References

Ahlberg, E. and Broo, A.E., 1996a. Oxygen reduction at sulphide minerals. 1. A rotating ring disc electrode (RRDE) study at galena and pyrite. *Int. J. Miner. Process.* 46: 73-89.

Ahlberg, E. and Broo, A.E., 1996b. Oxygen reduction at sulphide minerals. 2. A rotating ring disc electrode (RRDE) study at galena and pyrite in the presence of xanthate. *Int. J. Miner. Process.* 47: 33-47.

Ahlberg, E. and Broo, A.E., 1996c. Oxygen reduction at sulphide minerals. 3. The effect of surface pre-treatment on the oxygen reduction at pyrite. *Int. J. Miner. Process.* 47: 49-60.

Aldrich, C. and Feng, D., 2000. The effect of frothers on bubble size distributions in flotation pulp phases and surface froths. *Minerals Engineering*. 13(10-1): 1049-1057.

Allan, G.C. and Woodcock, J.T., 2001. A review of the flotation of native gold and electrum. *Minerals Engineering*, 14(9): 931-962.

Arbiter, N. (Ed.) Flotation, Chapter 5, in SME Mineral Processing Handbook, Edited by Weiss, N.L., Society of Mining Engineers, AIMMPE, New York (1985).

Ball, B. and Rickard, R.S., 1976. The chemistry of pyrite flotation and depression. In M.C. Fuestenau (Editor) *Flotation, (A.M. Gaudin memorial volume 1)*. AIMMPE, New York (USA), pp. 458-484.

Bandini, P., Prestidge, C.A., and Ralston, J., 2001. Colloidal iron oxide slime coatings and galena particle flotation. *Minerals Engineering.* 14(5): 487-497.

Basilio, C.I., Kartio, I.J. and Yoon, R.H., 1996. Lead activation of sphalerite during galena flotation. *Minerals Engineering*. 9(8): 869-879.

Beck, M.T., 1987. Critical survey of stability constants of cyano complexes. *Pure & Appl. Chem.* 59(12): 1703-1720.

Bredenhann, R. and Coetzer, G., 2002. Selective lead flotation from Rosh Pinah ROM material. *Report: Doc. No. MP-FT-R018*. Kumba Resources R&D (Pretoria, South Africa). p. 75.

Bredenhann, R. Du Preez, H.S., and Coetzer, G., 2001. Influence of different water resources and ions on flotation of Rosh Pinah milled material.. *Report: Doc. No. MP-FT-R012*. Kumba Resources R&D (Pretoria, South Africa). p. 51.

Broman, P.G., 1980. Water reuse at sulphide ore concentrates in Sweden: practice, experience and current developments. In: M.J. Jones (Editor) Complex Sulphide Ores. *Inst. of Min. and Met.,* London, pp. 28-39.

Buckley A.N. and Woods, R., 1997. Chemisorption-the thermodynamically favoured process in the interaction of thiol collectors with sulphide minerals. *Int. J. Min. Process.* 51:15-26.

Buckley A.N. and Woods, R., 1995. Identifying chemisorption in the interaction of thiol collectors with sulphide minerals by XPS: adsorption of xanthate on silver and silver sulphide. *Colloids an Surfaces A: Physicochemical and Engineering Aspects*. 104: 295-305.

Buckley, A.N., Woods, R., and Wouterlood, H.J., 1989. An XPS investigation of the surface of natural sphalerites under flotation-related conditions. *Int. J. Miner. Process.* 26: 29-49.

Buckley, A., and Woods, R., 1982. Investigation of the surface oxidation of sulfide minerals via ESCA and electrochemical techniques, In: Yarar, B., Spottiswood, D.J. (Eds.), *Interfacial Phenomena in Mineral processing Foundation Conference*, pp. 3-17.

Bulatovic, S.M. and Wyslouzil, D.M., 1999. Development and application of new technology for the treatment of complex massive sulphide ores. Case study-Faro lead/zinc concentrator-Yukon. *Minerals Engineering*. 12(2): 129-145.

Buswell, A.M., Bradshaw, D.J., Harris, P.J. and Ekmekci, Z., 2002. The use of electrochemical measurements in the flotation of a platinum group minerals (PGM) bearing ore. *Minerals Engineering*, 15: 395-404.

Casella, I.G. and Gatta, M., 2000. Anodic electrodeposition of copper oxide/hydroxide films by alkaline solutions containing cuprous cyanide ions. *J. Electroanal. Chem*., 494: 12-20.

Chander, S., 1999. Fundamentals of sulfide mineral flotation. In: B.K. Parekh and J.D. Miller (Editors). *Advances in flotation technology.* SME. USA. Pp. 129-145.

Chander, S., 1988. Inorganic depressants for sulphide minerals. In: P. Somasundaran and B.M. Moudgil (Editors.), *Reagents in Mineral Technology.* Surfactant Science Series, 27. pp. 429-469.

Chander, S. and Khan, A., 2000. Effect of sulfur dioxide on flotation of chalcopyrite. *Int. J. Miner. Process.* 58: 45-55.

Chen, Z. and Yoon, R.H., 2000. Electrochemistry of copper activation of sphalerite at pH 9.2. *Int. J. Miner. Process.* 58: 57-66.

Cheng, S.C., Gattrell, M., Guena, T. and MacDougall, B., 2002. The electrochemical oxidation of alkaline copper cyanide solutions. *Electrochimia Acta*. 47: 3245-3256.

Cheng, X and Iwasaki, I., 1992. Pulp potential and its implications to sulphide flotation. *Miner. Process. Exctract. Metall. Review*, 11: 187-210.

Cho, Y.S. and Laskowski, J.S., 2002. Effect of flotation frothers on bubble size and foam stability. *Int. J. Miner. Process.* 64: 69-80.

Coetzer, G., Du Preez, H.S., Bredenhann, R., 2003. Influence of water resources and metal ions on galena flotation of Rosh Pinah ore. *J. S. Afr. Inst. Min. Metall.* 103(3):193-207.

Crawford, R. and Ralston, J., 1988. The influence of particle size and contact angle in mineral flotation. *Int.J. Min. Process.* 23: 1-24.

Crozier, R.D., 1991. Sulphide collector mineral bonding and the mechanism of flotation. *Minerals Engineering*. 4 (7-11): 839-858.

Cullinan, V.J., Grano, S.R., Greet, C.J., Johnson, N.W. and Ralston, J. 1999. Investigating fine galena recovery problems in the lead circuit of Mount Isa Mines lead/zinc concentrator. Part1: Grinding effects. *Minerals Engineering*, 12(2): 147-163.

Djokić, S.S., 2002. Electroless deposition of metals and alloys. *In:* B.E. Conway and R.E. White (Editors), *Modern Aspects of Electrochemistry. No. 35,* Kluwer Academic/Plenum Publishers, pp. 51-133.

Du Preez, H., 2000. Assesment of the physical and chemical conditions of the pulp in the Rosh Pinah milling system. Short Review. Presented at the Flotation short course. 1-2 August 2000. *University of Pretoria*, Pretoria (RSA).

Dudek, D.A. and Fedkiw, P.S., 1999a. Electrodeposition of copper from cuprous cyanide electrolyte. I. Current distribution on a stationary disk. *J. Electroanal. Chem.* 474: 16-30.

Dudek, D.A. and Fedkiw, P.S., 1999b. Electrodeposition of copper from cuprous cyanide electrolyte. II. Current distribution on a rotating disk. *J. Electroanal. Chem.* 474: 31-42.

El-Shall, H.E., Elgillani, D.A., and Abdel-Khalek, N.A., 2000. Role of zinc sulfate in depression of lead-activated sphalerite. *Int. J. Min. Process.* 58(1-4): 67-75.

Elgillani, D.A. and Fuerstenau, M.C., 1968. Mechanisms involved in cyanide depression of pyrite. *Trans. AIME*. 241: 437

Finkelstein, N.P., 1997. The activation of sulphide minerals for flotation: a review. *Int. J. Min. Process*. 52:81-120.

Finkelstein, N.P. and Allison, A.S., 1976. The chemistry of activation, deactivation and depression in the flotation of zinc sulphide: A review. In: M.C. Fuestenau (ed.) *Flotation (A.M. Gaudin Memorial Volume),* AIMMPE, New York (USA), 1: 414-457.

Forssberg, K.S.E., Subrahmanyam, T.V., and Nilsson, L.K., 1993. Influence of grinding method on complex sulphide ore flotation: a pilot plant study. *Int. J. Miner. Process, 38: 157-175.*

Fuerstenau. M.C., 1982. Sulphide mineral flotation. In: R.P.King (Editor). *Principles of Flotation.* South African Institute of Mining and Metallurgy, Johannesburg (South Africa), pp. 159-182.

Fuerstenau, D.W., 1982. Activation in the flotation of sulphide minerals. In: R.P.King (Editor). *Principles of Flotation.* South African Institute of Mining and Metallurgy, Johannesburg (South Africa), pp. 183-198.

Fuerstenau, D.W. and Metzger, P.H., 1960. Activation of sphalerite with lead ions in the presence of zinc salts. *AIME Trans.,* 217: 119-123.

Fuerstenau, M.C., Kuhn, M.C. and Elgillani, D.A., 1968. The role of dixanthogen in xanthate flotation of pyrite. *AIME Trans.,* 241: 148.

Gardner, J.R., and Woods, R., 1979. An electrochemical investigation of natural floatability of chalcopyrite. *Int. J. Miner. Process*. 6: 1-16.

Gaudin, A.M., 1957. *Flotation.* Second edition, McGraw-Hill, New York (USA), p.573.

Gerson, A.R., Lange, A.G., Prince, K.E., Smart, R.St.C., 1999. The mechanism of copper activation of sphalerite. *Applied Surface Science,* 137: 207-223.

Girczys, J., Laskowski, J., and Lekki, J., 1972. Copper activation studies of sphalerite. *Transactions Canadian Metallurgical Quarterly.* 11(4): 553-558.

Grano, S.R., Sollaart, M., Skinner, W., Prestidge, C.A., and Ralston, J., 1997(a). Surface modifications in the chalcopyrite-sulphite ion system. I. Collectorless flotation, XPS and dissolution study. *Int. J. Miner. Process*. 50: 1-26.

Grano, S., Johnson, N.W., and Ralston, J., 1997(b). Control of the solution interaction of metabisulphite and ethyl xanthate in the flotation of the Hilton ore of Mount Isa Mines Limited, Australia. *Minerals Engineering*. 10(1): 17-39.

Grano, S.R., Prestidge, C.A., and Ralston, J., 1997(c). Solution interaction of ethyl xanthate and sulphite and its effect on galena flotation and xanthate adsorption. *Int. J. Miner. Process*. 52: 161-186.

Grano, S.R., Ralston, J. and Smart, R.S.C., 1990. Influence of electrochemical environment on the flotation behaviour of Mt. Isa copper and lead-zinc ore. *Int. J. Miner. Process.* 30:69-97.

Greet, C. and Smart, R.St.C., 2002. Diagnostic leaching of galena and its oxidation products with EDTA. *Minerals Engineering*, 15:515-522

Guy P.J. and Trahar, W.J., 1985. The effects of oxidation and mineral interaction on sulphide flotation. In K.S. Forssberg (Ed.) *Flotation of sulphide minerals*. Development in minerals processing, 6. pp. 91-110.

Guy, P.J., and Trahar, W.J., 1984. The influence of grinding media and flotation environments on the laboratory batch flotation of galena. *Int. J. Miner. Process.* 12: 15-38.

Healy, T.W., 1973. Colloidal precipitates as activators and depressants in flotation. The *Austr.M.M. Conference,* Western Australia, May 1973.

Hefter, G.T. and May P.M., 1991. Chemical speciation in hydrometallurgical cyanide solutions. *In: Fith AusIMM Extractive Metallurgy Conference*, Perth (Australia), 2-4 October. pp. 139-146.

Henley, K.J., 1983. Ore-dressing mineralogy-A review of the techniques, Applications and recent developments. *Spec. Pub. Geo. Soc. S. Afr.,* 7: 175-200.

Herrera-Urbina, R., Sotillo, F.J. and Fuerstenau, D.W., 1999. Effect of sodium sulfide additions on the pulp potential and amyl xanthate flotation of cerussite and galena. *Int. J. Miner. Process*. 55: 157-170.

Hintikka, V.V. and Leppinen, J.O., 1995. Potential control in the flotation of sulphide minerals and precious metals. *Minerals Engineering,* 8(10): 1151-1158.

Högfeldt, E., 1924. Stability constants of metal-ion complexes. 1st Ed. IUPAC.

Hope, G.A., Woods, R. and Munce, C.G., 2001. Raman microprobe identification. *Minerals Engineering,* 14(12): 1565-1577.

Houot, R. and Duhamet, D., 1992. The use of sodium sulphite to improve the flotation selectivity between chalcopyrite and galena in a complex sulphide ore. *Minerals Engineering*, 5(3-5): 343-355.

Houot, R. and Ravenau, P., 1992. Activation of sphalerite flotation in the presence of lead ions. *Int. J. Miner. Process*., 35: 253

Hsu, L.T., Kim; M.J. and Tran, T., 1999. Electrochemical study on copper cementation from cyanide liquors using zinc. Electrochimia Acta, 44: 1917-1625.

Hsu, L.T., Tran, T. and Young, D., 1991. Modelling of the chemical speciation of cyanide species: Application to effluent treatment. *In: Fith AusIMM Extractive Metallurgy Conference*, Perth (Australia), 2-4 October. pp. 133-138.

Huang, H.H., 2003. *Stabcal Software: Stability Calculation for Aqueous Systems*. Metallurgical Engineering, Montana Tech. (USA).

Hukki, R.T., Palomaki, A. and Orivuori, E., 1952. An electrophoretic investigation of the activation of sphalerite by copper sulphate in flotation. *Soumen Kemistilehti,* 25B. 42.

Jain, S. and Fuestenau, D.W., 1985. Activation in the flotation of sphalerite. In K.S. Forssberg (Editor) *Flotation of sulphide minerals*. Development in minerals processing, 6. pp. 159-174.

Johnson, H.W., 1988. Application of the electrochemical concepts to four sulphide flotation separations. In: P.E. Richardson and R. Wood (Editors). *Proceedings of the International Symposium on Electrochemistry in Mineral and Metal Processing II.* The Electrochemical Society. Pp 131-149.

Kakovskii, I.A., 1957. Physicochemical properties of some flotation reagents and their salts with ions of heavy non-ferrous metals. *Proceedings of the second Int. Congress Surf. Act.*, pp. 225-241.

Kartio, I.J., Basilio, C.I., and Yoon, R.H., 1998. An XPS study of sphalerite activation by copper. *Langmuir*, 14: 5274-5278.

Kartio, I., Wittstock, G., Laajalehto, K., Hirsch, D., Simola, J., Laiho, T., Szargan, R., and Suoninen, E., 1997. Detection of elemental sulphur on the galena oxidized in acidic solution. *Int. J. Min. Process.* 51: 293-301.

Kartio, I., Laajaletho, K., and Suoninen, E., 1999. Characterization of the ethyl xanthate adsorption layer on galena (PbS) by synchrotron radiation excited photoelectron spectroscopy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects.* 154: 97-101.

Katabua, J. and Molelekoe, R., 2003. Rosh Pinah Water Project. *Report: Doc. No. RD-AP-015*. Kumba Technology, R&D. Kumba Resources. Pretoria (South Africa). p. 12

Kelebek, S. and Tukel, C., 1999. The effect of sodium metabisulphite and triethylenetetramine system on the pentlandite-pyrrhotite separation. *Int. J. Miner. Process*. 57:135-152.

Kim, B.S., Hayes, R.A., Prestige, C.A., Ralston, J., and Smart, R.St.C., 1996. In-situ scanning tunnelling microscopy studies of galena surfaces under flotation-related conditons. *Colloids and Surfaces A: Physicochemical and Engineering Aspects.* 117:117-129.

Klassen, V.I. and Mokrousov, V.A., 1963. *An Introduction to the Theory of Flotation*. Butterworths & Co. (London). p. 493

Koryta, J., Dvorák, J., and Kavan, L., 1993. *Principles of Electrochemistry.* 2nd edition. John Wiley & Sons. P.486.

Laajalehto, K., Leppinen, J., Kartio, I. and Laiho, T., 1999. XPS and FTIR study of the influence of electrode potential on activation of pyrite by copper or lead. *Colloid and Surfaces. A: Physicochemical and Engineering Aspects*. 154: 193-199.

Laskowski, J.S., 1993. Frothers and flotation froth. *Mineral Processing and Extractive Metallurgy Review*. 12: 61-89.

Laskowski, J.S., Liu, Q., and Zhan, Y., 1997. Sphalerite activation: Flotation and electrokinetic studies. *Minerals Engineering*, 10(8): 787-802.

Lätti, D., Doyle, J. and Adair, B.J.I., 2001. A QEM*SEM study of a suite of pressure leach products from a gold circuit. *Minerals Engineering,* 14(12): 1671-1678.

Leja, J., 1982. *Surface chemistry of froth flotation.* Plenum Press, New York (USA), p.758.

Leppinen, J.O., Hintikka, V.V. and Kalapudas, R.P., 1998. Effect of electrochemical control on selective flotation of copper and zinc from complex ores. *Minerals Engineering*, 11(1): 39-51.

Levay, G., Smart, R.St.C. and Skinner, W.M., 2001. The impact of water quality on flotation performance. *J. S. Afr. Inst. Min. Metall.* 101(2): 69-75.

Light, T.S., 1972. Standard solution for redox potential measurements. *Analytical Chemistry*, 44(6): 1038-1039.

Linge, H.G., 1995. Anodic oxidation of pyrrhotite in simulated CIP liquors. *Minerals Engineering,* 8(7): 795-806.

Liu, G.Q. and Yen, W.T., 1995. Effects of sulphide minerals and dissolved oxygen on the gold and silver dissolution in cyanide solution. *Minerals Engineering*, 8(1/2): 111-123.

Lu, Y., Drelich, J., and Miller, J.D., 1997. Wetting of francolite and quartz and its significance in the flotation of phosphate rock. *Minerals Engineering,* 10(11):1219-1231.

Lu, J., Dresinger, D.B., Cooper, W.C., 2002. Copper electrowinning from dilute cyanide solution in a membrane cell using graphite felt. *Hydrometallurgy*, 64: 1-11.

Lukey, G.C., Van Deventer, J.S.J., Huntington, S.T., Chowdhury, R.L. and Shallcross, D.C., 1999. Raman study on the speciation of copper cyanide complexes in highly saline solutions. *Hydrometallurgy,* 53: 233–244.

Malysiak, V., Shackleton, N.J. and de Vaux, D., 2003. Effect of water quality on pentlandite-pyroxene floatability with emphasis on calcium ions. In: L. Lorenzen and D. Bradshaw (Editors) *Proceedings of the 22nd International Mineral Processing Congress*, 29 Sept-03 October 2003. Cape Town, South Africa. Pp. 734-742.

Marin, G. and Molina, E., 1988. Characterisation of collectors through flotation rate data. In: S.C. Flores and Moisan J.A. (Eds.), *Froth Flotation*, Developments in Minerals Processing, vol. 9. Elevier. pp. 329-340.

Marsicano, F., Harris, P.J., McDougall, G.J., and Finkelstein, N.P., 1975. Some thermodynamics aspects of systems relevant to the flotation of sphalerite. *National Institute for Metallurgy.* Johannesburg (South Africa), Report No. 1785.

Martin, C.J., McIvor, R.E., Finch, J.A. and Rao, S.R., 1991. Review of the effect of grinding media on flotation of sulphide minerals. *Minerals Engineering.* 4(2): 121-132.

Mielczarski, E. and Mielczarski, J.A., 2003. Influence of galvanic effect on adsorption of xanthate on pyrite, galena and chalcopyrite. In: L. Lorenzen and D. Bradshaw (Editors) *Proceedings of the 22nd International Mineral Processing Congress*, 29 Sept-03 October 2003. Cape Town, South Africa. Pp. 866-873.

Miller, J.D., Du Plessis, R., Kotlyar, D.G., Zhu, X. and Simmons, G.L., 2002. The low-potential hydrophobic state of pyrite in amyl xanthate flotation with nitrogen. *Int. J. Miner. Process*. 67: 1-15.

Minsiomi, J., 2001. *Restricted Report*. Kumba Resources (Pretoria, South Africa).

Misra, M., Miller, J.D., and Song, Q.Y., 1985. The effect of SO_2 in the flotation of sphalerite and chalcopyrite. In: Forssberg, K.S.E. (Ed.) *Flotation of Sulphide Minerals*- Development in Mineral Processing 6, Elsevier, Amsterdam. Pp. 175-196.

Morey, M.S., Grano, S.R., Ralston, J., Prestidge, C.A. and Verity, B., 2001. The electrochemistry of Pb(II) activated sphalerite in relation to flotation. *Minerals Engineering.* 14(9): 1009-1017.

Mycroft, J.R., Bancroft, G. M., McIntyre, N.S., Lorimer, J.W., and Hill, I.R., 1990. Detection of sulphur and polysulphides on electrochemically oxidized pyrite surfaces by X-ray photoelectron spectroscopy and Raman spectroscopy. *J. Electroanal. Chem.* 292: 139-152.

Natarajan, K.A., 1996. Laboratory studies on ball wear in the grinding of chalcopyrite ore. *Int. J. Miner. Process*. 46: 205-213.

Natarajan, K.A. and Iwasaki, I., 1984. Electrochemical aspects of grinding media-mineral interactions in magnetite ore grinding. *Int. J. Miner. Process*. 13: 53-71.

Ng'andu, D.E., 2001. The effect of underground mine water on the performance of the Mufulira flotation process. *J. S. Afr. Inst. Min. Metall.* 101(7): 367-380.

Nicol, M.J. and Lázaro, I., 2002. The role of E_h measurements in the interpretation of the kinetics and mechanisms of the oxidation and leaching of sulphide minerals. *Hydrometallurgy*, 63: 15-22.

Nowak, P. and Laajalehto, 2000. Oxidation of galena surface. An XPS study of the formation of sulfoxy species. *Applied Surface Sciemce*. 157: 101-111.

Nowak, P., Laajalehto, K., and Kartio, 2000. A flotation related X-ray photoelectron spectroscopy study of the oxidation of galena surface. *Colloids and Surfaces A: Physicochemical and Engineering Aspects.* 161: 447-460.

O'Dea, A.R., Prince, K.E., Smart, R.St.C. and Gerson, A.R., 2001. Secondary ion mass spectrometry investigation of the interaction of xanthate with galena. *Int. J. Miner. Process*. 61: 121-143.

Pattrick, R.A.D., England, K.E.R., Charnock, J.M., and Mosselmans, J.F.W., 1999. Copper activation of sphalerite in relation to flotation: an X-ray absorption

spectroscopy (reflection extended X-ray absorption fine structure) investigation. *Int. J. Min. Process.*, 55: 247-265.

Pattrick, R.A.D., Charnock, J.M., England, K.E.R. and Wright, K., 1998. Lead sorption on the surface of ZnS with relevance to flotation: A fluorescence REFLEXAFS study. *Minerals Engineering*, 11(11): 1025-1033.

Peng, Y., Grano, S., Ralston, J. and Fornasiero, D., 2003(a). Control of grinding conditions in the flotation of galena and its separation from pyrite. *Int. J. Miner. Process.* 70: 67– 82

Peng, Y., Grano, S., Fornasiero, D., and Ralston, J., 2003(b). Control of grinding conditions in the flotation of chalcopyrite and its separation from pyrite. *Int. J. Miner. Process.* 69: 87-100.

Peng, Y., Grano, S., Ralston, J. and Fornasiero, D., 2002. Towards prediction of oxidation during grinding I. Galena flotation. *Minerals Engineering,* 15: 493-498.

Persson, I., Persson, P., Valli, M., Fozo, S., and Malmensten, B., 1991. Reactions on sulphide mineral surfaces in connection with xanthate flotation studies by diffuse reflectance FTIR spectroscopy, atomic absorption spectroscopy, and calometry. *Int. J. Miner. Process.* 33:67-81.

Pietrobon, M.C.; Grano, S.R. and Greet, C., 2000. The effect of process water quality on lead flotation in Pasminco Mining LTD's Elura ore. In: Flotation 2000 Conference, March 29-31, 2000. Adelaide (Australia). MEI, p.77

Popov, S.R., Vucinic, D.R., Strojek, J.W., and Denca, A., 1989a. Effect of dissolved lead ions on the ethyl xanthate adsorption on sphalerite in weakly acidic media. *Int. J. Min. Process.* 27: 51-62.

Popov, S.R., Vucinic, D.R., and Kacanik, J.V., 1989b. Floatability and adsorption of ethyl xanthate on sphalerite in an alkaline medium in the presence of dissolved lead ions. *Int. J. Min. Process.* 27: 205-219.

Popov, S.R., and Vucinic, D.R., 1990. Floatability and adsorption of ethyl xanthate on copper-activated sphalerite in weakly acidic medium. *Colloids and Surfaces*. 47:81-94.

Prestidge, C.A., Skinner, W.M., Ralston, J., and Smart, R.C., 1997. Copper (II) activation and cyanide deactivation of zinc sulphide under mildly alkaline conditions. *App. Surf. Sci.,* 108: 333-344.

Prestidge, C.A. and Ralston, J., 1996. Contact angle studies of ethyl xanthate coated galena particles. *J. Colloid Interf. Sci.,* 184: 512-518.

Prestidge, C.A. and Ralston, J., 1995. Contact angle studies of particulate sulphide minerals. *Minerals Engineering,* 9(1): 85-102.

Prestidge, C.A., Ralston, J., and Smart, R.C., 1993. Role of cyanide in the interaction of ethyl xanthate with galena. *Colloids and Surfaces A: Physicochemical and Engineering Aspects,* 81: 103-119.

Pugh, R.J., and Tjus, K., 1987. Electrokinetics studies on Cu(II) coated zinc sulfide particles. *J. Colloid Interface Sci*. 117(1):231-241.

Raichur, A.M., Wang, X.H., and Parekh, B.K., 2000. Quantifying pyrite surface oxidation kinetics by contact angle measurements. *Colloids and Surfaces A: Physicochemical and Engineering Aspects.* 167: 245-251.

Ralston, J. 1994. The chemistry of galena flotation: Principles and practice. *Minerals Engineering,* 7(5/6): 715-735.

Ralston, J. 1991. E_h and its consequences in sulphide mineral flotation. *Minerals Engineering,* 4(7-11): 859-878.

Ralston, J. and Healy, T.W., 1980a. Activation of zinc sulphide with Cu^{II}, Cd^{II}, and Pb^{II}: I. Activation in weakly acidic media. *Int. J. Min. Process*. 7:175-201.

Ralston, J. and Healy, T.W., 1980b. Activation of zinc sulphide with Cu^{II}, Cd^{II}, and Pb^{II}: II. Activation in neutral and weakly alkaline media. *Int. J. Min. Process*. 7:203-217.

Rand, D.A.J. and Woods, R., 1984. Eh measurements in sulphide minerals slurries. *Int. J. Miner. Process*. 13: 29-42.

Rao, S.R., 1971. *Xanthates and related coumponds*. Marcel Dekker, New York (USA), p 504.

Rao, S.R. and Finch, J.A., 1989. A review of water re-use in flotation. *Minerals Engineering*, 2(1): 65-85.

Rashchi, F., Sui, C. and Finch, J.A., 2002. Sphalerite activation and surface Pb ion concentration. *Int. J. Min. Process.* 67: 43-58.

Reddy, G.S. and Reddy, K., 1988. The chemistry of activation of sphalerite. A review. *Mineral Processing and Extractive Metallurgy Review.* 4: 1-37.

Rees, K.I. and Van Deventer, J.S.J., 1999. The role of metal-cyanide species in leaching gold from a copper concentrate. *Minerals Engineering*. 12(8):877-892.

Reyneke, L., 2000. Mineralogical investigation into the occurrence of Ag in samples from the western and eastern ore fields in the Rosh Pinah area, Namibia. *Report No. M2000/090.* Kumba Resources R&D (Pretoria, South Africa). p. 25.

Reyneke, L., 2000. Mineralogical composition and particle-counting of zinc, lead, feed and waste samples from Rosh Pinah, Namibia. *Report No. M2000/33.* Kumba Resources R&D (Pretoria, South Africa). p. 9.

Richardson, P.E. and Walker, G.W., 1985. The flotation of Chalcosite, Bornite, Chalcopyrite, and Pyrite in an electrochemical-flotation cell. *XVth International Mineral Processing Congress,* Cannes, France, June 2-9. pp. 198-210.

Richardson, P.E., Finkelstein, N.P., and Yoon, R.H., 1994. An electrochemical method for the study of the flotation chemistry of sphalerite. *Int. J. Min. Process.* 41: 71-76.

Seke, M.D, Naik, S., and Lewis, G.O., 2003(a). Flotation appraisal on a Suzdal (Kazakhstan) composite sample. *SGS Lakefield Research Africa. Report No. MET 02/322*. 23 October 2003. p. 60.

Seke, M.D, Naik, S., and Lewis, G.O., 2003(b). Flotation of two gold bearing samples from Pueblo Viejo. *SGS Lakefield Research Africa. Report No. MET 03/070*. 31 October 2003. p. 36.

Senior, G.D. and Trahar, W.J., 1991. The influence of metal hydroxides and collector on the flotation of chalcopyrite. Int. J. Miner. Process. 33: 321-341.

Shen, W.Z., Fornasiero, D., and Ralston, J., 2001. Flotation of sphalerite in the presence of sodium sulphite. *Int. J. Miner. Process*. 63: 17-28.

Shen, W.Z., Fornasiero, D., and Ralston, J., 1998. Effect of collectors, conditioning pH and gases in the separation of sphalerite from pyrite. *Minerals Engineering,* 11(2): 145-158.

Shimiizaka, J., Usui, S., Matsuoka, I., and Sasaki, H., 1976. Depression of galena flotation by sulphite and chromate ion. In: M.C. Fuestenau (Editor) *Flotation (A.M. Gaudin Memorial Volume),* AIMMPE, New York (USA), 1: 393-413

Smart, R.St.C., 1991. Surface layers in base metal sulphide flotation. *Minerals Engineering.* 4(7-11): 891-909.

Smith, R.M. and Martell, A.E., 1976. *Critical stability constants. Volume 4.* Plenum Press, New York (USA).

Stowe, K.G., Chryssoulis, S.L., and Kim, J.Y., 1995. Mapping of composition of mineral surfaces by TOF-SIMS. *Minerals Engineering*. 8(4/5): 421-430.

Subrahmanyam, T.V., Prestige, C.A., and Ralston, J., 1996. Contact angle and surface analysis studies of sphalerite particles. *Minerals Engineering*. 9(7): 727-741.

Sui, C., Rashchi, F., Xu, Z., Kim, J., Nesset, J.E., and Finch, J.A., 1998. Interactions in the sphalerite-Ca-SO_4-CO_3 systems. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 137: 69-77.

Sutherland, K.L., and Wark, I.W., 1955. *Principles of Flotation*. Aus.IMM. Melbourne (Australia). p. 489.

Teague, A.J., Van Deventer, J.S.J. and Swaminathan, C., 1999. A conceptual model for gold flotation. *Minerals Engineering*, 12(9): 1001-1019.

Trahar, W.J., 1984. The influence of pulp potential in sulphide flotation. In M.H. Jones and J.T. Woodcock (Editors), *Principles of Minerals Flotation*. The Wark symposium. The AusIMM, Parkville, Australia, pp. 117-136.

Trahar, W.J., 1981. A rational interpretation of the role of particle size in flotation. *Int. J. Miner. Process*. 8: 289-327.

Trahar, W.J., Senior, G.D., Heyes, G.W., and Creed, M.D., 1997. The activation of sphalerite by lead: a flotation perspective. *Int. J. Miner. Process*. 49, 121-148.

Trahar, W.J., Senior, G.D. and Shannon, L.K., 1994. Interactions between sulphide minerals-the collectorless flotation of pyrite. *Int. J. Miner. Process*. 40: 287-321.

Tran, T., Nguyen, H.H., Hsu, Y.J., and Wong, P.M.L., 1997. Copper-gold interaction during the processing of copper-gold ores, presented at *World Gold '97 Conference,* Singapore, 1-3 September 1997. pp. 95-98.

Tveter, E.C. and McQuiston, F.W., 1962. Plant practice in sulphide mineral flotation. In D.W. Fuerstenau (Editor), *Froth Flotation. 50th Anniversary Volume*. AIME, New York, USA, pp. 382-426.

Van Vuuren, C.J.J., 1982. A contribution to the regional setting and structure of the Rosh Pinah zinc-lead deposit. Kumba Resources. Report Rosh R 186. p.30

Vera, M.A., Mathe, Z.T., Franzidis, J.P., Harris, M.C., Manlapig, E.V., O'Connor, C.T., 2002. The modeling of froth zone recovery in batch and continuously operated laboratory flotation cells. *Int. J. Miner. Process.* 64: 135-151.

Vergara, J.A., Castro, S.H., and Pagliero, J.A., 1988. A study of the covellite-ethyl xanthate system using cyclic voltammetry. In: S.H.C. Flores and J.A. Moisan. *Froth Flotation. Developments in mineral processing.* 9:341-354.

Vukcevic, S., 1997. The mechanism of gold extraction and copper precipitation from low grade ores in cyanide ammonia systems. *Minerals Engineering*, 10(3): 309-326.

Vukcevic, S., 1996. A comparison of alkali and acid methods for the extraction of gold from low grade ores, *Minerals Engineering*, 9(10): 1033-1047.

Wang, X., 1989. Ph.D. Thesis, Lulea University of Technology, Lulea, Sweden.

Wang, X. and Forssberg, E., 1996. The solution electrochemistry of the sulfide-xanthate-cyanide systems in sulfide mineral flotation. *Minerals Engineering. 9(5)*: 527-546.

Wang, X., Forssberg, E., and Bolin, N.J., 1989a. The aqueous and surface chemistry of activation in the flotation of sulphide minerals. A review. Part.1: An electrochemical model. *Miner. Process. Extra. Metall. Review,* 4:135-165.

Wang, X., Forssberg, E., and Bolin, N.J., 1989b. The aqueous and surface chemistry of activation in the flotation of sulphide minerals. A review. Part II: A surface precipitation model. *Miner. Process. Extra. Metall. Review,* 4:167-199.

Wang, X.H. and Xie, Y., 1990. The effect of grinding media and environment on the surface properties and flotation behaviour of sulfide minerals. *Miner. Process. Extra. Metall. Review,*7: 49-79.

Watson, M.D. and Botha, P.H., 1983. Mineralogical investigation of the ore and plant products as an aid for improved beneficiation of the Zn-Pb-Cu ore at Rosh Pinah, South West Africa. *Spec. Pub. Geo. Soc. S. Afr.,* 7: 217-223.

Weisener, C. and Gerson, A., 2000. An investigation of the Cu(II) adsorption mechanism on pyrite by ARXPS and SIMS. *Minerals Engineering,* 13(13): 1329-1340.

Williams, S.R. and Pheloan, J.M., 1985. Process development at Woodlawn Mines. In: A.D. Zunkel, R.S. Boorman, A.E. Morris and R.J. Wesely (Editors), *Complex Sulphides. Processing of ores, concentrates and by-products.* The AIME, Pennsylvania, USA. Pp 293-304.

Woods, R., 2003. Electrochemcal potential controlling flotation. *Int. J. Miner. Process.* 72: 151-162.

Woods, R., 1976. Electrochemistry of sulphide flotation. In: M.C. Fuestenau (Editor), *Flotation*, A.M. Gaudin Memorial Volume, Vol. 1. Am. Inst. Min. Metall. Eng., pp. 298-333.

Woods, R., Chen, Z., and Yoon, R.H., 1997. Isotherms for the chemisorption of ethyl xanthate on lead. *Int. J. Miner. Process.* 50: 47-52.

Woods, R., Hope, G.A., and Brown, G.M., 1998. Spectroelectrochemical investigations of the interaction of ethyl xanthae with copper, silver and gold: II SERS of xanthate adsorbed on silver and copper surfaces. *Colloids and Surfaces A: Physicochemical and Engineering Aspects.* 137: 329-337.

Yamamoto, T., 1990. Mechanism of depression of pyrite and sphalerite by sulphite. In Jones, M.J. (Ed.). *Complex Sulphide Ores.* Inst. Miner. Metall., London, pp. 71-78.

Yuan, X.M, Pålsson, B.I and Forssberg, K.S.E., 1996. Flotation of a complex sulphide ore. I. Cu/Zn selectivity control by adjusting pulp potential with different gases. *Int. J. Miner. Process*. 46: 155-179.

Zhang, Q., Xu, Z., Bozkurt, V., and Finch, J.A., 1997. Pyrite flotation in the presence of metal ions and sphalerite. *Int. J. Miner. Process.* 52: 187-201.