Document Name:	0202ms06
Section:	TAPPI PRESS
Title:	Volume 6: Stock Preparation Pulp and Paper Manufacture Series

TAPPI PRESS

Volume 6: Stock Preparation

Pulp and Paper Manufacture Series

Edited by Robert W. Hagemeyer, Michael J. Kocurek, and Dan W. Manson

Published by the Joint Textbook Committee of the Paper Industry.

1992. 316 pp., 7" x 10" hard cover

Item Number: 0202MS06

ISBN: 1895288274

This text provides a comprehensive look at the fundamental principles of stock preparation. The book is divided into two sections: Nonfibrous Additives, and Papermaking Stock Systems.

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Abrasion of filler pigments Acid dyes Acrylamide polymers and copolymers, dry strength/retention additives Additives, nonfibrous: dry strength, formation aids, polyelectrolytes, retention aids, wetstrength resins Agitation: chest shape factor, couch pit design, horsepower response, level momentum concept, Maxflo impeller, momentum number,

press pits, process horsepower, white water chests Agitators, impellers AGMA Air, effect on papermaking **AKD** Alkenyl succinic anhydride sizing agent Alkyl ketene dimer sizing agent Alum, papermakers' Alumina trihydrate American Gear Manufacturers Association Amine polymers Anionic polymers in fiber bonding

Anionic-cationic polymers in fiber bonding Anionic trash, furnish characteristics Asphalt sizing agent ASA Association colloids

Base-reactivated resins
Basic dyes
Bauer-McNett classifier
Beating
Bentonite/PAM retention
aid
BHMT
Bis(hexamethylene)
triamine
(BHMT) resins
Blending, stock
Board, bleached;
effect of amphoteric
starch

on strength cleaners, forward hydrophobic particles, cleaners, lyophilic systems, Board industry, use of polyethyleneimine reverse cleaners, lyophobic systems. (PEI) throughprotective colloid flow cleaners, wear **BOD** and COD action, Britt Jar (Dynamic Stern Layer patterns drainage/retention jar); Charge neutralization Colloids Dynamic Drainability (coagulation) Color: tester, measuring Chitosan, wet-strength dyeing of paper, additive retention dyestuffs, levels with Chlorine, effect on measurement of color Broke properties Colorcurve color dyeing of Broke pulping matching paper Broke recovery CIE system for system Broke systems; measurement Consistency control; automatic conveyor of color broke systems CIELAB system for color systems, broke Couch, broke measurement generation at generation, consistency control, Classifiers, screens couch pit CSF dry Clay Cleaners; end broke, flow of DAS fine bank cleaners. broke into main stock Deaerators: fine approach cannister-enclosed design of, flooding, system, handling dry hydraulic instability, cleaners, fine forward broke, pulping, cleaners, fine modular mechanical problem cleaners, forward deaerators. piping design, vacuum areas, rate of reuse of cleaners. high-density cleaners, leaks, vacuum system stored broke, saveall medium-density design use **Deckers** in, storage cleaners, reverse cleaners, Deposit control in Canadian Standard papermaking; throughpitch problems in mills Freeness flow cleaners, wear Calenders: **Detergents** patterns broke generated at Derjaguin, Landau, Verwey, Calcium carbonate; Cleaning precipitated calcium Closed mill system; Overbeek theory retention, effect of, carbonate Dewatering Carboxymethylcellulose white Dialdehyde starch (CMC) wet-strength water circulation (DAS) for additive CMC wet-strength; Cationic demand, Coagulation, cationic dialdehyde flocculation, furnish starch stabilization (CDAS) characteristics Cationic dialdehyde Coating, Cobb test Direct dyes DLVO theory starch (sizing) COD and BOD Cationic polymers in Drainage, wet end; Colloid chemistry; aids and mechanisms, fiber bonding association colloids, D'Arcy equation, CDAS coagulation, Dynamic Cellulose-reactive sizes; stabilization, Drainability Tester alkenyl succinic flocculation, deposit Jar), fiber/water anhydride, control alkyl ketene dimer, in papermaking, relationships, filtration mechanism of sizing electrical VS Centrifugal cleaning; double layer, Gouythickening fines, effect bank, modular, and Chapman region,

hydrophilic particles,

cannister-enclosed

paper machine

drainage pulping, Fractionation; Drop test (sizing) effect on fiber Baeur-McNett Drum filters: properties. fractionation broke generated at surface charge, water **FSP** Dry-strength additives; retention value (WRV) Furnish characteristics; fiber and fines consumption. Fibrillation contribution Filler pigments classification. to strength, gums, Fillers for paper; influence of mechanical strength dispersing to fiber furnish on dye furnish. improvement, mill behavior. starch derivative applications, product effect on paper addition to strength, function of, particle furnish starch derivatives, synthetic, use in shape and size, pigment Gouy-Chapman region, Japan Dual polymer systems papermaking characteristics. retention aids Graniting, dyeing pigment Dyeing of paper; chemical composition, Gums, dry batch coloring, pigment surface continuous strength/retention/draina charge, coloring, graniting, selection of, surface ge influence of furnish on additives: types of fillers mill use dve behavior, residual Filters: Gurley porosity testing disk filters, drum filters chlorine effect on, size press Filtration vs thickening, Headbox stock; coloring, surface drainage pulsations at the slice, Fines; coloring, stringing and slime filler fines, growth two-sidedness microflocculation, pulp Hercules size test Dyestuffs; fluorescent whitening fines, surface charge Hexamethylenediamine (HMDA) resins agents, safety and Flocculation, precautions in coagulation, Hexamethylolmalamine stabilization; handling, storage and handling influence of strength resin **Dynamic Drainability** flocculation on **HMDA** Tester drainage, isoelectric HMM Dynamic Hollander beater Drainage/Retention Flotation test (sizing) Hydrocyclones; Jar Florinated hydrocarbon design and operating sizes parameters, operating principles, theoretical Edgewick size test Foams: Electrical double layer, defoamers equations papermaking Formaldehyde resins Hydrogen bonding Electrokinetics role in Formation: drainage definition, Impellers; attrition pulper, **Emulsions** improvement in formation. bearings, Fatty acid soap sizes macroflocculation, belt drive speed Fiber fines measurement of. reducers. Fiber properties: microflocculation, bending moment. chemistry of fibers, microformation, chest shape factor, Quebec North Shore Mead saturation point (FSP), combined fiber-water tester stress, critical speed, relationships, (QNSM) cross-shaft propeller, design, drive end, fluid morphology, Formation aids force, horsepower papermaking Forming zone, paper

machine

response, level

fibers and fines,

omentum water conservation in liquid ring vacuum concept, Maxflo Paper whites, pumps, impeller, fluorescent rotary lobe blowers, momentum number, whites seal **PCC** nomenclature, process water conservation in PEI horsepower, special vacuum, steam jet PFI mill refining ejectors of agitators, thrust, Phosphomolybdic and torsional stress phosphotungstic acid QNSM Isoelectric point, zeta lake Quaternary ammonium potential dyes epoxide resins Pigments; Quaternary ammonium abrasion of, colored Linerboard; salts. effect of amphoteric pigments, filler cationic polyelectrolytes starch pigments (white), optical Quebec North Shore on strength properties, Mead formation tester Material safety data particle charge, sheets particle Maxflo impeller shape and size, RBA Melamine-formaldehyde refractive Reels: index, specific surface broke generated at F) wet-strength resins area, surface charge, Refiners: Metering, stock synthetic organic, conical refiners, Micro particle flocculant white construction and retention aids pigments operation, Mie theory of light Piping design for control systems, deaerators adaptive scattering Pitch problems in mills by pigments constant refining Polyacrylamide (PAM), Mixers intensity control, variable speed Munsell system for retention aid measurement of color Polyacrylamide-glyoxal drive, disk refiners, (PAMG) wet-strength hydraulics of refining, NCS color measurement resins secondary and tertiary Polyamide/amines flows system dewatering aids (PAA) Refining; Optical brighteners Polyamideequipment parameters epichlorohydrin influence on, PAA (PAE) wet-strength Frotopulper, PAE grade-specific resins PAM Polyamineconditions, **PAMG** epichlorohydrin hardwood fibers, Paper machine; wet-strength resins nonwood broke generation Polyelectrolytes, fibers, PFI-mill retention Paper machine water refining. product properties removal; aids Polyethyleneimine variations with drainage of the paper machine, mechanism resins refining, residence time, of (PEI) dewatering, zones of Polyvinyl alcohol, dry softwood strength additive fibers, specific edge dewatering Papermaking, deposit Precipitated calcium load theory (SEL), stock control carbonate Papermaking chemistry Pressing preparation systems, Papermaking fibers and Press pits, agitation of theory of, Valley fines; Product labels, safety beater properties of furnish precautions refining, variables Proportioning, stock components affecting Paper mills; Pumps; refining

Reject screens; screens, pressure partial batch reject pressure Screens, classifiers replacement for alum screens, vibrating Screens. Starch: nonpressurized; addition to furnish, screens Relative bonded area trash screens amphoteric starch, amylose and Retention aids: Screens, pressure; amylopectin, dual polymer system, applications, paper formation, effect of, machines, pulp mills, anionic starch, cationic headbox application secondary fiber starch, dry of. systems, micro particle systems, stock preparation and strength/retention/draina polyelectrolytes, salts, broke systems, batch silica, anionic, starch reiect additive, gums, Retention and retention pressure screens, retention controlling pressure aid aids. Starch derivatives papermaking; screens, performance Britt Jar (dynamic Stock preparation; drainage/retention jar), air in stock, pressure screen classifying fiber and cylinders, deaerators. holes, slots furnish characteristics, fines fractions, closed Seal water conservation pressure screen Secondary fiber applications, refiner systems, effect on retention, systems for, properties systems; colloidal retention debris in, pressure of furnish components, (flocs), screen mechanism of applications anionic trash, cationic retention. SEL, specific edge load demand retention aids Stock proportioning and theory Rolls: Sheet structure blending; broke generation at, Silica and silicates, batch blending rejected rolls proportioning, amorphous Rosin-based sizes: Size press coloring flowmetering fortified rosin sizes Sizing, internal; proportioning, alum, behavior in Rosin sizing metering Stock systems mechanism; water. drying effect soap size amphipathic Surface chemistry development molecules, Synthetic latex wetamphipathic strenath Safety, in handling molecules, resins capillary action, Synthetic polymer sizes dyestuffs, material safety data commercial sizing sheets, product labels agents, Talc Savealls: contact angle and Tensile energy use in broke systems, absorption surface flotation savealls wetting, practical (TEA) testing Schopper-Riegler requirements for Terpene resin sizes Freeness sizing, Testing; analysis for resins in Screening: rosin sizing backflushing, debris, mechanism, paper, effect of debris at the paper refining on rosin sizing machine, debris product properties, mechanism content Sizing agents; wetdetermination, debris usage trends strength testing Sizing mechanisms TETA in Thickening vs filtration, pulp, debris removal Sizing tests mechanisms, design of Skandinaviska drainage Farginstitute Tissue, sanitary; screening system, discharge paths, Aktiebolag effect of amphoteric

Sodium aluminate,

starch

plates,

on properties of
Titanium dioxide
TMM
Triethlylenetetramine
(TETA)
resins
Trimethylolmelamine
wetstrength resin
Two-sidedness

U-F wet-strength resins Urea-formaldehyde (U-F) wet-strength resins

Vacuum systems for deaerators Vacuum zone, paper machine Valley beater refining Van der Waals forces Vibrating screens Viscose process

Washburn equation for sizing paper Water conservation: in the paper mill, in vacuum pumps Water-fiber relationships Water removal; on the paper machine, on the press section Water retention value of fibers Waxed-based sizes Wet-end chemistry of retention, drainage and formation aids Wet pressing; broke generation at press pit, dewatering aids Wet-strength resins; acid-curing, alkalinecuring agents, analysis for resins in paper, application in mills, base-reactivated resins, markets, mechanism of wetstrength action, synthetic

latexes,

testing wet strength, wetend addition of White water; chests, agitation of, closina the system, reuse Winders; broke generation of Wires: broke generation at wire edge deckle Wood fibers, papermaking morphology

Zeta potential; electrokinetics, role in drainage, isoelectric point