1967, *Composition-volume relationships of metasomatism: Chemical Geology*, v. 2, p. 47-65.
- Guilbert, G.M. & Park, C.F., JR., 1986. *The Geology of Ore Deposits*, W.H. Freeman and Company, New York, 985 p.
- Gustafson, L., & Hunt, J. (1975). The porphyry copper deposit at El Salvador, Chile. *Journal of Economic Geology*, p.857-912.
- Haas, J. L., 1971, The effect of salinity on the maximum thermal gradients of a hydrothermal System at hydrostatic pressure: *Economic Geology*, v. 66, p. 940-946.
- Hall, R. (2012). *Tectonic History and Mantle Structure of The Sundaland and Indonesian Region*. AGU Fall Meeting. San Francisco: American Geophysical Union .
- Hedenquist, J. W., 1987, *Course on Epithermal Gold*, Government of New Zeland & Directorate Generale of Geology and Mineral Resources, Bandung.
- Hedenquist, J. W., 1998, Hydrothermal System in Volcanic Arcs : Origin of and Exploration for Epithermal Gold Deposits, Lecture Notes, Bandung, Indonesia.
- Hedenquist, J & Reid, F.W., 1985. *Epithermal Gold*, The Earth Resources Foundation, University of Sidney.
- Hedenquist, J.W., & Richards, J.P., 1998. The Influence of Geochemical Techniques on The Development of The Genetic Models for Porphyry Copper Deposits, Reviews in *Economic geology*, v.10, p.235-256.

- Hedenquist, J.W., Arribas, A., & Reynolds, T.J., 1998, Evolution of an intrusion centered hydrothermal system: Far Southeast–Lepanto porphyry and epithermal Cu-Au deposits, Philippines: *Economic Geology*, v. 93, p. 373-404.
- Hamilton, W. (1979). *Tectonics of the Indonesian region. US Geological Survey Professional Paper* (p. 345). US Geological Survey Professional.
- Herman, D. Z., Sudarya, S., & Zulkifli, M. D. (1997). Herman D.Z, Sudarya S. *Laporan Eksplorasi Mineral Logam Mulia dan Logam Dasar di daerah Lombok Barat dan Tengah, Propinsi Nusa Tenggara Barat*. Jakarta: Direktorat Sumberdaya Mineral.
- Herman, Danny Z, 2007, Interpretasi mineralisasi epitermal berdasarkan studi ubahan hidrotermal dan tekstur urat kuarsa di kawasan hutan lindung Taliwang, Nusa Tenggara Barat, *Jurnal Geologi Indonesia*, Vol. 2 No. 3 September 2007: 133-142, Bandung.
- Herman. Danny Z, 2008, Mineralisasi pada batuan induk batugamping di daerah Lepadi, Dompu, Nusa Tenggara Barat, *Jurnal Geologi Indonesia*, Vol. 3 No. 3 September 2008: 175-182, Badan Geologi, Bandung.
- Idrus, A., 2006, P-T Condition and Oxygen Fugacity of the Intrusion Emplacement at Batu Hijau Porhyry Copper-Gold Deposit, Sumbawa Island: A Constraint from Geothermometric Data. *Media Teknik* No.2 Tahun XXVIII, Edisi Mei 2006 No.ISSN 0216-3012.
- Idrus, A. & Pramutadi, E.B., 2008, *Mineralisasi Biji dan Geokimia Batuan Samping Vulkanik Andesitik yang Berasosiasi dengan Endapan Tembaga-Emas Porfiri Elang, Pulau Sumbawa, Nusa Tenggara Barat: Seminar nasional Aplikasi Sains dan Teknologi*, IST Akprind, Yogyakarta.
- Indarto. Sri, Ghani. U. A, & Sumarnadi E. T, 1997, Alterasi dan Mineralisasi pada Cebakan Galena dan Sferit di Manyeli, Pujut, Lombok Tengah, Nusa Tenggara Barat, *Prosiding Ikatan Ahli Geologi Indonesia*, Pertemuan Ilmiah Tahunan ke XXVI, Jakarta.
- Indarto, S., Sudarsono, Setiawan, I., & Permana, H. (2014). *Batuan Pembawa Emas Pada Mineralisasi Sulfida Berdasarkan Data Petrografi dan Kimia daerah Cihonje, Gumelar, Banyumas, Jawa Tengah*, Pusat Penelitian Geoteknologi Lembaga Ilmu Pengetahuan Indonesia, Bandung. Bandung: Pusat Penelitian Geoteknologi Lembaga Ilmu Pengetahuan Indonesia.
- Kanwil Mataram, (1994). Pemantuan Pengawasan Penertiban Kegiatan Pertambangan Kontrak Karya PT. Newmont Nusa Tenggara di daerah

Selodong, Kecamatan Sekotong, Kabupaten Lombok Barat, Propinsi NTB. *Journal of Geochemical Exploration*, Volume 50, No. 1-3, Special Issue 1994.

- K.G. Cox, J. D. Bell, R. J. Pankhurst, Cox et al., 1979, *The Interpretation of Igneous Rocks*, Allen & Unwin, London (1979) p. 450.
- Kolb, K., Kisters, A. F. M., Hoemes, S., and Meyer, F.M., 2000. The Origin of Fluids and Nature of Fluid-Rock Interaction in Auriferous Mylonites of The Renco Mine, Southern Zimbabwe, *Mineralium Deposita*, v.35, 109-125.
- Kretz, R., 1983. Symbols for Rock-Forming Minerals, *American Mineralogist*, Volume 68, p.277-279.
- Large R., Huston D., McGoldrich P., McArthur G, Ruxton P., (1988). Gold distribution and genesis in paleozoic volcanogenic massive sulphide Systems. In: *Bicentennial Gold 88*. Geol. Soc. Aust. Abst. Ser.22: p.121-126.
- Leach, T. M., Wood, C. P., & Reyes, A. G. (1983). *Geology and Hydrothermal Alteration of the Tongonan Geothermal field, Leyte, Republic of Philippines*. 4th International Symposium on Water-rock Interaction (pp. 275-278). Misasa: Tidak diketahui.
- Le Bas, M.J., Le Maitre, R.W., Streckeisen, A., & Zanettin, B., 1986, A chemical classification of volcanic rocks based on the total alkali-silica diagram: *Journal of Petrology*, v. 27, p. 745-750.
- Le Maitre R.W., Streckeisen A., Zanettin B., Le Bas M.J., Bonin B., Bateman P., Bellieni G., Dudek A., Efremova S., Keller J., Lameyre J., Sabine P.A., Schmid R., Sorensen H., Woolley A.R., (1989). *IGNEOUS ROCKS A: Classification and Glossary of Terms*. Cambridge University Press. p.237.
- Lowell, J. D., & Guilbert, J. M. (1970). Lateral and Vertical Alteration-Mineralization Zoning in Porphyry Ore Deposits. *Journal of Economic Geology*, 373-408.
- Mangga, S. A., Atmawinata, S., Hermanto, B., Setyogroho, B., & Amin, T. (1994). *Peta Geologi Lembar Sumbawa, Nusa Tenggara Barat*. Bandung: Pusat Penelitian dan Pengembangan Geologi.
- Manurung Y.S, 1997. *Laporan Eksplorasi Mineral Logam di daerah Mataram, Kabupaten Lombok Barat dan Lombok Tengah, Propinsi Nusatenggara Barat*. Direktorat Sumberdaya Mineral.
- Maryono, A., & Power, D. (2009). *Regional Framework Study on Papuan Fold Belt*. Newmont internal company report: Tidak dipublikasikan.

- Maryono, A., Lubis, H., Nugroho, F., Perdankusumah, A., & dan Hermawan, W. (2005). *The Elang Porphyry Copper and Gold Mineralization Style Sumbawa, Indonesia. Indonesian Minerals and Coal Discoveries*. Bogor: IAGI.
- McMillan, W., & Panteleyev, A. (1988). Porphyry Copper Deposits; in Ore Deposit Models. *Geoscience Canada Reprint, Series 3* (pp. 45-58). Kanada: Geological Association of Canada.
- Meyer, C., & Hemley, J. J. (1967). *Wall Rock Alteration. Geochemistry of Hydrothermal Ore Deposits* (pp. 166-235). New York: Holt, Rinehart, and Winston.
- Mitchell, P., Proffett, J., & Dilles, J. (1998). *Tonalite Porphyry Intrusion and Wall-rock Alteration, Batu Hijau, Indonesia*. Preprint Northwest Mining Association 104th Annual Meeting (p. 4). Washington: Preprint Northwest Mining Association.
- Moyle, A. J., Doyle, B. J., Hoogvliet, H., & Ware, A. R. (1990). *Ladolam Gold Deposit, Lihir Island. Geology of The Mineral Deposits of Australia and Papua New Guinea* (pp. 1793-1805). Victoria: Australas Inst Min Metall Monogr.
- Nash, J. T., 1976, *Fluid-inclusion petrology; data from porphyry copper deposits and applications to exploration*: Reston, VA, United States, U. S. Geological Survey, p. D1-D16.
- Norton, D., & Knight, J.E. (1977), Transport phenomena in hydrothermal systems; cooling plutons: *American Journal of Science*, v. 277, p. 937-981.
- Parsaulian. F, & Noor. D. 2013. *Geologi dan Mineralisasi Sulfida Daerah Pelangan dan Kecamatan Sekotong, Kabupaten Lombok Barat Nusa Tenggara Barat*. Teknik Geologi, FT-Unpak, Bogor, Tidak dipublikasikan.
- Pearce, J.A. (1982). *Trace element characteristics of lavas from destructive plate boundaries. In Andesites: Orogenic Andesites and Related Rocks* (R.S. Thorpe, ed.). John Wiley & Sons, Chichester, U.K. (525-548).
- Pearce, J.A., Harris, N.B.W., & Tindle, A.G., (1984), Trace element discrimination diagrams for the tectonic interpretation of granitic rocks: *Journal of Petrology*, v. 25, p. 956-983.
- Peccerillo, A. & Taylor, S.R., 1976, Geochemistry of eocene calc-alkaline volcanic rocks from the Kastamonu area, northern Turkey. *Contributions to Mineralogy and Petrology*, v. 58, Hal 63-81.
- Petrelli M., Poli G., Perugini D., & Peccerillo A., 2005, *PetroGraph: A new software to visualize, model, and present geochemical data in igneous*

- petrology*. Department of Earth Sciences, University of Perugia, Piazza  
Universita.
- Pieters, P. J. (2003). *Remote Image Study of The Indotan Inc SIPP Area, South  
Lombok, Nusa Tenggara Barat*. Mataram: Tidak dipublikasikan.
- Pirajno, F., 2009. *Hydrothermal Processes and Mineral Systems*, Springer -  
Geological Survey of Western Australia, 1250 p.
- Pollard, P. J., Taylor, R. G., & Peters, L. (2006). Ages of intrusion, alteration, and  
mineralization at the Grasberg Cu–Au deposit, Papua, Indonesia.  
*Economic Geology*, 1005-1020.
- Potter, R.W.III., Clyde, D.M., & Brown, D.L., 1978. Freezing point depression of  
aqueous sodium chloride solutions. *Economic Geology*, 73, h.284-285
- Pratama, B., Setyandhaka, D., Maryono, A., Hermawan, W., & Clode, C. (2002).  
Application of PIMA Technology in Defining Gold and Copper  
Exploration Targets in Island Arc Settings : A Case Study from  
Sumbawa and Lombok, Indonesia. *Convention of Indonesian  
Association of Geologists (IAGI) 31st* (pp. 954-967). Surabaya: IAGI.
- PT Bintang Bulaeng 2009. Annual Report. Tidak dipublikasikan.
- PT Bintang Bulaeng 2011. Annual Report. Tidak dipublikasikan.
- Reyes, A., & Giggenbach, W. (1992). Petrology and Fluid Chemistry of  
Magmatic-Hydrothermal Systems in the Philippines, in Kharaka. *Water-  
rock interaction* (pp. 1341-1344).
- Ridley, J. (2013). *Ore Deposit Geology*. New York: Cambridge University Press.
- Robb, L. (2005). *Introduction to Ore-forming Processes*. Victoria: Blackwell  
Publishing.
- Roedder, E., 1971, Fluid inclusion studies on the porphyry-type ore deposits at  
Bingham, Utah, Butte, Montana, and Climax, Colorado: *Economic  
Geology*, v. 66, p. 98-118.
- Rollinson, Hugh, R. (1993). *Using Geochemical Data: Evaluation, Presentation,  
Interpretation*, Pearson-Prentice Hall, p.352.
- Rompo, I., Rowe A., Maryono A. (2012). *Porphyry Cu-Au and Epithermal Au-Ag  
Systems in Southwest Lombok*.
- Selverstone, J., Morteani, G., & Staude, J.M., 1991. Fluid Channelling During  
Ductile Shearing: Transformation of Granodiorite Into Aluminous Schist  
in The Tauern Window, Eastern Alps, *Journal of Metamorphic Geology*,  
v.9, p. 419-431.

- Setyandhaka, D. (2010). *Karakteristik Urat Kuarsa pada Sistem Porfiri Batu Hijau. Batu Hijau*: Tidak dipublikasikan.
- Shepherd T.J., Rankin A.H., Alderton D.H.M. (1985). *A practical guide to fluid inclusion studies*. Glasgow : Blackie ; New York : Distributed in the USA by Chapman and Hall, p.239.
- Sillitoe, R. H. (2010). Porphyry Copper Systems. *Economic Geology*. Kanada: Society of Economic Geologists, Inc, 3-41.
- Solikhin, A., kunrat, A., Barbier, B., & Campion, R. (2009). Geochemical and Thermodynamic Modeling of Segara Anak Lake and Eruption of Rinjani Volcano, Lombok, Indonesia. *Jurnal Geologi Indonesia*, Volume 5, 227-239.
- Streckeisen, A., 1978. IUGS Subcommissions on the Systematics of Igneous Rocks. *Classification and Nomenclature of Volcanic Rocks, Carbonatite and Melilitic Rocks*. Recommendation and Suggestion. Neues Jahrbuch fuer Mineralogie. Stuttgart. Vol.134, p.1-14.
- Sudrajat, A., Mangga, A. & Suwarna, N. (1998), *Peta Geologi Lembar Sumbawa, Nusa Tenggara*, Pusat Penelitian dan Pengembangan Geologi, Bandung.
- Sun S.-s., & McDonough, W. F., (1989). Chemical and isotopic systematics of oceanic basalts: implications for mantle composition and processes. *Geological Society, London, Special Publications* 1989; v. 42; p. 313-345.
- Sundhoro, H., Kasbani, Yushantarti, A., & Hadi, M. N. (2007). *Penyelidikan Geologi dan Geokimia Daerah Panas Bumi Sembalun Kabupaten Lombok Timur- Nusa Tenggara Barat. Proceeding Pemaparan Hasil Kegiatan Lapangan dan Non Lapangan* . Bandung: Pusat Sumber Daya Geologi.
- Syafrizal, Indriati, T., & Valentin, K. (2009). Studi Distribusi Ukuran Butir Elektrum dan Asosiasi Mineralisasi Emas pada Urat Ciurug, Pongkor, Indonesia. *Jurnal geologi Indonesia*, Volume 16, 99-109.
- Syirojudin, M., 2010. *Penentuan Karakteristik Sesar Cimandiri Segmen Pelabuhan Ratu-Citarik Dengan Metode Magnet Bumi*. Skripsi di Universitas Islam Negeri Syarif Hidayatullah Jakarta.
- Tapia, J., Townley, B., Cordova, L., & Arriagada, C., 2016. Hydrothermal alteration and Its effects on the magnetic properties of Los Pelambres, a large multistage porphyry copper deposit. *Journal of Applied Geophysics* 132 (2016). p.125-136.
- Thonburry, W. D. (1969). *Principles of Geomorphology*. New York: John Wiley.

- Ulrich, T., Günther, D., Heinrich, C.A. (2001), The Evolution of a porphyry Cu-Au deposit, based on LA-ICP-MS analysis of fluid Inclusions: Bajo de la Alumbrera, Argentina: *Economic Geology*, v. 96, p. 1743-1774.
- Ulrich, T., Günther, D., Heinrich, C.A. (2002), The evolution of a porphyry Cu-Au deposit, based on LA-ICP-MS analysis of fluid inclusions: Bajo de la Alumbrera, Argentina: *Economic Geology*, v. 97, p. 1889-1920, Reprinted with correction.
- Van Bemmelen R.W, 1949. *The Geology of Indonesia*. Vol. 1A. General Geology. Government Printing Office, Martinus Nijhoff, The Hague, Netherlands.
- Vidal, O., Parra, T., Trotet, F. (2001), A thermodynamic model for Fe-Mg aluminous chlorite using data from phase equilibrium experiments and natural pelitic assemblages in the 100° to 600°C, 1 to 25 kb Orange. *American Journal of Science*. Volume 301, 557-592.
- White, T. L. (1996). *Cryogenic Alteration of Clay and Silt Microstructure, Implication for Geotechnical Properties*. Ottawa: Carleton University.
- Whitney, D.L and Evans, B.W. (2010). Abbreviations For Names of Rock-Forming Minerals, *American Mineralogist*, Volume 95, p. 185-187.
- Widhiyatna, D., Kamal, S., Soleh, A., & Pohan, M. P. (2001). *Penyelidikan Geokimia Regional Sistematis Lembar Lombok Kabupaten Lombok Barat, Lombok Tengah, Lombok Timur, dan Sumbawa, Provinsi Nusa Tenggara Barat*. Jakarta: Subdit Geokimia dan Informasi Mineral.
- Wilkinson, J. J., Chang, Z., Cooke, D. R., Baker, M. J., Wilkinson, C. C., Inglis, S., et al. (2015). *Chlorite Chemistry as a New Exploration tool in the Propylitic Halo of Porphyry-Epithermal Systems: a Case Study of the Batu Hijau Porphyry Cu-Au System, Indonesia*. *Applied Earth Science*.
- Winarti, D. (2012). *Alterasi Hidrotermal dan Karakteristik Batuan Teralterasi Hidrotermal*. Yogyakarta: Tidak dipublikasikan.
- Winchester, J.A. & Floyd, P.A., (1976). Geochemical Discrimination Of Different Magma Series And Their Differentiation Products Using Immobile Elements. *Chemical Geology*, v.20, p.325-343.