



UMaine Process Development Center (PDC)

Department of Chemical & Biological Engineering

The PDC's facilities are available for contract research, development, and demonstration, technology transfer, pre-commercial trials, technical service, and educational training.

Equipment List, February 2009

<p>Chipping Carthage chipper Klockner chipper Weyerhaeuser ChipClass Classifier Acrowood chip screen</p>	<p>Pulping 1 ft³ digester 4.5 liter M/K digester (4) - 3 ft³ digester/extractor 12" Andritz Thermo-Mechanical Pulp refiner Slotted vibrating pulp screen Oxygen Delignification reactor</p>
<p>Bleaching Quantum reactor – 100-300 g batch, maximum 30% consistency, for chlorine, chlorine dioxide, hypochlorite and oxygen Bag bleaching capabilities for a range of chemistries Pilot bleaching line (Summer 2009)</p>	
<p>Stock Preparation / Refining 100 gal. Black Clawson repulper 200 gal. repulper 100 gal. Hollander beater 13" double disc refiner – in line or recirculating; variable speed drive 20" double disc refiner – in line or recirculating; variable speed drive JC-01 Conflo refiner – in line or recirculating; variable speed drive</p>	<p>Stock Preparation / Refining Centrisorter Various centricleaner systems Black Clawson deflaker PFI mills 1,000 gal. machine chest 1,000 gal. blend chest (2) 1,500 gal. stock chests (2) 3,000 gal. stock chests</p>
<p>Pilot Paper machine – 12" fourdrinier Additive set-up with multiple addition points 15" deckle, 13" reel width 20 – 120 ft./min. Average production rate of 1 lb/hour Dryer limited at 150 g/m² 3 – Low vacuum suction boxes 6 – High vacuum suction boxes Sweco pressure screen Inclined puddle size press Spray coater</p>	<p>Coating & Finishing Cylindrical Laboratory Coater – blade and rod coater capabilities Kady Mill mixer 13" 4-nip steel stack 12" 2 nip Beloit Wheeler hot soft nip stack Slitter/rewinder 24" guillotine trimmer</p>

Pulp and Paper Testing	Associated Laboratory Equipment
Capability to perform most Tappi Standard Test Methods	TAPPI standard environment room
Basis weight	Autoclave
Caliper	Incubators
Porosity – Gurley and Sheffield	Beloit Sheet Splitter
Smoothness – Sheffield and Parker Print Surf	Canadian Standard Freeness testers
Formation - Techpap	Schopper-Riegler Drainability testers
Brightness, Opacity, Gloss, Shade	Drying ovens
Tensile, Z direction tensile	Muffle furnaces
Zero and short span tensile	Fiber centrifuge
Burst, Tear, Fold, Stiffness, Compression, Abrasion,	Adirondack lab pulper
Internal bond	Somerville flat screen
Fiber morphology analyzer – Morfi & Fiber Quality	Britt jars
Analyzer	Bauer-McNett fiber classifiers
Wax pick	Various handsheet molds
Coefficient of friction	Auto handsheet presses
Sizing – HST and Cobb	Denver lab flotation cell
IGT Printability Tester	Lab extruder
KRK Printability Tester	Viscometer – Hercules, Brookfield
Mutek charge (Zeta and PCD)	Particle size analyzer – Horiba
	Stereomicroscopes
	Dynamic Drainage Analyzer