

BAB IX

KESIMPULAN DAN DISKUSI

Polylimonene carbonate merupakan suatu polimer baru hasil reaksi dari limonen oksida dan karbondioksida dengan bantuan katalis BDI-Zinc acetate. Polimer ini memiliki karakteristik yang mirip dengan polistirena. Dan diharapkan polimer ini dapat digunakan sebagai pengganti polistirena yang merupakan salah satu fraksi dari minyak bumi , dimana persediaan minyak bumi di dunia semakin lama semakin menipis.

Pabrik *polylimonene carbonate* ini rencana didirikan di daerah Pandaan, Jawa Timur dengan kapasitas 514.500 kg/tahun dengan total investasi yang dibutuhkan sebesar Rp 187.920.337.539,36. Dari analisa ekonomi dapat disimpulkan bahwa pabrik ini tidak layak didirikan. Hal ini dikarenakan harga bahan baku dan biaya utilitas jauh melebihi biaya penjualan, sehingga pabrik selalu mengalami kerugian.



DAFTAR PUSTAKA

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- [1] Brownell, L.E. and Young, E.H. (1959) Process Equipment Design - Vessel Design, John Wiley and Sons Inc, New Delhi.
- [2] Byrne, M.C., Allen, D.S. and Coates, W.G. (2004) Alternating Copolymerization of Limonene Oxide and Carbon Dioxide. *Journal American Chemical Society* 126, 11404-11405.
- [3] C.J, G. (2003) Transport Process and Unit Operations, Prentice Hall, Inc, New Jersey.
- [4] Fried, J.R. (2003) Polymer Science and Technology, Prentice Hall, United State of America.
- [5] Gareth, D.E. (1989) Chemical Engineering Economics, Van Nostrand Reibhold, New York.
- [6] Geankoplis, C.J. (2003) Transport Process and Unit Operations, Prentice Hall, Inc , New Jersey.
- [7] Ghosh, P. (1990) Polymer Science and Technology, Tata McGraw-Hill, New Dehli.
- [8] http://en.wikipedia.org/wiki/Carbon_dioxide.
- [9] <http://ptcl.chem.ox.ac.uk/MSDS/CI/1>, - c.h.
- [10] <http://pubs.acs.org/cen/coverstory/85/8518cover.html>.
- [11] http://www.bexi.co.id/images/_res/riset%20-%20kajian%20plastik.pdf.
- [12] <http://www.combicchemistry.com/cross-linked-polystyrene.html>.
- [13] <http://www.elmhurst.edu/~chm/vchembook/214organicchain.html>.
- [14] <http://www.isis.rl.ac.uk/isis2001/highlights/thehydrophobic.htm>.
- [15] <http://www.ou.edu/class/che-design/a-design/projects-2005/Polymer%20from%20Oranges-Final%20Report.pdf>.
- [16] <http://www.sinarharapan.co.id/berita/0502/02/ipt02.html>.
- [17] Kern, D.Q. (1988) Process Heat Transfer, Mc Graw Hill Book Company Inc, Tokyo.
- [18] Kister, H.Z. (1992) Distillation Design, McGraw Hill Inc, New York.
- [19] Perry, R.H., Green, D.W. and Maloney, J.O. (1986) Perry's Chemical Engineering Handbook, Mc Graw Hill, Singapore.
- [20] Peters, M.S. and Timmerhaus, K.D. (1991) Plant Design and Economic for Chemical Engineers, Mc Graw Hill Book Company Inc, Singapore.
- [21] Severn, W.H. (1959) Steam, Air, and Gas Power, John Wiley and Sons Inc, New York.
- [22] Smith, J.M., Van Ness, H.C. and Abbott, M.M. (2001) Chemical Engineering Thermodynamics Volume 6th), McGrawHill, New York
- [23] Ulrich, G.D. (1984) A Guide to Chemical Engineering Process Design and Economics, John Wiley and Sons Inc, New York.
- [24] Walas, S.M. (1988) Chemical Process Equipment Selection and Design, Department of Chemical and Petroleum Engineering, University of Kansas, USA.
- [25] Yan, H., Han, B. and Xu, Q. (2001) Effect of cosolvents on the precipitation polymerization of acrylic acid in supercritical carbon dioxide. *Polymer* 42, 1396-1373.