



# ***BIBLIOGRAPHY***



## BIBLIOGRAPHY

1. Urja, Vol.31, No.2, 35, (1992)
2. Urja, Vol.32 No.5, 39, (1992)
3. Sarkar, S., Fuels and Combustion, Orient Longman Ltd., II<sup>nd</sup> Ed., 4, 35, 72, (1990)
4. Sachdev, R.K., "Benefication of power grade coals, its relevance to future coal in India", Urja, Vol.32, No.1, 51-59, July (1992).
5. Sunil Kumar, K., Gupta Kavita, 'Coal India on You', Coal India Ltd., 1, 98, (1993).
6. Basak, P.K. Bhattacharya, P.K., Ash, P.N., 'Indian Coals', CFRI, Dhanbad, 1, 4, 413-416, 421, 425-453 (1981).
7. Basak, P.K. Bhattacharya, P.K., Ash, P.N., 'Indian Coals', CFRI, Dhanbad, 2, 2, 120-135 (1981).
8. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 3, 51, (1982).
9. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 4, 114-157, 178, 538, 685, 693 (1982).
10. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 5, 4, 207, 287, 297 (1981).
11. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 6, 67, 248, 399, 401 (1982).
12. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 7, 3, 153, 271 (1982).
13. Basak, P.K. Bhattacharya, P.K., 'Indian Coals', CFRI, Dhanbad, 8, 7, 11, 26, 87, 90 (1982).
14. Kiss, L.T., Anal. Chem. 38, 1731, (1966).
15. Gibbs, R.A., Amer. Minerals, 50, 741, (1956).
16. Griffin, R.A. Schuller, R.M. Suloway, J.J., Russel, S.J., Childrens, W.F., and Shamp, N.P., "Solubility and Toxicity of Potential Pollutants in Solid Coal Wastes, Environmental Aspects of Fuel Conversion Technology, III. U.S. EPA Research Triangle Park, North Carolina (1978).

17. J.G. Speight, "The Chemistry and Technology of Coal", Dekker, New York., (1983).
18. Gluskoter, H.J., "Trace Elements in Fuel", S.P. Babu Ed. Advances in Chemistry Series No1410, Amer. Chem. Soc., Washington, D.C., p.1-22 (1975).
19. Rao, C., Prasad, Gluskoter, H.J., Occurrence and distribution Minerals in Illinois Coal", Illinois State Geological Survey Circs., 476, 56pp (1973).
20. Gluskoter, H.J., Shimp, N.F. and Ruch, R.R., "Coal Analysis Trace Elements and Mineral Matter", Exxon Production Research Company, MoIs State Geological Survey Chemistry of Coal Utilization, Second Supplement Vol. M.A. Elliot Editor (New York - John Wiley and Sons), pp.415-416 & pp.361-427 (1981).
21. O'Gorman, Walker, P.L., Jr., In "Mineral Matter and Trace Elements in US Coals". Department of Interior, Research and Development, No. 61, Interim Report No.2, pp.184 (1972).
22. Berkowitz, N. , , "An introduction to Coal Technology", Academic Press, New York (1979).
23. Lowry, H.H. , "Chemistry of Coal Utilization", Supplementary Volume, Wiley, New York (1963).
24. Philips, J., Wilson (Jr), Ph.D. and Joseph, H., Wells Ph.D. Thesis, Coal, Coke and Coal chemicals (1985).
25. Elwood, S., Moore, M.S. Ph.D. Coal Its Properties, Analysis, Classification, Geology, Extraction, Uses and Distribution - 16. Page No. 105-110 (1965)
26. "Analytical Methods for coal and coal Products", Ed. Clearance Karr, Jr. Vol.1, Academic Press, New York 237 (1980).
27. Dryden, I.G.C., "Chemical Constitution and reaction of Coal in Chemistry of Coal Utilization, Ed. H.H. Lowry, Supplementary Volume-1, Page No. 232, (1977).
28. Ergun, S. and Tiensuu, V.H. Fuel, 38, 64-78 (1959).
29. Cannon, C.G. Nature, 171, 308 (1953).
30. Brown, J.K., J. Chem. Soc. 744 (1955).
31. Rybicka, S.M. Fuel, 38, 45 (1959).
32. W. Franics, "Coal:, its formation and composition, Edward Arnold (Publishers) Ltd. (1961).

33. Hyatsu, R., Maveda, Y., Ito, H. and Makabe, M., *Fuel*, 63, 35 (1984).
34. Horton, L., (Proc. Conf. Coal Science, Sheffield 1954), *Inst. Fuel London*, *Fuel* 34, 514, (1955).
35. Hayatsu, R., Winas, R.E. Scott, R.G. Mcbeth, L.P., Moore, L.P. and Studier, M.H., *Nature (London)*, 278, 41 (1979)
36. Speight, J.G., "Oxidation and Coal Structure", in 'Coal Science and technology', Volberth, Editor, Elsevier, Amsterdam, pp. 183-206 (1987).
37. Chakraborty, S.K. and Krestschmer, H.O., *Fuel*, 53, p.132 (1974).
38. Hill, G.F. and Lyon, L.B. *Ind. Eng. Chem.* 54(6), p.36 (1962).
39. Pitt, G.J., "Coal and Modern Coal Processing: An Introduction", Academic Press, New York, 45-46 (1979).
40. Shima, J.H., "The Structure of coal and its liquefaction products : a reactive model in Proc. International Conference on Coal Science, 28-31 Aug., 1985, Sydney, N.S.W. Australia, Pergamon Press, Sydney, pp. 738-741 (1985).
41. Deno, N.D., Grigger, B.A., Jones, A.D., Raketsky, W.G., Smith, K.A. and Minard, R.D., *Fuel*, 59, p.694 (1980).
42. Wister, W., *Preprints, Amm. Chem. Soc. Div. Fuel Chem.* 20(2), p.122 (1975).
43. Friedman, S., Lacount, R.B. and Warzinsky, R.P., *Amm. Chem. Soc. Symp. Series No.64*, p.164 (1984).
44. Joshi, J.B. and Shah, Y.O., *Fuel* 60, p.612 (1981).
45. Rose, H.J. 'Chemistry of Coal Utilization', John Wiley and Sons, New York, vol.1, pp.25-85 (1945).
46. R.A. Mott, *J. Inst. Fuel*, Jan. (1948).
47. Regnault, V., *Amm. Mines* 137,(12), 161 (1937).
48. Gruner, L., *Ibid*, C77, 4, 169 (1874).
49. Bousquet, G. and Gruner, L., *Atlas general des houillers, Paris Comitides Houillers de France* (1911).
50. Grout, F.F. *Econ. Geol.* 2 (1907).
51. Ralston, O.C., U.S. Bureau of Mines, *Tech. paper* 93 (1975)
52. Seyller, C.A. *Proc. S.W. Inst. Eng.* 47, 557, 1931, 63, 3 (1948)

53. Parr, S.W. and Wheeler, W.F., Uni 111, Expt. Std. Bull. 37 (1909)
54. Perks, B.C., Origin, Petrography and classification of coal", in Chemistry of Coal Utilization", Supplementary Volume Ed. H.H. Lowry, 29 (1963)
55. Neavel, R.C. 'Origin, petrography and classification of coal", in Chemistry of Coal Utilization", 2nd Supplementary Volume, John Wiley, Ed. Elliot, M.A. (1981)
56. Ode, W.H. and Frederic, W.H. U.S. Bureau Mines, Rept. Invest. No.5435 (1958), (1989).
57. King, J.G. Coke and Gas 19, 152-60 (1957).
58. Franics, W. "International Classification of Hard coals by type, Secretariate of Economic Commission for Eruope", United Nations, Geneva, 6, 30 (1933).
59. Publication of Bureau of Indian Standards, New Delhi IS:770, Classification and Codification of Indian Coals and Lignites (1977)
60. Bergar, Irving, A., "Geochemistry of Coal", 53, p.823-841 (1958).
61. Ode, W.H., "Coal Analysis and Mineral Matter", in "Chemistry of Coal Utilization", Supplementary Volume, H.H. Lowry Ed. Pp.202-231, John Wiley and Sons Inc., New York (1963).
62. Thiesen, Gilbert, "Composition and Origin of the Mineral Matter in Coal", in "Chemistry of Coal Utilization" (H.H. Lowry Ed.), pp.485-495, John Wiley and Sons Inc., New York (1985).
63. Swaime, D.J., 'Trace Elements in Coal', pp.482-492, Moskva Nailka Publisher (1972).
64. Abermethy, R.P. and Gibson, F.H., Rare elements in Coal, Information Circular, 8263, p.69, US Bureau of Mines (1963).
65. Neeval, R.C. 'Origin, Petrography and classification of coal', Exxon research and Engineering Company, Chemistry of Coal utilization, Second Supplementary Vol., M.A. Elliot Ed., New York, John Wiley & Sons, 129-130, pp.91-158 (1981).
66. William R.A., Cawley, C.M., 'Impurities in Coal and Petroleum', in "The Mechanism of Corrosion in Fuel Impurities", (H.R. Johnson and D.J. Letter Eds.), p.24-67, Butterworths, London (1963).
67. Machowsky, M. Th., Mineral Matter in Coal, in "Coal and Coal-Bearing Strata" (D.C. Marchison, T.S. Estoll, Eds.), p.309-321, Oliver and Boyd Edinburgh and London (1968).

68. Nicholls, C.D., "Geochemistry of Coal Bearing Strata" in "Coal and Coal Bearing Strata" (D.C. Marchison and T.S. Westoll, Eds. P.269-307, Oliver and Boyd Edinburgh and London (1968).
69. Watt, J.D., "The Physical and Chemical behaviour of the mineral matter in coal under conditions met in combustion plant Part-I. The occurrence, origin, identity, distribution and estimations of the mineral species in British Coals", British Coal utilization Research Association, Literature Survey, 121p. Leatherhead Survey England (1968).
70. Francis, W., Coals its formation and composition, Edward Arnold Ltd., London, , pp.483-509.( 1954)
71. Given, P.H., Fuel, 55, 256 (1976).
72. Rao, C., Prasad, R, Gluskoter, H.J., Occurrence and distribution Minerals in Illinois Coal", Illinois State Geological Survey Circs., 476, 56pp (1973).
73. Goldschmidt, V.M., (a) Uber des Vorkommendes Germanium in Steinkohlen and Steinkohlen Production " Nachr des Wiss Göttingen, Meta Phys. Kl.3, pp 398-401 (1930) ; (b)The Principles of Distribution of Chemical Elements and rocks, J. Chem. Soc., London, pp.655-673 (1973).
- 74 .Goldschmidt, V. M. (a)Uber des Vorkommendes Germanium in Steinkohlen and Steinkohlen Production " Nachr des Wiss gottingen Mata Phys. Kl.3, pp 398-401m (1950) ; (b) Occurrence of Rare Elements in Coal Ashes, Progress in Coal Science Interior, New York, pp 238-247 (1950) (c) Geochemistry, Oxford, p 7308 (1954).
- 75 Horton, I., Aubrey, K.C., "The distribution of minor Elements in Vitrain. Three vitrains from the Bernsley Seam", J. Soc. Chem. Ind. London, 50 (Suppl. Issue 1), 541-548 (1950)
- 76, Zubovic, P., Stadnichanko, T., Sheffey, N.B., "The Association of Minor Elements with organic and Inorganic Phases of Coal", U.S. Geol. Survey, Prof. paper 400-B, B84-B87 (1960).
77. Zubovic , P. "Minor elements of coal from Illinois beds 5 and 6 and their correlation in Indians and Western Kentucky, U.S. Geol. Survey Open File Report, pp. 79 (1960).
- 78 Zubovic, P., Stadnichanko, T., Sheffey, N.B., "Distribution of Minor elements in Coal Beds of the Eastern Interior Region", US Geol. Survey Prof. Rep. 424D (Article 411), D345-D348 (1961).
79. Zubovic, P., Stadnichanko, T., Sheffey, N.B., "Distribution of Minor elements in Coal Beds of the Eastern Interior Region", US Geol. Survey, Bull. 1117B, pp. 41 (1964)

80. Zubovic., P. " Physico-Chemical Properties of Certain Minor elements as Controlling Factors for Their Distribution in Coal", Adv. Chem. Sct., 55, pp.221-246 (1966)
81. Kuhn, J.K., Fience, F.L., Cahill, R.A., Gluskoter, H.J. and Shimp, N.F., "Abundance of Trace and Minor Elements in Organic and Mineral Fractions of Coal", Illinois State Geological Survey, Environmental Geological Notes, 88, p.67 (1980).
- 82 Finkleman, R.B., "Modes of occurrence of Trace Elements in Coal", University of Meryland Dissertation (Ph.D. Chemistry Dept.), pp.302 also Geol. Survey open file report of 81-99 (1980).
83. Wert, C.A. and Hisch, K.C., "Mineral inclusion in Coal" in proceedings International Conference on Coal Science, Dusseldorf, Verlage Euchauf, GmbH, Essen, pp. 780-788 (1978)
84. Babu, S.P., Trace Elements in Fuel, Advances in Chemistry Series. 141 amer. Chem. Soc., Washington (1975).
85. Beusko, V., Geochemistry of Coal, Elsevier Scientific Publishing Company, Amsterdam (1981)
86. Lim, M.Y., Trace Elements from Coal Combustion Atmospheric Emission", Report No.ECT.IS.05, IEA Coal Research, London, May (1979).
87. Trace Elements in Coal Vol.I by Vlado Volkovic Institute Rudev Bosakovic Zagrel, Yugoslavia, p.57 (1986).
88. Torry, S., "Trace Elements in Coal", Noyes Data Corporation, USA (1973)
89. Miller, R. N. and Given, P. H. , A Geological Study of the Inorganic constituent in some low rank coals" Technical Report No.1, Coal Research Section, Pennsylvania State University, DOE contract Ex-76-C-Cl, 2494, pp - 314 (1978).
90. Fenton, J.J. and Hidalgo, R.U., Coal Ceol. , Bull.4, W est Virginia Geological Survey (WVGS), USA. (1975).
91. Libbuti, B.L., and Russenil, D., Preprints of the Fuel Division (1979).
- 92 Huggins, F.E. and Huffman, G.P., in "Analytical methods for coal and coal Products, Vol.III, Academic Press, New York, (1980).
93. Given, PH., Spakman, W., Davis, p., Cronauer, D.C., Loveilli, H.L. and Biswas, B., Fuel, 54, 34 and 40 (1978).
- 94, Mukherjee, D.K. and Chowdhury, P.B., *Ibid*, 55, 4, (1975).

95. Grenoff, B. and Troegar, R.K., *Fuel Processing Technology*, 15, (1979).
96. Grey, D., *Fuel*, 17, 213, (1978).
97. Illig, Z., : "Disposanle catalyst in coal liquefaction", I.C.S., Albuquerque, New Mexico (USA), (1978).
98. Monteno, P.A., Shah, V., Reddi, S. and Bommannava, A.C., in "New approaches in coal chemistry" (B.D. Blaustein, B.C. Bochratn and S. Frudman, Eds), ACS Symposium Series, 169, Am. Chem. Soc., Washington DC, pp.377-387d (1981).
99. Montano, P.A., *Fuel*, 56, 387 (1977).
100. Montano, P.A., "Characterisation of Iron bearing minerals in Coal" in "Coal Structure" edited by M. Gorbaty (Advances in Chemistry Series ACS (1980).
101. Mntano, P.A., in "Recent Chemical applications of the Mossbauer Effect", Edited by J.C. Stevens, G.R. Sheury, (Advances in Chemistry Series), ACS Washington DC (1981).
- 102 Montano, P.A. and Sohra, M.S., *Solid State Comm.* 897 (1976).
- 103 Montano, P.A. in "Magnetic Resonance, Introduction advanced topics and applications to fossil Energy Eds. L. petrokes and I.p. Fraissard pp.177 (1984).
104. Montano, P.a. and Grenoff, B., *Fuel*, 59, 214 (1980).
105. Franklin, H.D., "Mineral matter effects in coal pyrolysis and hydropyrolysis", Ph.D. Thesis, M.I.Y. Mossachusettes, USA (1980).
106. Franklin, H.D., Ph.D. Thesis (1980).
107. Franklin, H.D., Peters, W.A. and Howard, J.B. 'Effects of calcium minerals on the rapid pyrolysis of a bituminous coal', Am. Chem. Soc. Division of Fuel Chemistry, Preprints, 26(2), 121, (1981).
108. Mahajan, O.P. and Walker, P.L. Jr., "Effect of Inorganic Matter removed from coals and charts on their surface area", *Fuel*, 58, 333 (1979).
109. Tomita, A., Mahajan, O.P. and Walk, P.L., Jr. "Reactivity of beat treated coals in hydrogen", *Fuel*, 56, 137 (1977).
110. Walker, P.L. Jr., Shelf, M. and Enderson, R.A. in "Chemistry and Physics of Carbon (P.L. Walker Jr. Eds), Vol.4, "Marcel Dekker, New York, pp.287-380 (1968).
111. Estep, E.A., Kovac, J.J., Karr., C., Jr., "Quantitative infrared Multicomponent Determination of Minerals Occurring in Coals, *Anal. Chem.*, 40(2), 363-368 (1968).



- 112(a). Hippo, J. and Walker, P.L. Jr. *Ibid*, 54 , 245 (1975).
- 112(b). Jankins, R.G., Nandi, S.P. and Walker, P.L. Jr., *Fuel*, 52, 288 (1973).
- 113(a). Karr, C., Jr., Estep, R.A. and Kovac, J.J., *Chem. Ind. (London)* 9, 456-357, (1967).
- 113(b). Tomita, A., Mahajan, O.P. and Walker, P.L. Jr., "Catalysis of char gasification by minerals", *Am. Chem. Soc., Division of Fuel Chemistry, Preprints*, 22(1), 4(1977).
114. Lineoces – Solanon, A., Mahajan, O.P. and Walker, P.L. Jr., *Fuel*, 38, 327 (1979).
115. Mahajan, O.P., Tomita, A., Nelson, J.R. and Walker, P.L. Jr., *Ibid*, 56, 33 (1977).
116. Forney A.J., Meyers, W.P., Gosier, S.J., and Kennedy, R.T., "Effect of addition upon the gasification of coal in the synthetic gasifier:", *Amer. Che. Soc., Div. of Fuel Chemistry, Preprints*, 19(2), 111, (1974).
117. Otto, K., Bortosiorios, L., and Sholof, M., "Catalysis of carbon-steam gasification by ash components from lignites", *Fuel*, 58, 85, (1979)
118. Huttinger, jJ and Krauss, W., *Ibid.*, 43, 93 (1981).
119. *Idem.*, *Ibid*, 61, 291 (1982).
120. Hesteed, D., *Proceedings of the international Conference on Coal Science, Düsseldorf, Verlag Gluckouf GmbH, Essen, (Germany) (1981).*
121. Suzuki, Ts. Iwasaki, J., Konno, H. and Yomada, T., Effect of demineralization on the hydrogasification reactivity of Iron-loaded birth char, *Fuel*, 74, 2, pp. 173-178 (1995).
122. Hsu, G.C., Kalvinakos, J.J., Gangoli, P.S., and Gavalas, G.R., "Coal desulphurization by low-temperature chloronolysis", in 'Coal Desulphurization by Chemical and Physical Methods', T.D. Wheelock, Ed., ACS Symposium Series 64, Amer. Chem. Soc., Washington, D.C., 00.206-207, (1980)
123. Kalvinakos, J.J., and Hsu, G.C., "Coal desulphurization process by low-temperature chloronolysis", in *Proceedings of Symp. "On Coal Cleaning to achieve Energy and Environmental Coals"*, Sept. (1978), Hollywood, Florida, USA), Vol. H/SE, Rogers and A.W., London, (1979).
124. Schultz, H., Hattman, E.A. and Booker, W.B. in "Trace Elements in Fuel (S.P. Babu ed.)", *Advances in Chemistry series*, 141, Amer. Chem. Soc. Washington DC, T.P. 139-153 (1975).

125. Tripathi, P.S.M., Singh J., Ram, L.C. and Rao, S.K., *J. Mines, Metals, and Fuel*, pp.293-296 May-June (1986).
126. Tripathi, P.S.M., Singh, J., Ram, L.C. and Rao, S.K., "Distribution Pattern of Trace Elements During Fluidized Bed vis-à-vis Pulverised Fuel combustion of Singreni Coal", *Ind. J. Tech.* 26(7), 339-343 (1988).
127. Given, P.H., Miller, R.N. Suhr, N. and Spackman, W., in *Trace elements in Fuel* (S.P.Babu, Ed), *Advances in Chemistry Series 141*, Am. Chem. Soc., Washington, DC, pp.188-199 (1975).
128. Shiraji A.R. and Lindquist, O., An improved method of preserving and extracting mineral matter from coal by very low temperature ashing (VLTA) *Fuel*, 72, Jan. pp. 125-130 (1993)
129. Shiraji, A.R., Bortin, O. Eklund, L., and Lindquist, O., "The impact of mineral matter in coal on its combustion, and a new approach to the determination of the calorific value of coal", *Fuel*, 74, 2, pp.247-251, (1995)
130. Maes, Inge. I, Gryglewicz. G.Y. Perman, J., Franco, D.V., Mullens, J., and Van Poucke, L.C., Effect of calcium and calcium minerals in coal on its thermal analysis, *Fuel*, 76,2, pp. 143-147 (1997)
131. Vassilev. S.V., Kitano, K., Takeda, S. Tsurue, T., Influence of mineral and chemical composition of coal ashes on their fusibility, *Fuel Processing Technology*, 45, 27-51 (1995).
132. Monzoori, A.R. and Agrawal, P.K. "The role of Inorganic matter in coal in the formation of agglomerates in circulating fluid Bed combustion", *Fuel* 72, 7, pp. 1069-1075 (1993).
133. Clark, L.B., The fate of trace elements during coal combustion and gasification: an overview, *Fuel*, 72, 6, pp. 731-735 (1993).
134. Tarazona, M.R.M., and Spears, D.A., The fate of trace elements and bulk minerals in pulverized coal combustion in a power station., *Fuel Processing Technology*, 47, pp. 79-92, (1996),
135. Garcia, A.B. and Martinez-Tarazona, M.R., Removal of Trace elements from Spanish coals by flotation, *Fuel*, 72, pp.329-335, (1993).
136. Sagar, M., Determination of arsenic, cadmium, mercury, stibium, thalium and zinc in coal and coal fly ash. *Fuel* 72, 9, pp. 1327-1330, (1993)
137. Chow. W., Miller, M.J., Torrens, I.M., Path ways of trace elements in power plants : interim research results and implications., *Fuel Processing Technology*, 39 (113) p. 5-20 (1994)

138. Swaine, D.J., Trace elements in coal and their dispersal during combustion. *Fuel Processing Technology*, 39, (113), p. 121-137 (1994)
139. Meij, R. Trace element behaviour in coal-fired power plants., *Fuel Processing Technology*, 39 (113), p. 199-217, (1994)
140. Helble, J.J., trace element behaviour during coal combustion, results of a laboratory study, *Fuel Processing Technology*, 39 (113) p. 159-172 (1994)
141. Crowley, S.S., Stainton R.W., Ruppert, L.F., Air toxics in coal, the distribution of twelve trace elements in a thick, sub-bituminous coal bed and impact on mining applications. *Jour. Of Coal Quality*, 12(4), p. 141-146 (1993).
142. Palmer, C.A., Crasnow, M.R., Finkelman, R.B., D' Angelo, W.M., An evaluation of leaching to determine modes of occurrence of selected toxic elements in coal., *Jour. of Coal quality*, 12(4). P. 135-141 (1993).
143. Wong, A.S., Robertson, J.D., Multi—elemental analysis of coal and its by-products by simultance proton induced gamma ray, X-ray emission analysis, *Jour. of Coal Quality*, 12(4) p. 146-150 (1993).
144. Polyak, K., Bodog, I., Heavy, j., Determination of chemical species of selected trace elements in fly ash:, . *Talanta*, 41(7) p. 1151-1159 (1994)
145. Finkelman, R.B., "Modfes of occurance of potentially hazardous elements in coal : level of confidence", *Fuel Processing Technology*, 39 (113) p. 21-34 (1994).
146. Devito, M.S., Rasendale, L.W., Conrad, V.B., "Comparison of trace element contents of raw and clean commercial coals". *Fuel processing Technology*, 39, (113), P. 87-106, (1994).
147. Strach, H., Mackswosky, N.T., Teichmueller, N., Taylor, G.H., Chandra, D., and Teichmueller, R., "Coal Petrology", Borntraeger, Berlin (Germany), (1975).
148. Huffman, G.P. and Huggins, F.E. in "The chemistry of low rank coals", ed. H.H. Schobert, Am. Chem. Soc., Washington, pp.159 (1984).
149. Huggings, F.E., Huffman, G.P. and lim, H.C. *Int. J. Coal geol.*, 3, 157 (1983).
150. Huffman, G.P., Huggin, F.E. and Dummyre, C.R., *Fuel*, 60, 585 (1981).
151. Huffman, G.P., Huggins, F.E., *Fuel*, 57, 592 (1978).60, 585 (1981).
152. Huffman, G.P., Huggins, F.E., *Fuel*, 57, 592 (1978).
153. Monteno, P.A., Shah, V., Reddi, S. and bommannava, A.C., in "New approaches in coal chemistry" (B.D. Blaustein, B.C. Bochratn and S.

- Frudman, Eds), ACS Symposium Series, 169, Am. Chem, Soc., Washington DC, pp.377-387d (1981).
154. Montano, P.A., *Fuel*, 56, 387 (1977).
  155. Montano, P.A., "Characterisation of Iron bearing minerals in Coal" in "Coal Structure" edited by M. Gorbaty (Advances in Chemistry Series ACS (1980).
  156. Montano, P.A., in "Recent Chemical applications of the Mossbauer Effect", Edited by J.C. Stevens, G.R. Sheury, (Advances in Chemistry Series), ACS Washington DC (1981).
  157. Montano, P.A. and Sohra, M.S., *Solid State Comm.* 897 (1976).
  158. Montano, P.A. in "Magnetic Resonance, Introduction advanced topics and applications to fossil Energy" Eds. L. petrokes and I.p. Fraissard pp.177 (1984).
  159. Montano, P.A. and Grenoff, B., *Fuel*, 59, 214 (1980).
  160. Montano and Bommannaver, A.S., *J. Molec. Catal.*, 20, 893 (1983).
  161. Cashion, J.D. Naguir, B and Kiss, in "Mossbauer Spectroscopy and its chemical applications", ed. I.C. Stevens and C.K. Shenoy (Am. Chem. Soc., Washington, pp.209 (1981).
  162. Traver, L.A., Liken, John, D., Cashion and Alfred, C., *Ottrey, Fuel*, 63, 1269 (1984).
  163. Williamson, D.L., Goettinger, T.W., and Dickerhoof, D.W., "Quantitative Investigation of Coal : Applicatiins of Moessbauer Spectroscopy", *Advances in Chemistry Series*, (1980).
  164. Levinson, L.M. and Jacobs, I.S., *Fuel*, 56, 453, (1977).
  165. Jacobs, I.S., and Levinson, L.M., and Hart, H.R., Jr., *J. App. Phys.*, 59(3), 1775, (1978).
  166. Brown H.B., Durie, R.A., and Andres, G.I., "Investigations into problems associated with the combustion of Hornwell Brown Coal", *CSIRO Division of Coal,, Research Report, Reference No.170*, (1981) .
  167. Hin-ckley, C.C., Smith, G.N., Twardoska, H., Soporochenco, M., Shiley, H., and Griffin, R. D., *Fuel*, 59(6), (1981).
  168. Tripathi, P.S.M., Ram, L.C., and Rao, S.K. Erdol and Kohle Erdgos, *Petro-Chemie*, 39(10), 470-71 (1986).

169. Tripathi, P.S.M., Ram, L.C., Jha, S.K. and Rao, S.K., "Mossbauer Spectroscopic Investigations on the Transformations During Fluidized bed combustion of iron bearing minerals Present in a m.v. Bituminous coal and carbonaceous coal shale" in 'Advances in Coal chemistry' (N.P. Bassilakos, ed.) Theophrastus publications, Athens (Greece) pp307-319 (1988).
170. Gluskoter, H.J., "Electric Low Temperature Ashing of Bituminous Coal", Fuel, 64, 285-91 (1965)
171. Gluskoter, H.J., "Clay Minerals in Illinois Coals", J. Sedimentary Petrology, 37(1), 205-214, (1967).
172. Grauer, F.M., and Belcher, G.B., "Quantitative determination of the mineral matter content of the coals by low temperature ashing", Fuel, 52, 42-45, (1973).
173. Miller, A.N., Yarab, R.F., and Given, P.H., "Determination of the mineral matter content of coals of low temperature ashing", *Ibid.*, 58(1), 4-10, (1979).
174. Estep, F.A., Kovich, J.J., and Karro, Jr., "Quantitative Infra-red multi-component determination of minerals occurring in coal", Anal. Chem., 40(2), 356-363, (1968).
175. Wolfe, D.P., The combustible mineral matter in the Pawnee coal bed, Pawnee River Valley, Montano. M.S. Thesis, Montano College of Minral Science and Technology, (1968).
176. Russell, S.J., and Rimmer, S.M., "Analysis of mineral matter in coal, coal gasification ash, and coal liquefaction residues by Scanning Electron Microscopy and X-Ray Diffraction". In Physical Methods for Coal and Coal Products (Clarence Karr, Jr., Ed.), Vol.III, Academic Press New York, 90 pp., (1979).
177. Belcher, R.R., Uditto, H.W., and Spicman, W., "Chemical ash distribution in coal components - Use of the Electron Probe", Proc. 22<sup>nd</sup> Transmaking Conference, Iron and Steel Division, Metallurgical Section, American Inst. Mining Engg., New York, 463-483, (1964).
178. Warne, S. St. J., "The detection and identification of the silica minerals, quartz, chalodoxy, agate, and opel.", In Differential Thermal Analysis, J. Inst. Fuel, 38(292), 207-217, (1965).
179. Warne, S. St. J., "Identification and evaluation of minerals in coal by Differential Thermal Analts, the silica minerals, quartz, chalodoxy, agate, and opel.", In Differential Thermal Analysis, J. Inst. Fuel, 43(354), 340-342, (1970).

180. Voino, S.J. and Todor, D.N., "Thermal Analysis of Coal and Coal Ashes". In *Analytical Methods of Coal and Coal Products*, Clarence Harr Jr., Ed., Vol.II, Academic Press, New York, pp.619-648, (1978).
181. Huggins, F.E., and Huffman, G.P., "Moessbauer Analysis of iron-bearing phases in coal, coke, and Ash", in *Analytical Methods for Coal and Coal Products*, Clarence Karr, Jr., Ed, Vol.III, Academic Press, pp. 371-423, (1979).
182. Lee, R.J., Huggins, F.E., and Huffman, G.P., "Correlated Moessbauer-S.E.M. Studies of Coal Mineralogy", *Scanning Electron Microscopy*, Vol.I, 561-568, (1978).
183. Mc Cartney, J.T. and Ergun, S., "An Automated Reflectance Scanning Electron Microscope system for study of coal components - Application to the Analysis of Pyrite Distribution", US Bureau of Mines, Unpublished Data (1981).
184. Majumdar, S.K., *FRI News* 18, 196 (1968).
185. Majumdar, S.K., Annual brochure of the Dept. of Applied Chemistry, Calcutta University (1979).
186. Majumdar, S.K., and Mitra, B., "Inorganic Constituents in Indian Lignites", *J. Min. Met. and Fuels*, No.6/2, 202-208, (1974).
187. Majumdar, S.K., and Banerjee, N.G., "Mineral Matter in South Arcot lignite" : Part:I, *Brenestoff Chemie*, 40, 160, (1969).
188. Majumdar, S.K., and Banerjee, N.G., "Mineral Matter in South Arcot lignite" : Part:II, *Brenestoff Chemie*, 41, 26, (1970).
189. Majumdar, S.K., and Mitra, B., "Inorganic Constituents in South Arcot Lignites", *Ibid.* , No.8/5, 310-37, (1976).
190. Kanjilal, K.K., Mukherjee, D.K. and Moitra, A.K. (Sr.), *Ind. J. Tech.* 6, 117, (1968).
191. Kanjilal, K.K., Mukherjee, N.L., Banerjee, N.G. and Moitra A.K. (Sr.) *Ind. J. Tech.* 2, 174, (1964).
192. Hicks, Dk. And Nagelschmidt, G., *Min. Mag.* 16, 297, (1963).
193. Radmacher, N. and Morbauer, P., *Brentstofs, Chemie*, 236 (1955).

194. Sen, P. and Roy, A.N., *J. Min. Met. Fuel* 10,7, (1962).
195. Bhattacharya, A., *Science and Culture* 33, 530 (1967).
196. Chakraborty, S.R., Sinha, A.K. and Banerjee, N.G., *J. Min. met. And Fuel*, 33, 361 (1969).
197. Mitra, G.B., *Fuel* 33, 316 (1954).
198. Mitra, G.B., *J. Sci. Ind. Res.* 98, 133 (1960).
- 199 Mahajan, O.P. , "Presence of clay minerals in some Jharia Coals and their different gravity fractions using derivatography and X-ray diffraction techniques". *Ind. J. Tech.* 7, 143, (1969).
200. Mukherjee, S.N., "Nature and composition of clay minerals in coal and their changing pattern with reference to coal Metamorphism", Ph.D. Thesis, I.S.M. Dhanbad (India) (1980).
201. Mujherjee, S.N., Nag, A.K., and Majumdar, S.K., *J., Min. Met. and Fuels*, 12, 363, (1972).
- 202 Bhan, C., Raj, D., "Moessbauer Spectroscopic Studies of Some Indian Coal Samples", *Proc. Int. Conf. on the Appllications of Moessbauer Effect ICAME*), Jipur (India), pp. 270-280, December (1981).
203. Tripathi, P.S.M., Ram, L.C. and Jha, S.K., "Mossbauer spectroscopic investigations on the characterization of iron bearing minerals in coal, coal mine rejects and coal washery rejects and their transformation during fluidized bed combustion", in ;*Advances in Coal Chemistry* (N.P. Vasilakos, Ed.), Theophrastus Publications, Athens, Greece, pp.307-319, (1988).
204. Mukherjee, B., *Fuel*, 29, 254, (1960).
205. Mukherjee, B. and Mitra, B., *Ibid.* 29,190 (1960).
206. Benerjee, N.N., Rao, H.S. and Lahiri, A., *Indian J. Technol.*, 12,8,353 (1974).
207. Ghosh, B., Biswas, D. and Banerjee, N.N., *Indian J. Technool*, 17, 61 (1979).
208. Ganguli, N.C. and Dutta, D.P., *J. Sci. Industr. Res.* 158, 327 (1966).
209. Ghosh, B., Das, M.C., Ghosh, S.B. and Banerjee, N.N., "Vanadium in Indian Coals", *Ind. J. Tech.* 25, pp. 467-470 (1987).

210. Ghosh, S.B., Das, M.C., Ghosh. B. and Banerjee, N.N., Trace elements of Indian Coals and Environmental pollution from its combustion in Thermal Power Stations, presented in All India Seminar on Coal Technology, BHEL, Trichy (1988).
211. Ghosh, S.B., Das, M.C., Ghosh. B., Roy, R.R.P. and Banerjee, N.N., Mercury in Indian Coals', Ind. J. of chemical Technology, 1, pp. 237-240 (1994).
212. Purkayastha, B.C. and Saha, S.R., Indian J. Appl. Chem., 25, 1, 20 (1962).
213. Sen, P. and Roy A.N., J. Sci. Indus, Res. 17, 7. 282 (1958).
214. Majumdar, S.K., FRI News 18, 196 (1968).
215. Majumdar, S.K., Annual brochure of the Dept. of Applied Chemistry, Calcutta university (1979).
216. Moiz. A. and Ramanna, Rao, N., J. Min. Met., Fuels, 24, 2, 63 (1976).
217. Moiz, A. and Ramanna, N., Proc. Symp. On Coal Science and Technology, Nagpur, 65; (1968).
218. (a) Ramanna, Rao, N. Rizvi, S.K., J. Indian. Geol. Soc. Assan. 10 75, (1969).  
(b) Saikia, B.K. Borah, R.K., Gogol, P.K., "X-ray (Radial Distribution Function) and FT-ir Analysis of High-Sulphur Tirap (India) Coal, J. Energy Institute, 82, 106 - 108 (2009).  
(c) Baruah, B.P., Saikia, B.K., Kotky, P., and Rao, P.G., Energy & Ful, 20, 1550 - 1555, (2006).  
(d) Batuah, M.K., P. Kotky, and Borah, G.C., Ful, , 82, 1863-1791, (2003).  
(e) Arora, V., Jha, V., Bandopadhyya, P., and Kumar, S., J. Environmental Management, 78, 392-304 (2006)  
(f) Huggins, F.E., "Overview of Analytical Methods for Inorganic Constituents of Coal", Int. J. Coal Geology, 30, 169-214m (2002).  
(g) Ghosh, R., Majumdar, T., and Ghosh, D., "A study of of trace elements in Lithotypes of some selected Indian coals". Int. J. Coal Geology, 8, 269-278, (1987).



219. Tripathi, P.S.M., Singh, J., Ram, L.C., and Rao, S.K., *J. Mines, Metals and Fuels*, pp.293-296 May-June (1986).
220. Sen, S. – A new model of coal seam formation vis-a vis Banded structure and distribution of Argillaceous minerals in coal seam, in “proceedings of the Int. Symp. Coal’96, CFRI Nov. (1996),
221. Sagar, M., Determination of arsenic, cadmium, mercury, stibium, thalium and zinc in coal and coal fly ash. *Fuel* 72, 9, pp. 1327-1330, (1993).
222. Menon, R., Bharat, G.K., Khanwalkar, S.R., Parajpe, V.P., Jalgaonkar, R.D. & Shay, R.K., “Beneficiation of non-coking coals for power generation”, in Proc. Symposium on Coal Science and Technology, ICT, Hyderabad (1993).
223. Whiteker, J.W., *Trans. MGMI*, 65(3), 113 (1949).
224. I.S.I. Bulletin 436, (Part I) (1964).
225. I.S. – 1350 (Part V) (1979).
226. I.S. – 4311 (1967).
227. I.S. - 1355 (1984).
228. I.S. – 1350, (Pt. IV, Sec.I) (1974).
229. I.S. – 5305 (1969).
230. I.S. – 1350 (1959).
231. I.S. – 1350 (Pt. II) (1970).
232. I.S. – 1350 (Pt. IV, Sec. II) (1975).
233. I.S. – 1351 (1959).
234. I.S. – 1353 (1959).
235. Hicks, D., and Nagelschmidt, G., *Min. Engg.*, 26, 137, (1943).
236. I.S.I. Specification No.1355, (1959).
237. Brown, G., “X-ray identification and crystal structure of clay and minerals”, *ineralogical Society, London*, (1975).
238. Pallik, F.J., Pallik, J., and Brodey, Th., *J. Anal. Chem.*, 160, 24, (1958).

239. Smothers, W.J. and Chinong, Y., "Differential Thermal Analysis", Chemical Publishing Inc., New York (1958).
240. Gern, D.P., "Thermo Analytical Methods of Investigation", Academic Press, London / New York, (1965).
241. Macherzin, R.C., "The Differential Thermal Investigations of Clays", Mineral Society, London, (1967).
242. Finkelman, R.B., "Determination of Trace Elements in the Weynosburg coal by SEM analysis of accessory minerals", U.S. Geological Survey, Scanning Electron Microscopy, Vol.I, pp.143-149, (1978).
243. Finkelman, R.B., "Determination of Trace Element Sites in the Weynosburg coal by SEM analysis of accessory minerals", U.S. Geological Survey, Scanning Electron Microscopy, Chemical Abstracts, Vol.91, no.13641 C, (1978).
244. Koenig, J., Applied Spectroscopy, 29, 283-309, (1975)
245. Montano, P.S., Preprints, American Chemical Society, Div. of Fuel Chemistry, 24, 218, (1979).
246. Williamsim, D.L., Goettinger, Y.W., and Dicker Hoff, Amer. Chem. Soc., Advances in Chemistry Series, Hoiston, USA, , (1990).
247. Toad, S.C., "Fundamentals of Coal Beneficiation and Utilization, Coal Science and Technology", 2, Elsevier Scientific Publishing Company, New York, pp.226-27 and 232-234, (1982).
248. Mackenzie, A.C. (Ed.), "Differential Thermal Analysis", Vol.I : Fundamental Aspects", Academic Press, London/New York, (1970).
249. Mackenzie, A.C. (Ed.), "Differential Thermal Analysis", Vol.II : Applications", Academic Press, London/New York, (1972).
250. Smyketakloss, W., "Differential Thermal Analysis : Applications and Results in Mineralogy", Springer Verlag, Berlin (Germany) and New York (USA), (1974).
251. Voino, S.J. and Todor, D.N., "Thermal Analysis of Coal and Coal Ashes". In Analytical Methods of Coal and Coal Products, Clarence Harr Jr., Ed., Vol.II, Academic Press, New York, p. 627, (1978).
252. Mackenzie, A.C. (Ed.), "Differential Thermal Analysis", Vol.I, Academic Press, London/ New York, pp. 501-508, (1970).
253. Johns, W.D., and Jones, S.C., J. Geol., 62(3), 163, (1954).

254. Ghosh, P.K., "The environment of coal formation in the Peninsular Gondwana Basins of India", In ;Gondwana Geology;, Ed. K.S.N. Campbell), Australia National University Press, Canberra, pp. 221-31, (1957).
255. Brown, J.C. and Roy, A.K., : "The mineral and nuclear fuels of the Indian Sub-continent and Durino", Oxford University Press, Delhi. (1975)

\*\*\*\*\*