

## Chris Higman – List of Publications, December 2011

### Books (including contributions to books)

- [1] Higman, C., “Carbon Monoxide Shift Conversion” and other sections in “Gas Production”, Ed. Hochgesand, G., in Ullmann’s Encyclopedia of Industrial Chemistry, Vol A12, VCH Verlag, Weinheim, 1989, pp238-243 and 289-291
- [2] Higman, C. “The Zero-Residue Refinery Using the Shell Gasification Process”, in “Production-Integrated Environmental Protection”, ed. Wiesner, J. in Ullmann’s Encyclopedia of Industrial Chemistry, Vol B8, VCH Verlag, Weinheim, 1995, pp 287-292.
- [3] Higman C. and van der Burgt, M., “Gasification.”, 1st edition, Gulf Professional Publications, Amsterdam, 2003.
- [4] Higman, C. “Gasification” and “Gas Treating” in “Rules of Thumb for Chemical Engineers.” 4th edition. Ed. Brannan, C. Gulf Professional Publications, Amsterdam, 2005. pp 201-220.
- [5] Higman C. and van der Burgt, M., “Gasification.”, 2nd edition, Gulf Professional Publications, Amsterdam, 2008.
- [6] Higman, C., “Gasification” in “Combustion Engineering Issues for Solid Fuel Systems.” Ed. Miller, B.G. and Tillman, D.A., Academic Press, Amsterdam, 2008. pp 423-468.
- [7] Higman, C., “Gasification Processes and Synthesis Gas Treatment for Carbon Dioxide Capture” in “Developments and Innovation in Carbon Dioxide Capture and Storage Technology.” Ed. Maroto-Valer, M. M., Woodhead Publishing Ltd., Oxford, 2010. pp 243-279.
- [8] Higman, C., “Gasification Processes and Technology” in “Advances in Clean Hydrocarbon Fuel Processing.” Ed. Kahn, M. R., Woodhead Publishing Ltd., Oxford, 2011. pp 155-185.

### Papers

- [9] Higman, C., “*Some Implications of the Generation of Swirl by Helically Welded Steel Pipes.*” The South African Mechanical Engineer, Vol. 26 No. 10 October 1976.
- [10] Higman, C., “*Synthesis Gas Processes for Synfuels Production.*” Paper presented at Eurogas '90 Conference, Trondheim, June 1990.
- [11] Higman, C. and Grünfelder, G., “*Clean Power Generation from Heavy Residues.*” Paper presented at IMechE Conference on Power Generation and the Environment”, London, November 1990.
- [12] Heurich, H. and Higman, C., “*Partial Oxidation in the Refinery Hydrogen Management Scheme.*” Paper presented at AIChE Spring Meeting, Houston, March 1993.
- [13] Higman, C. and Eppinger, M., “*The Zero-Residue Refinery.*” Paper presented at Achema, Frankfurt, June 1994.
- [14] Higman, C. “*Perspectives and Experience with Partial Oxidation of Heavy Residues.*” Paper presented at Table Ronde, “L’Hydrogène, Maillon Essentiel du Raffinage de Demain” L’Association Française des Techniques du Pétrole, Paris, June 1994.
- [15] Higman, C., “*Methanol Production by Gasification of Heavy Residues.*” Paper presented at IChemE European Gasification Conference, London, November 1995.
- [16] Higman, C. and Sharma, R.K., “*Gasification – an Indian Perspective.*” Paper presented at IChemE European Gasification Conference, Dresden, 1998.
- [17] Higman, C., Bajohr, S. and Reimert, R. “*New Developments in Soot Management.*” Paper presented at IChemE European Gasification Conference, Noordwijk, 2002.
- [18] Higman C., Bajohr, S. and Reimert, R. “*Gasify POX Soot for Reduced Costs.*” Paper presented at Pittsburgh Coal Conference, September 2002.

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- [19] Bajohr, S., Higman, C. and Reimert, R. "*The Distribution of Heavy Metals during Biomass Gasification.*" Paper presented at IChemE European Gasification Conference, Brighton, 2004.
- [20] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Paper presented at 1<sup>st</sup> International Freiberg Conference on IGCC and Xtl Technologies, Freiberg, June 2005.
- [21] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Paper presented at Gasification Technologies Conference, San Francisco, October 2005.
- [22] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Paper presented at IChemE European Gasification Conference, Barcelona, April 2006.
- [23] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Paper presented at Achema 2006, Frankfurt, May 2006.
- [24] Higman, C. "*Production of Hydrogen by Gasification.*" Topsøe Catalysis Forum, Havreholm, August 2006.
- [25] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Paper presented at 12<sup>th</sup> Southern African Conference on Coal Science and Technology, Johannesburg, October 2006.
- [26] Higman, C., "*Turning Promise into Reality: Ground-breaking Needed Soon.*" Modern Power Systems, Vol 27, No.1 January 2007.
- [27] Higman, C. "*Integrated Gasification Combined Cycle (IGCC) Design Considerations for High Availability – Volume 1: Lessons from Existing Operations.*" EPRI, Palo Alto, CA. 2007.
- [28] Higman, C., Della Villa, S. and Steele, R. "*The Reliability of IGCC Power Generation Units.*" Petroleum Technology Quarterly, Vol12, No. 3, April 2007.
- [29] Higman, C. "*CO<sub>2</sub> Capture: The IGCC Retrofit Conundrum.*" Paper presented at 2nd International Freiberg Conference on IGCC and Xtl Technologies, Freiberg, May 2007
- [30] Higman, C., "... and where will the hydrogen come from?" Paper presented at Pittsburgh Coal Conference, Johannesburg, September 2007.
- [31] Higman, C., "*CO<sub>2</sub> Capture: Retrofit Issues for a Reference IGCC.*" Paper presented at Pittsburgh Coal Conference, Johannesburg, September 2007.
- [32] Higman, C., "*Air Integration Needs a Re-think.*" Modern Power Systems, Vol 27, No.9 January 2007.
- [33] Higman, C., "*IGCC faces Coal-antipathy in USA while Chinese Projects Progress.*" Modern Power Systems, Vol 28, No.1 January 2008.
- [34] Higman, C., "*European Coal Gasification Projects.*" Paper presented at RITE FutureGen Workshop, Tokyo, February 2008.
- [35] Higman, C., "*Syngas Generation from Coal and Biomass.*" Paper presented at 8th World GTL Summit, London, May 2008.
- [36] Higman, C., "*Gasification of Biomass and Fossil Fuels: Similarities and Differences.*" Paper presented at the 2<sup>nd</sup> Solander Symposium, Piteå, Sweden, , September 2008.
- [37] Higman, C., "*Report from Vřesová: 12 years of operating experience with the world's largest coal-fuelled IGCC.*" Modern Power Systems, Vol 28, No.10 October 2008.
- [38] Higman, C., "*The Role of Gasification on Low-carbon Energy Planning.*" Paper presented at Energetika 2009, Zlatibor, Serbia, March 2009.
- [39] Higman, C. "*Welche Beiträge können wir mit der Kohle für die Zukunft bringen?*" Paper presented at the 1<sup>st</sup> Schwalbacher Symposium, September 2010

- [40] Booras, G., Higman, C., Kubek, D., Sorensen, J. and Todd, D., "*Design and Operational Strategies for IGCC with Carbon Capture and Storage.*" Paper presented at European Gasification Conference, Amsterdam, September 2010.
- [41] Booras, G., Higman, C., Kubek, D., Sorensen, J. and Todd, D. "*Design and Operational Strategies for IGCC with Carbon Capture and Storage.*" Paper presented at Pittsburgh Coal Conference, Istanbul, October 2010.
- [42] Higman, C. "*Current and Future Industry Developments.*" Paper presented at ACI Gasification 2010 Conference, London, 2011

### **Patents**

- [43] German Patent DE P 3863260, "*Verfahren zur Erzeugung eines Ammoniak-Synthesegases.*" March 1988 and other national patents.
- [44] European Patent EP 0542322 "*Method of treating a vanadium containing residue.*" July 1996 and other national patents.
- [45] US Patent US 5981819 "*Process of generating C<sub>3</sub> - and C<sub>4</sub> -olefins from a feed mixture containing C<sub>4</sub> to C<sub>7</sub> olefins.*" November 1999 and other national patents.
- [46] European Patent EP 0882692 "*Process for the preparation of ethylene, propylene and optionally isomers of butane from methanol and/or dimethyl ether.*" November 2001 and other national patents.

### **Non-Technical publications**

- [47] Higman, C. "*Völkerverständigung im Main-Taunus-Kreis.*" in Zwischen Main und Taunus, Main-Taunus-Kreis, 1992.
- [48] Higman, C. "*Ausländerbeiratswahlen im Main-Taunus-Kreis, November 1993.*" in Zwischen Main und Taunus, Main-Taunus-Kreis, 1994.
- [49] Higman, C. "*Der Schwalbacher Ehrenburger James Elmer Spyglass (1877-1957).*" in Zwischen Main und Taunus, Main-Taunus-Kreis, 1995.