

REFERENCES

- http://www.osha.gov/OshDoc/data_General_Facts/ethylene-oxide-factsheet.pdf.
- <http://www.dow.com/ethyleneoxide/news/20050405b.htm>.
- <http://www.en.wikipedia.org/wiki/Plasma>.
- Bhasin, M.M. (1988). Catalyst composition for oxidation of ethylene to ethylene oxide. US Patent 4,908,343.
- Bröer, S. and Hammer, T. (2000). Selective catalytic reduction of nitrogen oxides by combining a non-thermal plasma and a V_2O_5 - WO_3 / TiO_2 catalyst. Applied Catalysis B: Environmental, 28(2), 101-111.
- Campbell, C.T., and Paffett, M.T. (1984). The role of chlorine promoters in catalytic ethylene epoxidation over the Ag(110) surface. Applied Surface Science, 19(1), 28-42.
- Campbell, C.T., and Koel, B.E. (1985). Chlorine promotion of selective ethylene oxidation over Ag(110): Kinetics and mechanism. Journal of Catalysis, 92(2), 272-283.
- Campbell, C.T. (1986). Chlorine promoters in selective ethylene epoxidation over Ag(111): A comparison with Ag(110), Journal of Catalysis, 99(1), 28-38.
- Chang, J.-S., Lawless, P.A., and Yamamoto, T. (1991). Corona discharge processes. IEEE Transactions on Plasma Science, 19(6), 1152-1166.
- Eliasson, B., Hirth, M., and Kogelschatz, U. (1987). Ozone synthesis from oxygen in dielectric barrier discharge. Journal of Applied Physics, 20, 1421-1437.
- Eliasson, B., and Kogelschatz, U. (1991). Nonequilibrium volume plasma chemical processing. IEEE Transactions on Plasma Science, 19(6), 1063-1077.
- Epling, W.S., Hoflund, G.B., and Minahan, D.M. (1970). Study of Cs-promoted, α -alumina-supported silver, ethylene-epoxidation catalysts. Journal of Catalysis, 171(2), 490-497.
- Geenen, P.V., Boss, H.J., and Pott, G.T. (1982). A study the vapor-phase epoxidation of propylene and ethylene on silver and silver-gold alloy catalysts. Journal of Catalysis, 77, 499-510.

- Goncharova, S.N., Paukshtis, E.A., and Bal'zhinimaev, B.S. (1995). Size effects in ethylene oxidation on silver catalysts: influence of support and Cs promoter. Applied Catalysis A: General, 126, 67-84.
- Harndumrongsak, B., Lobban, L.L., Rangsunvigit, P., and Kitiyanan, B. (2002). Oxidation of ethylene in plasma environment. Proceeding of the 9th APCCHE Congress in Christchurch, New Zealand 29 September – 3 October 2002.
- Harndumrongsak, B. (2002). Oxidation of Ethylene in a Plasma Environment. M.Sc., Thesis, Chulalongkorn University, Bangkok.
- Heintze, M., and Pietruszka, B. (2004). Plasma catalytic conversion of methane into syngas: the combined effect of discharge activation and catalysis. Catalysis Today, 87, 21-25.
- Hermstein, W., Archiv Fur Electrotech., vol. 45, pp. 209-279, 1960.
- Holgado, M.J., Inigo, A.C., and Rives, V. (1998). Effect of preparation conditions on the properties of highly reduced Rh/TiO₂ (anatase and rutile) catalysts. Applied Catalysis A: General, 175(1-2), 33-41.
- Horvath, M. (1980), The Netherlands, Ozone, Elsevier Science.
- Iwakura, G. (1985). A novel silver catalyst prepared by using superheated-steam as a heating medium for ethylene oxide production. Japan Patent 63-126552.
- Jankowiak, J.T., Barteau, M.A. (2005). Ethylene epoxidation over silver and copper-silver bimetallic catalysts: I. Kinetics and selectivity. Journal of Catalysis, 236(1), 366-378.
- Jankowiak, J.T., and Barteau, M.A. (2005). Ethylene epoxidation over silver and copper-silver bimetallic catalysts: II. Cs and Cl promotion. Journal of Catalysis, 236(1), 379-386.
- Jeong, J.Y., Park, J., Henins, I., Babayan, S.E., V.J., Tu, Selwyn, G.S., Ding, G., and Hicks, R.F. (2000). Reaction chemistry in the afterglow of oxygen-helium, atmospheric-pressure plasma. Journal of Physical Chemistry A, 104(34), 8072-8032.
- Jun, Y., Jingfa, D., Xiaohong, Y., and Shi, Z. (1992). Rhenium as a promoter ethylene epoxidation. Applied Catalysis, 158, 363-377.

- Kilty, P.A., Rol, N.C., and Sachtler, W.M.H. (1973). The activity and selectivity of oxygen atoms adsorbed on a Ag/ α -Al₂O₃ catalyst in ethene epoxidation. Catalysis Letters, 99(1-2), 45-53.
- Kondaries, D.I., and Verykios, X.E. (1996). Interaction of oxygen with supported Ag-Au alloy catalysts. Journal of Catalysis, 158, 363-377.
- Law, G.H., and Chitwood, H.C. (1942). Catalyst Composition for Oxidation of Ethylene to Ethylene Oxide. US Patent 2,279,470.
- Liu, Ch., Marafee, A., Mallinson, R.G., and Lobban, L. (1997). Methane conversion to higher hydrocarbons in a corona discharge over metal oxide catalysts with OH groups. Applied Catalysis, 164(1-2), 21-33.
- Kraus, M., Ph.D. Thesis, Swiss Federal Institute of Technology, Zurich, 2001.
- Kruapong, A. (2000). Partial oxidation of methane to synthesis gas in low temperature plasmas. M.Sc., Thesis, Chulalongkorn University, Bangkok.
- Malik, M.A. and Malik, S.A. (1999). Catalyst enhanced oxidation of VOCs and methane in cold-plasma reactors. Platinum Metal Review, 43(3), 109-113.
- Mao, C.F., and Vannice, M.A. (1995). High surface area α -aluminas: III. Oxidation of ethylene, ethylene oxide, and acetaldehyde over silver dispersed on high surface area α -alumina. Applied Catalysis A: General, 122, 61-76.
- McQuarrie, D.A., Rock, P.A. (1987). General Chemistry, New York, Freeman.
- Nasser, E. (1971). Fundamentals of Gaseous Ionization and Plasma Electronics, USA: John Wiley & Sons, Inc.
- Patiño, P., Roperó, M., and Iacocca D. (1995). Reactions of O(³P) with aromatic compounds in liquid phase. Plasma Chemistry and Plasma Processing, 16(4), 563-575.
- Patiño, P., Hernández, F.E., Rondón, S. (1995). Reactions of O(³P) with secondary c-h bonds of saturated hydrocarbons in nonequilibrium. Plasma Chemistry and Plasma Processing, 15(2), 159-171.
- Patiño, P., Sánchez, N., Suhr, H., Hernández, N. (1999). Reactions of nonequilibrium oxygen plasmas with liquid olefins. Plasma

Chemistry and Plasma Processing, 19(2), 241-254.

- Roatluechai, S., Chavadej, S., and Schwank, J. (2001). Effect of Au on Ag catalysts: selective oxidation of ethylene. Proceedings of the 6th World Congress of Chemical Engineering, Melbourne, Australia.
- Rojluechai, S., chavadej, S., Schwank, J.W., and Meeyoo, V. (2006). Catalytic activity of ethylene oxidation over Au, Ag and Au-Ag catalysts: support effect. Catalysis Communication, 8, 57-64.
- Rojluechai, S., chavadej, S., Schwank, J. W., and Meeyoo, V. (2006). Activity of ethylene epoxidation over high surface area alumina support Au-Ag catalysts. Journal Chemical Engineering of Japan, 39(3), 321-326.
- Rosacha, L.A., Anderson, G.K., Bechtold, L.A., Coogan, J.J., Heck, H.G., Kang, M., McCulla, W.H., Tennant, R.A., and Wantuck, P.J. (1993). Treatment of hazardous organic wastes using silent discharge Plasmas. Non-Thermal Plasma Technique for Pollution Control, NATO ASI series, 34, part B, 128-139.
- Saktrakool, K. (2003). Oxidative Removal of Ethylene in a Multistage Plasma Reactor in the Presence of TiO₂. M.Sc., Thesis, Chulalongkorn University, Bangkok.
- Satterfield, C. N. (1991). Heterogeneous Catalysis in Industrial Practice. New York: McGraw-Hill.
- Seyedmonir, S.R., Plischke, J.K., Vannice, M.A., and Young, H.W. (1990) Ethylene oxidation over small silver crystallites. Journal of Catalysis, 123(2), 534-549.
- Suga, Y., Sekiguchi, H. (2005). Epoxidation of carbon double bond using atmospheric non-equilibrium oxygen plasma. Thin Solid Films, 506-507, 427-431.
- Suhr, H. (1983). Application of nonequilibrium plasmas in organic chemistry. Plasma Chemistry and Plasma Processing, 3(1), 1-61.
- Suhr, H., Schmid, H., Pfeundsuh, H., and Lacocca, D. (1984). Plasma oxidation of liquids. Plasma Chemistry and Plasma Processing, 4(4),

285-295.

- Suhr, H. and Pfreundschuh, H. (1988). Reactions of nonequilibrium oxygen plasmas with liquid olefins. Plasma Chemistry and Plasma Processing, 8(1), 67-74.
- Sutthiruangwong, S. (1999). Plasma Catalytic Production of Methanol. M.Sc., Thesis, Chulalongkorn University, Bangkok.
- Tan, S.A., Grant, R.B., and Lambert, R.M. (1986). Chlorine-oxygen interactions and the role of chlorine in ethylene oxidation over Ag(111). Journal of Catalysis, 100(2), 383-391.
- Tezuka, M., and Yajima, T. (1996). Oxidation of aromatic hydrocarbons with oxygen in a radiofrequency plasma. Plasma Chemistry and Plasma Processing, 16(3), 329-340.
- Tories, N., and Verikios, X.E. (1987). The oxidation of ethylene over silver-based alloy catalysts: 3. Silver-gold alloys. Journal of Catalysis, 108, 161-174.
- Viriyasiripongkul, S. (2000). Oxidative Coupling of Methane to Higher Hydrocarbons over Zeolite in AC Electric Discharges. M.Sc., Thesis, Chulalongkorn University, Bangkok.
- Yan, K., Hui, H.; Cui, M., Miao, J., Wu, X., Bao, C., and Li, R. (1998). Corona induced non-thermal plasmas: fundamental study and industrial applications. Journal of Electrostatics, 44(1), 17-39.
- Yeung, K.L., Gavriilidis, A., Varma, A., and Bhasin, M.M. (1998). Effects of 1, 2 dichloroethane addition on the optimal silver catalyst distribution in pellets for epoxidation of ethylene. Journal of Catalysis, 174(1), 1-12.
- Yong, S.Y., Kennedy, E.M., and Cant, N.W. (1991). Oxide catalysed reactions of ethylene oxide under conditions relevant to ethylene epoxidation over supported silver. Applied Catalysis, 76(1), 31-48.

CURRICULUM VITAE

Name: Mr. Anothai Tansuwan

Date of Birth: April 25, 1982

Nationality: Thai

University Education:

2000-2004 Bachelor Degree of Materials Engineering, Faculty of Engineering, Kasetsart University, Bangkok, Thailand.

Working Experience:

Apr 2004-Apr 2005

Position: Management Trainee

Company name: Sahaviriya Steel Industries PCL