

Title: Nexterra syngas could replace natural gas in lime kilns

Author: Anon

Publication year: 2008

Journal name: Pap. Ind.

Citation: vol. 25, no. 5, Oct. 2008, p. 13 (P)

ISSN: 1048-8251

Abstract: After two years of testing at its product development centre in Kamloops, Nexterra Energy Corp of Vancouver, BC, Canada, has confirmed that synthetic gas, or syngas, produced by its biomass gasifier, is able to replace at least 60% of fossil fuels used in lime kilns. Substitution of 95% may be possible at many pulp mills and up to 100% in certain types of boilers, depending on the biomass feedstock and existing equipment configurations. The company claims that syngas provides a cheaper, carbon neutral and renewable fuel alternative, and is to work with FPInnovations and Kruger Products Ltd to apply its technology in industrial use. (1 fig) (Short article)

Language code: English

Controlled term: energy source

gas

lime kiln

Subject heading: Production and recovery of cooking chemicals, pulp industry

byproducts

Energy

Update: 0905

Document type: Journal article

Reg.number: 225360

Document location: Pira

Company name: Nexterra Energy Corp

Title: Achieving thermocompressor efficiency and performance

Author: Anon

Publication year: 2008

Journal name: Pap. Ind.

Citation: vol. 25, no. 5, Oct. 2008, pp 21-22 (P)

ISSN: 1048-8251

Abstract: The thermocompressor presents one of the most challenging operational and design selections in a steam and condensate system. This complexity can lead to misunderstandings, poor applications and incorrect operation of a thermocompressor. Thermocompressors are used in the paper industry for two applications. Boost thermocompressors increase low pressure steam to a higher pressure, whereas re-circulating thermocompressors recompress blow-through steam from a dryer section or a Yankee dryer. The management of thermocompressor performance is usually achieved using one of three control strategies: differential pressure, blow-through steam or flow control, or pressure control. There are various recommendations in terms of best practices for thermocompressor application and design. A production plan should be developed showing the expected performance for the dryer or dryer section steam and condensate system. The plan should address the minimum and maximum production conditions. Explicit siphon performance curves and data should also be obtained. These curves and the supporting data should at a minimum show the interdependent relationships of blow-through steam, condensing load and differential pressure, and should agree with the production plan for the dryer section. (1 fig)

Language code: English

Controlled term: compressor

dryer section

Subject heading: Paper, board and nonwovens making - wet laid processes and

equipment

Energy

Update: 0905

Document type: Journal article

Reg.number: 225362

Document location: Pira

Title: New challenges facing the paper industry: Sipaper-IT-Systems for optimal process control

Author: Kuhn M

Publication year: 2008

Journal name: Wochenbl. Papierfabr.

Citation: vol. 136, no. 21-22, mid Nov. 2008, pp 1290-1291 (C, K, P, S)

ISSN: 0043-7131

Abstract: The German paper industry produces approximately 23m tpy with a turnover of some EUR14bn. The industry faces rising energy prices, changing end-user markets and growing competition from Eastern Europe and Asia. Many companies are building mills in Russia or China to avoid logistic and transport costs. According to Siemens, compared with other sectors, the paper industry has been slow to adopt intelligent, modern technology, partly because of its decentralised and heterogeneous structure. Siemens SiPaperCIS is a package of modular information technology (IT) systems specifically designed for the pulp and paper industry. The package includes modules covering energy supplies, multimotor drives for all production and converting processes, process automation systems, measurement, sensor and camera systems for machine and quality control, water management systems, IT solutions offering MES, enterprise resource planning (ERP), workforce, information and documentation, and life cycle services for maintenance, repair and modernisation. A decentralised energy management system provided by Siemens IT Solutions and Services enabled Sappi's Gratkorn mill to produce all its energy requirements onsite and to feed surplus energy into the national grid. (1 fig)

Language code: German

Non english

Controlled term: energy management

information technology

Subject heading: Energy

Update: 0905

Document type: Journal article

Reg.number: 225368

Document location: CTP

KCL

Pira

STFI

Original title: Papierindustrie vor neuen Herausforderungen: Sipaper-IT-Systeme für optimale Prozesssteuerung

Company name: Siemens

Title: Acid-free organosolv pretreatment for the high-lignin lignocellulosics

Author: Koo B-W

Min B-C

Kim H-Y

Park N

Yeo H

Lee S-M

Hoon K

Choi I-G

Publication year: 2008

Citation: 10th European workshop on lignocellulosics and pulp (EWLP 2008), Stockholm, Sweden, 25-28 Aug. 2008, pp 294-297 [Stockholm, Sweden: Royal Institute of Technology, 2008, 494pp] (K, S)

Abstract: The use of sulphuric acid as a catalyst in the pretreatment of *Liriodendron tulipifera* achieves the highest digestibility at 74.21% at 200 deg C for 60min. This differs from the failure of the organosolv pretreatment to improve digestibility from 5.37% to 8.43% without the use of a catalyst, which suggests

the effect of the catalyst in improving digestibility. These results support the research into the use of *Liriodendron tulipifera* as a material for bioethanol production. A 30.82% improvement is observed through the use of ammonia solvent (10%) in the pretreatment when used at 200 deg C for 60 min. A 13.45% improvement in digestibility, which suggests that ammonia is not suitable as a catalyst in the organosolv pretreatment process. The pretreatment process is investigated since this improves the accessibility of cellulose on cellulose in the study of lignocellulosic biomass as a resource in bioethanol production. Bioethanol presents an alternative to fossil fuels in transportati on given the environmental, economic, and national security concerns raised by the use of fossil fuels. (2 fig, 7 ref)

Language code: English

Controlled term: biofuel
digestibility
enzymatic saccharification
ethanol
holocellulose
lignin
lignocellulosics
Liriodendron tulipifera
pretreatment

Subject heading: Wood chemistry
Energy

Update: 0905

Document type: Conference proceedings

Reg.number: 223892

Document location: KCL
STFI

Title: Opportunities for process-integrated evaporation in a hardwood pulp mill and comparison with a softwood model mill study

Author: Axelsson E
Olsson M R
Berntsson T

Publication year: 2008

Journal name: Appl. Thermal Eng. IS 1359-4311

Citation: vol. 28, no. 16, Nov. 2008, pp 2100-2107

Abstract: Research has been carried out to evaluate the concept of process-integrated evaporation (PIvap) for an existing hardwood mil producing kraft pulp and compare the results with those from an earlier study of a softwood model mill. PIVap uses excess heat from the process to reduce the live steam demand in the evaporation plant. The hardwood mill was a market pulp mill producing leached kraft pulp from eucalyptus and had a continuous digester followed by a one-step oxygen delignification stage and elemental chlorine free bleaching. A mill-wide energy system analysis was carried out in order to evaluate the potential for PIVap in the hardwood mill. A simulation tool was developed to accurately account for the new conditions for the evaporation due to the introduction of PIVap. Pinch tools were used to determine the amount of excess heat that could be made available in the process. Results showed that the tools for finding excess heat used in the softwood model mill studies were also application for a real mill. Compared with the softwood mill, the configuration of the hardwood mill offered approximately the same savings with a significantly lower investment cost. A trade-off situation was found between PIVap and solving pinch violations. The pinch approach was shown to be more cost effective for moderate steam savings, while for higher steam savings, the PIVap approach offered 0.3GJ/t more steam savings for approximately the same specific investment cost. (5 fig, 5 tab, 15 ref)

Language code: English

Controlled term: comparison
energy saving
evaporation
hardwood pulp
pulp mill
softwood pulp

Subject heading: Energy
Update: 0906
Document type: Journal article
Reg.number: 225407

Title: New initiatives for environmental protection and energy saving in the Chinese paper industry

Author: Feng W

Publication year: 2009

Journal name: Appita

Citation: vol. 62, no. 1, Jan. 2009, pp 10-12 (C, K, P, S)

ISSN: 1038-6807

Abstract: The paper industry in China is facing increasingly tighter requirements for environmental protection, as well as increasing costs of raw materials and auxiliaries. Optimisation of mill subsystems, including rejects disposal, sludge and water treatment, could help improve a mill's profitability. Although low water consumption reduces effluent treatment and discharge volumes, as well as providing savings in fresh water, contaminants in the water system become concentrated. A combination of anaerobic and aerobic systems is the most economical treatment for COD effluent. Using an anaerobic step, up to 85% OF COD can be removed and most of the organic contaminants are transformed into biogas. The non-degradable organic material would then be digested in the aerobic treatment. Many operational problems can also occur from calcium accumulation in the water system. The lime trap is a new technology that could be used to overcome these negative effects, while at the same time delivering additional positive effects, including flash oxidation and odour reduction. The "waste to energy" concept requires adequate separation and preparation of residuals/rejects into the two main composition groups: pulper rejects with high calorific values and fine rejects/sludge with far lower calorific value. Incineration will be one of the most important approaches to eliminate pollution and gain energy. For a region with many paper mills, a large size incineration plant could collect and burn rejects and sludge from different mills, while small paper mills could construct their own burning facility. (5 fig)

Language code: English

Controlled term: energy saving
environmental protection
paper mill effluent
waste treatment

Subject heading: Water, effluent, effluent treatment and air
Energy

Geographic location: Asia
China

Update: 0906

Document type: Journal article

Reg.number: 225431

Document location: CTP
KCL
Pira
STFI

Title: Papermaking under close "energy-scrutiny": energy audits reveal savings potential

Author: Anon

Publication year: 2008

Journal name: Twogether

Citation: no. 27, 2008, pp 57-59 (C, K, P, S)

Abstract: Voith Paper conducts energy audits examining energy consumption in papermaking. The energy audit consists of three stages. The first stage is the examination, with customers, of existing process data from large energy consumers. This gives benchmarks, providing a basis to select areas for detailed analysis. The second phase is the detailed analysis in which Voith engineers gather and assess the

measured data. Analysis considers total energy consumption and the major areas of consumption. Means of energy saving, production or recovery are identified and a detailed report produced for the customer. The third stage is the development of an engineering offer based on the most cost-effective approaches developed in the second stage. A case study shows the practical operation of an energy audit. The audit examined the air handling systems on two paper machines, A and B, also examining their related steam and condensate systems. For machine B, the hot water cycle was also examined. Measurements were made and present processes analysed. Solution proposals developed for the air handling system comprise a lower hood intake air temperature for the operating mode, energy saving though increased use of air recovery systems and integration of a process for waste water heat recovery. Proposals for air conditioning/hall ventilation included operating mode optimisation by using the Voith Energy Optimization System (EOS). Outcomes from Voith Paper energy audits include sustainable energy saving solutions, locating hidden potential, customer satisfaction and an amortisation period which is generally less than 12 months. (3 fig)

Language code: English

Controlled term: energy consumption
energy management

Subject heading: Energy

Update: 0906

Document type: Journal article

Reg.number: 225508

Document location: CTP
KCL
Pira
STFI

Company name: Voith Paper

Title: Saving energy in a box plant: how to reduce your carbon footprint

Author: Pinnington T

Publication year: 2009

Journal name: Int. Pap. Board Ind.

Citation: vol. 52, no. 1, Jan. 2009, pp 30-32, 34-35 (K, P, S)

ISSN: 0020-8191

Abstract: A survey by VDW, Germany in 2003 suggests that for the average box plant, the cost of heat, power, water, starch and waste energy equate to approximately 2.3% of sales turnover. Energy and raw materials costs have risen significantly since the survey. A major proportion of the energy used in corrugated board production relates to heat, another area of high consumption being electrical energy. In addressing consumption reduction it is sensible to first look at the areas of major consumption. Potential areas of heat saving include the use of lower operating temperatures in the corrugator, also insulating to prevent heat loss. Optimum heat retention assists in maintaining the ambient corrugator temperature. Recommendations in relation to paper involve pre-warming paper so that it requires less process energy, controlling the paper's moisture content and decreasing paper usage by using lighter paper grades. Energy saving suggestions for starch involve the use of more starch solids, with lower amounts of water and the use of thinner adhesive films. The sound enclosures required for noisy machinery in many nations also offer the potential for ambient temperature control and the gathering of heat losses. Air conditioning system energy consumption can be minimised by the provision of effective ventilation in hot weather. In cold weather heat energy loss can be minimised by effective sealing of the building and by effective insulation. Heat loss from outer surfaces of offices can be reduced by integrating offices in the main building. Solar gains can also be used. The warm factory air used in some manufacturing equipment can be filtered and taken back to the work area. Belt transfer of waste can be considered when new facilities are planned.

Language code: English

Controlled term: box plant
corrugator
energy saving
environmental issues

Subject heading: Energy

Corrugated board

Geographic location: Europe
Germany

Update: 0906

Document type: Journal article

Reg.number: 225514

Document location: KCL
Pira
STFI

Title: Wider expertise in flue gas cleaning

Author: Riekkola A

Publication year: 2008

Journal name: Fiber Pap. Power

Citation: vol. 10, no. 3, 2008, pp 40-41 (K, P, S)

ISSN: 17972698

Abstract: The lack of availability of pure biomass in sufficient quantities for power generation means that the combustion of a variety of fuels and fuel mixes is increasing. A greater emphasis on fuel flexibility and efficient emissions control in power generation is leading to a need for new technological solutions. Metso Power, a producer of boilers, has recently expanded its know-how and offering in flue gas cleaning, and has signed an exclusive agreement with the Danish filter systems manufacturer, Simatek A/S regarding dry flue gas cleaning technology. The license rights apply to bag filter-based flue gas cleaning systems, and the agreement allows Metso Power to provide optimised solutions and suitable technology for both new and existing power boilers. This will give customers the opportunity to buy the boiler and related systems from a single supplier, allowing the whole delivery process to be handled in an efficient and coordinated way. Metso is now one of the few companies able to supply complete solutions for flue gas cleaning, including Nox reduction, dust separation and heat recovery. (3 fig)

Language code: English

Controlled term: agreement
cleaning
flue gas

Subject heading: Energy

Update: 0906

Document type: Journal article

Reg.number: 225535

Document location: KCL
Pira
STFI

Company name: Metso Power
Simatek

Title: Autumn conference 2008

Author: Zettl C

Publication year: 2009

Journal name: Pap. Osterreich

Citation: no. 12 2008 - no. 1, 2009, pp 8-9 (K, P, S)

Abstract: The Austrian paper industry's annual autumn conference focussed on energy supplies and research and development. The Energy 20/20/20 policy is expected to lead to a 300 cu m increase in global wood demand by 2015. Wood costs have risen by 50% since 2005. Imports from neighbouring countries are not expected to cover future demand. Growing Central European demand for natural gas is being met by imports from Russia and the Near East and by liquefied petroleum gas imports from North Africa. Sappi Gratkorn's Tiger energy project has made the mill self-sufficient in respect of energy supplies. An energy management system has reduced energy consumption and carbon dioxide emissions. The use of carbon fibre reinforced carbon brake linings developed by Powerbrake for Sappi Gratkorn was described. Current research and development studies by the paper industry include modelling and

simulation, biorefining, nanotechnology and functional materials. Sappi is developing eucalyptus and sulphite pulps for its Maastricht and Gratkorn mills.

Language code: German
Non english
Controlled term: energy policy
energy source

Subject heading: Energy

Update: 0906

Document type: Journal article

Reg.number: 225556

Document location: KCL
Pira
STFI

Original title: Herbsttagung 2008

Title: B and B goes for the screw

Author: Anon

Publication year: 2009

Journal name: Pap. Osterreich

Citation: no. 12 2008 - no. 1, 2009, pp 32-33 (K, P, S)

Abstract: BEA Electrics Osterreich's hydropower installation for Brigl und Bergmeister's Niklasdorf mill features a 17m long, 3.2m diameter water-driven screw conveyor. The concept is suitable for a water drop of nearly 4m and a flow rate of 3.7cu m/s, and meets current water legislation requirements. The screw rotates at approximately 22rpm. Its rotation is converted to 1,000rpm by a drive feeding a 132kW generator. The installation includes a braking mechanism to avoid excessive rotation in the event of disruptions or disconnections. The generator enables B and B to recover the energy of residual water being returned to the River Mur.

Language code: German
Non english

Controlled term: hydroelectric power
new installation
power plant

Subject heading: Company information - technical aspects
Energy

Geographic location: Austria
Europe

Update: 0906

Document type: Journal article

Reg.number: 225561

Document location: KCL
Pira
STFI

Original title: B und B setzt auf die Schnecke

Company name: BEA Electrics Osterreich
Brigl und Bergmeister