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Chemicals, organic and  
inorganic compounds

00001

PI: 20203912 JA: 0203

TI: Peroxidos do Brasil grows in line with the pulp sector

AU: Anon

JN: Papel \$IS=

CI: vol. 62, no. 6, June 2001, pp 23pt; 25en (C, K, S)

CT: CAPACITY/ HYDROGEN PEROXIDE/ PROJECT/ SUPPLIER/

CN: Peroxidos do Brasil

AB: Peroxidos do Brasil, Curitiba, a producer of hydrogen peroxide used in pulp making, will invest USD20m in 2001-2004 to expand its capacity from 60,000tpy to 90,000tpy.

Peroxidos do Brasil, a joint venture between Solvay, Belgium, and the Brazilian

Produtos Quimicos Makay, has also decided to close its other plant at Santo Andre, as its 20,000tpy production is no longer considered to be economically feasible. (Short article)

SO: B

00002

PI: 20203930 JA: 0203

TI: Experimental determination and liquid absorption capacities interpretation of biotextiles with complex absorbent structure: influence of superabsorptive gel polymer

AU: Aliouche D; Ait-Amar H; Lahfati K

JN: Chem. Eng. J. \$IS=1385-8947

CI: vol. 81, 2001, pp 317-322 (P)

CT: ABSORPTION/ FLUFFED PULP/ SUPERABSORBENT/

AB: Disposable napkins are materials with heterogeneous structure organised by a fibrous cellulose support and reinforcement of a superabsorptive polymer (SAP) profile. Absorption, retention and wet-back tests were carried out on laboratory samples with

standard liquids such as deionized water and physiological saline solution. Improvements in the absorption capacity of these biotextiles is dependent upon the superabsorptive polymer. Although cellulose's water-attracting properties are high, quantities retained after absorption are comparatively modest. Non-polymer fibrous systems containing increased volumes of fluffed pulp have better retention rates. Where there is, in addition, a high concentration of polymer, the structure is sufficiently strong to allow the polymer to retain large quantities of liquid. (6 fig, 9 ref)

SO: B

00003

PI: 20203931 JA: 0203

TI: BASF launches 2 new production units at Ludwigshafen

AU: Anon

JN: Papeterie \$IS=

CI: no. 241, May 2001, pp 6-7 (C, K, P, S)

CT: COATING BINDER/ NEW INSTALLATION/ PAPER CHEMICALS/  
POLYETHYLENIMINE/ SUPPLIER/

CN: BASF

AB: The BASF Ludwigshafen, Germany, chemical complex is the largest in the world. One unit will produce coating binder for paper finishing, and the other chemical products for paper making, doubling production capacity to 210,000tpy at a cost of Euro50m in investment. Demand for polymer binder increased by 7.9% annually between 1993-1999 with further growth expected. BASF is also investing in a new unit in Hamina, Finland, producing coating binders to a capacity of 140,000tpy. The "Binder 2000" project will offer a new range, Basonal, which improve paper printing properties. The second Ludwigshafen unit produces high molecular density polyethylenimine (HM PEI) with a capacity of 20,000tpy. PEI's chief advantage is that it improves retention and fixing of unwanted substances in the processing water. A further unit will be launched at Ludwigshafen in early 2002. BASF's coating machine, which incorporates a Jagenberg Modular Combi Blade, recently established a world record speed of 3,300m/min with woodfree paper. (1 tab)

SO: B

00004

PI: 20203933 JA: 0203

TI: Cerestar launches a new range of thermally modified starches

AU: Anon

JN: Papeterie \$IS=

CI: no. 241, May 2001, p. 16 (C, K, P, S)

CT: COATING BINDER/ NEW PRODUCT/ STARCH DERIVATIVE/

CN: Cerestar

AB: The European Union's 2000 paper market increased by 5.5% compared to 1999. Coated papers increased by 7.5%, with further growth predicted. Finishing processes are tending towards coating to meet this challenge and starches are becoming more sophisticated. The new range is well adapted to current technological requirements as its non-ionic starches interfere less with products in the mass, which in turn reduces the quantity of retention and fixing agents. They contain no chlorine or adsorbable organic halogen (AOX) and so are environmentally preferable. They are particularly suitable for

high speed machines. Cerestar recently modernised its pilot coater which permits test runs and simulations in conditions identical to production sites. (Short article)  
SO: B

00005

PI: 20204000 JA: 0203

TI: Mineral filler pore structure and paper properties (Extended Abstract)

AU: Velho J; Santos N; Gomes C

JN: Solutions!

CI: Dec. 2001, p. 39 (C, K, P, S)

CT: CALCIUM CARBONATE/ FILLER/ KAOLIN/ PARTICLE SIZE DISTRIBUTION/  
PORE SIZE/ PRECIPITATED CALCIUM CARBONATE/ TALC/

AB: The effect of mineral fillers pore properties, with different particle size distribution, particle shape and particle aggregation, on paper pore properties, and on structural, optical and resistance paper properties was investigated. Six mineral fillers were selected for study: one sample of talc (T), one sample of kaolin (K) and one sample of ground calcium carbonate (GCC) (G), and three samples of precipitated calcium carbonates (PCCs), two exhibiting scalenohedral habit and one exhibiting rhombohedral habit. Research has shown considerable interest in using mercury intrusion porosimetry method as a tool to evaluate mineral fillers and paper porosity. Data obtained for commercial paper were found to fit very well with data obtained for papers produced in the laboratory. PCC fillers exhibiting scalenohedral habit were particularly effective in producing pores of acceptable size and the two samples studied were optically superior relative to the PCC rhombohedral filler. GCC filler was less effective as it has a considerable number of pores of large sizes. The research also made clear the influence of fillers inherent properties, morphology, particle size distribution and average particle size on sheet porosity. The methodology used proved to be very sensitive when filler blends with different characteristics are loaded in paper. (13 fig, 2 tab, 6 ref) (Full text available from Tappi only)

SO: B

00006

PI: 20204004 JA: 0203

TI: Intelligent control system for low emissions and heat loss with maximum lime kiln production (Extended Abstract)

AU: Jarvensivu M; Jamsa-Jounela S-L; Ahava O

JN: Solutions!

CI: Dec. 2001, p. 41 (C, K, P, S)

CT: COMPANY INFORMATION/ CONTROL SYSTEM/ LIME KILN/ TOTAL REDUCED  
SULPHUR/ TRS/

CN: UPM-Kymmene

AB: In addition to substantial investments in odour abatement systems, a field survey of total reduced sulphur (TRS) emissions has recently been carried out at UPM-Kymmene's Wisaforest pulp mill in Finland. A field study on the operation of the lime reburning process showed that, in addition to considerable enhancement potential in the overall performance of the process, improved control was a feasible method of reducing emissions from the kiln which accounted for a marked proportion of the TRS emissions. An intelligent supervisory-level control system was designed on the basis of

acquired process expertise for ensuring a low level of emissions and heat losses while maximising kiln production. The major quantifiable benefit from an ecological point of view, was an almost 30% decrease in the average TRS emissions and a reduction of around 90% in the frequency of peak emission periods. There was also an approximate 3% increase in production capacity. (24 fig, 2 tab, 19 ref) (Full text available from Tappi only)

SO: B

00007

PI: 20204025 JA: 0203

TI: Stronger paper through stock sizing

AU: Helle T-M

JN: Pap. Puu \$IS=0031-1243

CI: vol. 83, no. 7, 24 Oct. 2001, pp 524-525 (C, K, P, S)

CT: INTERNAL SIZING/ PAPER PROPERTIES/ SIZE/ STARCH/ STARCH PROPERTIES/ STRENGTH PROPERTIES/ UTILISATION/

AB: Starch is used in the paper industry as pulp starch, spray starch, surface sizing starch, binding agent in coating and sizing of corrugated board. The consumption of starch in the European paper and board industry is as follows: coating 12%, spray 3%, pulp starch 22% and surface sizing 63%. Corn, potato, wheat, barley, rice and tapioca are often used as the raw material of starch. The use of cereal-based starches is increasing because the EU has reduced the quota of potato starch by 5% between 1999-2001. The trend is expected to continue. The use of starch in paper making is aimed at improving the following paper qualities: tensile strength, tearing resistance, bonding strength, rigidity, dewatering, retention of filling agents and total retention, retention of additives, preparation of alkenyl succinic anhydride (ASA) emulsion. Pulp starch can also be used to replace cellulose as a raw material and not as a chemical which is usually the case. As the prices of cellulose fluctuate, the amount of pulp starch in the newsprint, supercalendered (SC) and lightweight coated (LWC) paper, for instance, can be varied to arrive at the most cost effective pulp consistency. (5 fig, 4 ref)

SO: B

00008

PI: 20204054 JA: 0203

TI: Development of an ultra-rapid reactor for superabsorbent polymer

AU: Briens C

JN: Ind. Eng. Chem. Res. \$IS=0888-5885

CI: vol. 40, no. 23, 14 Nov. 2001, pp 5386-5390 (K, S)

CT: DEVELOPMENT/ EQUIPMENT/ EXPERIMENTATION/ POLYMER/ REACTOR/ SUPERABSORBENT/

AB: A study was set up to provide data for a preliminary feasibility study of a method for synthesising superabsorbent polymers (SAPs). 150 combinations of initiators such as hydrogen peroxide, tert-butyl perbenzoate sodium peracetate or tert butyl perbenzoate with a sulphite, bisulphite, ferrous salt or ascorbic acid, ammonium persulphate or an alkali metal persulphate with an alkali metal sulphite or bisulphite, ascorbic or erythorbic acid with hydrogen peroxide or a persulphate, azo compounds or a combination of iron and hydrogen peroxide were tested. The study comprised: a kinetic study to select the compositions of the two streams to achieve a fast reaction, a mixing study to develop an

appropriate mixing and atomisation nozzle, and preliminary polymerisation tests performed in a modified pilot plant dryer. The new reactor was found to mix the two streams of reactants and initiators quickly. Preheating and using the heat of neutralisation of the acrylic acid was found to accelerate polymerisation greatly and achieve a superabsorbent polymer with a conversion rate higher than 65%. (9 fig, 12 ref)

SO: B

00009

PI: 20204062 JA: 0203

TI: Semiconducting polymers on display

AU: Ouellette J

JN: Ind. Phys. \$IS=

CI: vol. 7, no. 3, June-July 2001, pp 22-25 (P)

CT: ELECTRONIC PAPER/ LABEL/ NEW TECHNOLOGY/ POLYMER/ SEMICONDUCTOR/ TRANSISTOR/

AB: Semiconducting polymers, the properties of which have been well known since the early 1980s and which are about to enter the commercial market as active elements in light emitting diodes (LEDs), are being developed in the form of smart cards and smart labels, which can electronically change prices or warn of sell-by-date expiry. The four types of semiconducting polymers are: filled polymers, ionically conducting polymers, conjugated polymers, and charge transport polymers. The generation of light involves depositing a thin film of semiconducting polymer on a glass or plastic substrate and sandwiching the result between two electrodes. Cambridge Display Technologies, one of the commercial developers of light emitting polymers (LEP) currently planning a manufacturing facility in the UK, estimates that the current market value of these products to be USD30bn-35bn and some analysts estimate that this could reach USD70bn by 2005. LEP based display technology is expected to replace cathode ray tubes and liquid-crystal diodes through their ability to achieve high brightness at low drive voltages and current densities. Advancements continue to be made through research, exemplified by that at Utah University, which has investigated the possibility of enhanced photoluminescence and plastic solid state lasers; predicting that photoluminescence may be possible in LEDs. (3 fig, 3 ref)

SO: B

00010

PI: 20204094 JA: 0203

TI: Dissolution of cellulose in the formic acid metal halide systems

AU: Hirose S; Hatakeyama H

CI: 2001 (68th) Pulp and paper research conference, Tokyo, Japan, 18-19 June 2001, pp 42-45, <Tokyo, Japan: Japan TAPPI, 2001, 180pp> (P)

CT: ANALYSIS/ CONFERENCE/ FORMIC ACID/ FOURIER TRANSFORM INFRARED/ FTIR/ MOLECULE/ TEMPERATURE CONTROL/ THERMAL DEGRADATION/

CN: Japan TAPPI

AB: Following the development of new solvent systems comprising the formic acid-alkali metal systems and formic acid-alkali earth metal systems, Fourier transform infrared spectroscopy (FTIR) and Fourier transform nuclear magnetic resonance spectroscopy (FTNMR) were used to analyse the formic acid/lithium chloride system. The investiga-

tion highlighted the difference between the association of formic acid molecules without lithium chloride and that of formic acid molecules with lithium chloride. Precipitated cellulose was attained from a solution of softwood dissolving pulp in the formic acid/lithium chloride system and from the characteristic peak noticed at wave number 1,750 it appears that the hydroxyl groups in cellulose molecules were formulated during dissolution. From the differential scanning calorimetry (DSC) data at a room temperature of 170 deg C, there appeared to be no transition of the regenerated cellulose. Monitored using thermogravimetry (TG), the thermal degradation temperature of precipitated cellulose reached 318 deg C, activation energy of thermal degradation being 149kJ/mol. (5 fig, 1 tab, 3 ref)

SO: B

00011

PI: 20204103 JA: 0203

TI: Development of high quality causticizing calcium carbonate (CCC): fundamental study on the controlling method of CCC shape

AU: Goto H

CI: 2001 (68th) Pulp and paper research conference, Tokyo, Japan, 18-19 June 2001, pp 80-83, <Tokyo, Japan: Japan TAPPI, 2001, 180pp> (P)

CT: ABRASION/ CAUSTICISING/ CONFERENCE/ LIME KILN/ PRECIPITATED CALCIUM CARBONATE/ SLAKING/

CN: Japan TAPPI

AB: Precipitated calcium carbonate is a by product of the causticising process used to convert green liquid into white liquid in a kraft pulping mill. If the causticising calcium carbonate (CCC) could be removed, the reduction or cessation of lime kiln operation would reduce the consumption of fuel oil and carbon dioxide discharge. As a paper filler, conventional CCC is associated with high abrasion and poor opacity problems. In this study, the slaking and causticising reaction were separated and precisely controlled to obtain various forms of calcium carbonate offering higher opacity and low abrasion. (8 fig, 5 ref)

SO: B

00012

PI: 20204126 JA: 0203

TI: High-performance fibers

AU: Anon

JN: Asian Text. Bus. \$IS=1346-3276

CI: no. 564, Nov. 2001, pp 11-15 (P)

CT: ARAMID/ CLOTHING/ END USE/ NONWOVEN INDUSTRY/ PROPERTIES/ STRENGTH PROPERTIES/

AB: High strength high modulus super fibres are produced by advanced proprietary technologies, in Europe, the USA and Japan. They are inimitable, and command high prices. Aromatic polyamide fibres are generically termed aramids. Para-aramids such as DuPont's Kevlar and Teijin's Twaron are used as industrial materials while meta-aramids such as Nomex by DuPont with heat and flame resistance are used for protective clothing and insulation. Japan's Teijin has been expanding capacities of its para-aramid fibres, with annual production expected to reach 20,500t, over 50% share of the world market. DuPont is to invest USD50m in a phase of expansion projects for Kevlar

production. A sharp rise in demand for tension members has led to increased demand for these fibres. Carbon fibres are increasingly sought as composite materials. PAN based carbon fibres, based on acrylic tow, are a high strength, high modulus lightweight replacement for steel or aluminium. 75% of the market is accounted for by Japan's Toray Industries Inc, Toho Tenax Co Ltd and Mitsubishi Rayon Co Ltd. The market conditions for regular and large tow type carbon fibres are discussed.

SO: B

00013

PI: 20204129 JA: 0203

TI: Biodegradable PLA fibers

AU: Anon

JN: Asian Text. Bus. \$IS=1346-3276

CI: no. 564, Nov. 2001, pp 19-21 (P)

CT: BIODEGRADABILITY/ NONWOVEN INDUSTRY/ POLYLACTIC ACID/

AB: An important development in non-petroleum-based biodegradable plastics is the introduction of fibres derived from polylactic acid (PLA) resins. They are produced by the polymerisation of lactic acid derived from corn or vegetable starch. PLA has a high melting point, is suitable for nonwoven fabrics, films and plastic moulds, and decomposes in earth when disposed of. Cargill Dow LLC is the largest PLA producer at its pre-commercial plant in Savage, Minnesota, USA. It supplies PLA to four Japanese companies, including three synthetic fibre producers, whose products are discussed. Kanebo Gohsen Ltd manufactures Lactron at its Hofu plant, by melt-spinning, with a target production of 10,000t. Unitika Fibers Ltd produces Teramac fibre, aimed at industrial and lifestyle materials, hoping to achieve a production scale of 15,000tpy. Plastarch is a PLA fibre by Kuraray Co Ltd, who has promoted its development by combination with biodegradable vinyl acetate, whose hydrophilicity and heat resistance contrasts with the properties of PLA. Present PLA prices are five times higher than those of general synthetic fibres, and one challenge is to bring down the costs in order to expand the market.

SO: B

00014

PI: 20204131 JA: 0203

TI: New acrylic fiber from Mitsubishi Rayon

AU: Anon

JN: Asian Text. Bus. \$IS=1346-3276

CI: no. 564, Nov. 2001, p. 62 (P)

CT: ACRYLIC FIBRE/ BEDDING/ CLOTHING/ END USE/ NONWOVEN INDUSTRY/

CN: Mitsubishi Rayon

AB: AHF is a new fibre by Mitsubishi Rayon Co, to be marketed for clothing and bedding from autumn/winter 2002-2003. AHF is made by combining acrylic and diacetate polymers at the fibre making stage. The acetate is randomly dispersed in an acrylic matrix, giving the acrylic fibre a dry feel. Optimal properties are achieved with a blend ratio of 70% acrylic:30% acetate. AHF has moisture permeable and deodorising effects and easy care properties. It can be made anti bacterial by the addition of chitosan, and offers multi-functions in blends with high-functional acrylic fibres. Mitsubishi Rayon plans initially to sell 2000t at the spun yarn stage, with prices 60% higher than conven-

tional spun yarns. It will spin the fibre at its subsidiary plants, P T Vonex Indonesia, and Qingdao Lingtong Textile Co Ltd for the Japanese market. (Short article)  
SO: B

00015

PI: 20204133 JA: 0203

TI: Developments in polyurethane polymers

AU: Anon

JN: BTTG Indep \$IS=

CI: Nov. 2001, p. 4 (P)

CT: DEVELOPMENT/ NONWOVEN INDUSTRY/ POLYMER/ POLYURETHANE/

AB: Polyurethanes are considered to be the most versatile of polymers due to the high reactivity of the monomer isocyanate and the range of raw materials. Developments include elastane, including Lycra, breathable non-porous polyurethane for waterproof textile coatings, thermoplastic polyurethanes and hot melt polyurethane reactive adhesives, finishing and bonding agents. These different types of material have wide ranging areas of application from clothing to high-tech tyre cords and car interior linings.

SO: B

00016

PI: 20204135 JA: 0203

TI: Alceru piezo fibers for technical textiles

AU: Anon

JN: Chem. Fibres Int. \$IS=0340-3343

CI: vol. 51, no. 6, Dec. 2001, p. 390 (P)

CT: FIBRE/ NONWOVEN INDUSTRY/ TECHNICAL TEXTILE/ TECHNOLOGY/

CN: Thuringian Institute for Textiles and Plastics Research

AB: The Thuringian Institute for Textiles and Plastics Research (TITK), Rudolstadt, Germany, has successfully developed modified Alceru technology in the field of smart multi-functional materials. A wide range of green fibres can be produced using all oxide, nitride or carbide ceramic powders, fulfilling spinning and subsequent sintering requirements. The fibres can be made with numerous profiles, and are easy to process. They can take on functions as sensors, damping elements or actuators in light-weight construction materials. With initial application fields in medicine, construction, transport and sports equipment, new areas are being researched at the High-Tech Cellulose Functional Materials Rudolstadt. TITK has a delivery contract for the USA market, since a fast effective use of the materials in Germany is prevented by legal terms and regulations. (Short article)

SO: B

00017

PI: 20204136 JA: 0203

TI: New acrylic fiber

AU: Anon

JN: Chem. Fibres Int. \$IS=0340-3343

CI: vol. 51, no. 6, Dec. 2001, p. 390 (P)

CT: ACRYLIC FIBRE/ END USE/ HOUSEHOLD PRODUCT/ NEW FIBRE/ NONWOVEN

INDUSTRY/

CN: Mitsubishi Rayon Corp

AB: Mitsubishi Rayon Co Ltd, Tokyo, Japan, has developed AHF acrylic fibre. By combining acrylic and diacetate polymers at the fibre making stage, acetate is randomly dispersed in an acrylic polymer matrix, giving the acrylic fibre a dry feel. Optimal functions and properties are achieved with a blend ratio of 70:30 acrylic:acetate. AHF has moisture-permeable properties and deodorising effects. It can be made anti-bacterial by kneading chitosan into the fibre. In its first year, Mitsubishi Rayon plans sales of 2000t at the spun yarn stage. Targeted applications are clothing, blankets, bath and kitchen products. (Short article)

SO: B

00018

PI: 20204137 JA: 0203

TI: Foss: anti-microbial fibers

AU: Anon

JN: Chem. Fibres Int. \$IS=0340-3343

CI: vol. 51, no. 6, Dec. 2001, p. 390 (P)

CT: ANTIMICROBIAL SUBSTANCE/ NEW FIBRE/ NONWOVEN INDUSTRY/ SILVER/

CN: Foss Manufacturing

AB: Foss Manufacturing Co Inc, Hampton, NH, USA, has introduced FossFibre with AglION, a fibre which prevents the growth of bacteria, mould and mildew. AglION is an advanced silver-based agent produced by AglION Technologies, Boston, MA, USA. A patented process by Foss, a fibre and nonwoven producer, incorporates AglION antimicrobial into the bicomponent and binder fibres of fabrics. (Short article)

SO: B

00019

PI: 20204142 JA: 0203

TI: Lumaxx-a new polyamide with inherent light resistance

AU: Breiner U; Bever P M

JN: Chem. Fibres Int. \$IS=0340-3343

CI: vol. 51, no. 6, Dec. 2001, pp 413-416 (P)

CT: NONWOVEN INDUSTRY/ POLYAMIDE/ PROPERTIES/

CN: BASF

AB: BASF AG, Ludwigshafen, Germany, has developed a differential-dye family of polyamides with inherent protection against light-induced degradation. Lumaxx is a modified PA6 with higher melt stability, tolerance to high-speed spin-draw texturing processes and resistance to yellowing during heat setting. It is available in regular, deep and cationic dyestuff affinities. Results of Fakra light exposure tests to predict colour changes in carpets are reported and illustrated, comparing a Lumaxx carpet with a conventional PA66 carpet. Mechanical stress drum testing has also been applied. The performance of the Lumaxx carpet suggests that it should retain its surface appearance after long-term sunlight exposure and heavy traffic. (9 fig, 2 tab, 5 ref)

SO: B

00020

PI: 20204143 JA: 0203

TI: Flame retardant PP fibers-latest developments

AU: Gleixner G