

ISSCT ENGINEERING WORKSHOP

BERLIN, GERMANY
7 - 11 October, 2002

"Energy Management in Raw Cane Sugar Factories"

- Programme
- Report
- Abstracts

Workshop Programme

MONDAY 7 October 2002

Session A: 09:00 - 09:45 - Opening Session - Welcome and overview

- Opening addresses by *Prof L G Fleischer, Dr. Kathöfer, Mrs. L Wong Sak Hoi And Mr P Avram Waganoff*
- Cane sugar industry cogeneration for export – considerations - *J P Komen*
- Cogeneration in Brazilian sugar factories and tendencies – *P E P De Assis*
- Questions

Session B: 09:45 - 10:30 - Energy conservation from cane yard to extraction plant – Prof Dr P Rein

- Energy conservation from cane yard to extraction plant - *P Rein*.
- Development of a factory based dry cane separation plant for increased recovery of biomass fuel - *P A Hobson, M G Schembri, T F Dixon, B Lamb, C Wheeler and N Lindsay*.
- Comparative energy consumption of hydraulic and electric drives on six-roll and two-roll crushers - *D B Batstone*.
- Diffusers v/s mills with regard to energy conservation - *U Schwanke*

Break 10:30–10:50

Session B: 10:50 - 11:10 continuation

- Diffusion v/s milling - energy implications - *P Thompson and L W Weiss*.
- Discussion

Session C: 11:10 - 12:30 - Energy conservation in boiling house - Dr R Broadfoot

- Energy conservation in boiling house operations - *R Broadfoot*.
- Boiling schemes and energy - *H. Wunsch*.
- Optimized crystallization and its effect on energy demand in sugar house operation - *R. Hempelmann*.
- Use of low pressure vapour for pan stage operations - *R Broadfoot*.
- Energy aspects of assisted pan circulation - *B StC Moor*.
- Energetics of satellite processing to syrup - Tableland experience - *D B Batstone*.
- Innovative technology for condensing and cooling system - *B B Paul*.
- Energy efficiency in vacuum systems and utilisation of waste heat - *V Verma*.

Lunch 12:30-14:00

Session C: 14:00 - 14:30 continuation

- Operation parameters for batch and continuous centrifugals - *R Hempelmann*.

- Energy savings with new dryer/cooler concept - *U Schwanke*.
- Discussion

Session D: 14:30 - 15:30 - Energy conservation in refineries - Dr R Broadfoot

- The energy management experience at Al Khaleej Sugar - *A S Vawda*.
- Steam economy in boiling house – plantation white sugar - *M Singh*.
- Centrifugal and pan yields – their impact on process steam consumption - *P. Thompson*.
- Nordzucker experience with sugar boiling schemes and energy savings - *S Buhrmann*.
- Discussion

16:00–18:30 Boat trip on the River Spree

TUESDAY 8 OCTOBER 2002

8:00–9:00 Visit to Könnern sugar factory

WEDNESDAY 9 OCTOBER 2002

Session E: 08:30 - 09:50 - Improvement of efficiency of boiler plant and turbo generator – Mr L Verdugo

- Improvement in Guatemala cogeneration to increase electrical output - *M M Rodriguez and L Verdugo*
- Increased power output from sugar cane biomass using newly developed gasification technology demonstrated in project ARBRE, UK - *M Morris and L Waldheim*.
- BIG/BG Technology integration with a typical Brazilian sugarcane mill - *M Regis L V Leal and H M Lamonica*
- Small turbines – a constraint on energy efficiency - *P Thompson*.
- Steam turbines (backpressure and extraction – condensing) - *R Schaer*.
- Presentation of the gas turbine, waste heat boiler combined cycle from Klein Wanzleben sugar factory - *S Buhrmann*
- Discussion

Session F: 09:50 - 10:30 - Improvement of calorific value of bagasse – Mrs. L Wong Sak Hoi

- Calorific value of bagasse – an overview - *L Wong Sak Hoi*
- Can bagasse be considered as a reliable fuel in terms of calorific value per unit weight? - *G Maurel*.
- Improvement of calorific value of bagasse using flue gas drying - *M Narendranath and G V S P Rao*.
- Discussion

Break 10:30–10:50

Session G: 10:50 - 11:30 - Alternative boiler fuels - Dr. M Inkson

- Alternative fuels - an overview - *M Inkson*
- Cane field residues as boiler fuel - *K Deepchand*
- Other fibrous fuels – the problems - *M Inkson*
- Discussion

Session H: 11:30 - 12:30 - Efficient utilisation of steam – Mr. P Avram-Waganoff

- Efficient utilization of steam – overview and perspectives - *P. Avram-Waganoff*
- Implementation of a highly efficient evaporation scheme at Usina Barra Grande in order to increase its cogeneration capacity - *J G Darcie*.
- How a 30% reduction in steam consumption was achieved at Harwood mill - *R M Dephoff*.

- Energy conservation by efficient utilization of steam and vapour - *K Mosich*.
- Optimal utilization of exhaust steam in boiling house - *B B Paul*.

Lunch 12:30–14:00

Session H: 14:00 - 15:00 - continuation

- Planning for the efficient use of process steam using software based on the Rillieux principles - *R Broadfoot*.
- Pinch technology – optimising thermal energy networks - *B C Schulze*.
- Efficient utilization of steam by scale prevention and effective cleaning – *H J Praus*.
- Possible areas for increased electricity export in raw cane sugar factories - *A F Lau, K T K F Kong, Win Chang and L Wong Sak Hoi*
- Discussion

Break 15:00–15:20

Session I: 15:20 - 17:00 - Efficient utilization of electrical power – Mr. S Pusch

- Efficient utilization of electrical power in sugar factory – an overview - *S Pusch*.
- The utilization of variable frequency drives at various stages of raw sugar manufacture to minimize overall power consumption of the factory - *R Rivalland*
- Reduction of the electric energy consumption in a sugar factory - *S Pusch*.
- Reduction in thermal and electrical energy for sugar from sugar cane - *B B Paul*.
- Power consumption of batch v/s continuous centrifugals - *S Jooria, L Wong Sak Hoi and K T K F Kong, Win Chang*.
- Monte Rosa sugar mill cogeneration - *C R Perez Estrada*.
- Co-generation – additional profit for cane sugar factories - *R Schaer*.
- Discussion

THURSDAY 10 OCTOBER 2002

8:00–9:00 Visit to Klein Wanzleben sugar factory and Potsdam Sanssouci Palace

FRIDAY 11 OCTOBER 2002

Session J: 09:00 - 10:00 - New technologies/processes for energy economy – Dr. B Morgenroth

- Overview: new technologies/processes for energy economy - *B Morgenroth*.
- Benchmarking analysis for maximum power generation of a cane sugar factory considering the latest state of technology and potential future development - *B Morgenroth*.
- Near infrared spectroscopy as a tool in sugar mill and boiler station management - *D L Mackintosh*.
- The development of bagasse gasification technology for increased cogeneration in the Australian cane sugar industry - *P A Hobson, T F Dixon, C Wheeler and N Lindsay*.
- Cane separation - a technology destined for integral sugar cane utilization - *H C C Bourzutschky*.
- Discussion

Session K: 10:00 - 10:30 - New equipment /control technology – Mr. B Langhans

- New equipment and control technology – an introduction into the topic - *B Langhans*
- Status and future trends of process instrumentation control and statistical process control principles - *B Langhans*

- Viscosity as a measurement and control parameter for sugar boiling - *O Tzschätzsch, R Schick and L-G Fleischer*

Break 10:30–10:50

Session K: 10:50 - 12:30 - continuation

- Modern process and laboratory control as a tool for improved energy management - *M Kuczejda*.
- Laboratory automation - a proven way to better process management and higher sugar yield - *W Kernchen*.
- Energy management systems – online tools for operating personnel - *B C Schulze*.
- Advanced monitoring systems for process control - *B Morgenroth*.
- Discussion

Lunch 12:30–14:00

Session L: 14:00 - 15:30 - Energy-efficiency index for sugar factories

Overall review and closure of technical discussion

(Panel members: Mrs L Wong Sak Hoi, Mr P Avram Waganoff, Drs L G Fleischer, P Rein, R Broadfoot and B Morgenroth)

- Status of energy situation in each country.
Presentation from Australia, Brazil, Germany, Guatemala, India, Iran, Mauritius, Pakistan, South Africa, UK, USA and others
- Overall review – Mrs. L Wong Sak Hoi
- Conclusions - Prof L G Fleischer , Mr P Avram Waganoff, Mrs L Wong Sak Hoi and Prof Dr P Rein

16:00–17:30 Visit to Berlin sugar Institute and the Sugar Museum

17:30–21:00 Farewell dinner in Berlin sugar Institute