

Print and Materials Analysis Lab (PMAL) Services and Equipment

Services

Comprehensive Evaluations

- Evaluations of paper, ink, toner, fountain solution, plate, blanket, and other media
- Comparative print performance analysis
- Product audits
- Defect analysis
- Competitive benchmarking
- Product/grade development
- Customized corporate-sponsored studies and development activities
- Press simulation

Print Performance and Evaluation Criteria

Printability

- Dot analysis: gain, shape, roundness, spacing, placement
- Contrast resolution index
- Color gamut
- Gray scale densities
- Print gloss, delta gloss
- Print non-uniformity
- Print mottle
- Back trap mottle
- Banding (inkjet)
- Banded multiscreen anilox or single screen anilox (flexographic)
- Cell skip (gravure)
- Color-to-color bleed: black line over yellow background (inkjet)
- Feathering (inkjet)
- Folder crack test (web)
- Hexacrome, Hi-Fi (sheetfed)
- Ink trapping
- Modulation transfer function
- Pick count
- Light fastness

Runnability

- Contaminant test: slitter dust, milking, linting, picking (web, sheetfed)
- Wet pick vs. dry pick
- Back trap dry pick (sheetfed, web)
- Blister resistance, fiber rise (web)
- Chill marking (web)
- Ink and water balance window (web, sheetfed)
- Ink mileage (web)

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Services and Equipment

Services Continued

Paper Characterization

- Abrasion
- Caliper
- CIE whiteness; CIE color/shade
- Contact angle
- Formation, K&N oil absorption
- Grammage
- ISO /GE brightness
- Moisture
- Opacity, scattering coefficient
- Roughness
- Sheet dimensional stability: fan-in, fan-out
- Sheet formation
- Sheet mottle: uniformity
- Sheffield or Parker print surface roughness
- Water absorption
- TAPPI Brighness
- Fold
- Topography
- Stiffness
- Internal bond
- Porosity
- Surface strength
- Gloss
- Bursting strength
- Ash and filler
- Curl
- Paper edge quality
- Coefficient of static and kinetic friction
- Electrical surface volume resistivity
- Cut edge Quality
- Dust content cut size paper

Ink Characterization

- Color
- Grind
- Hue
- % Solids
- Set time
- Strength
- Tack
- Viscosity
- Water pick-up
- ISO 2846 color and transparency

Other Materials Analysis Options

- Absorption curves
- Debris analysis
- Electrophotographic print analysis
- Liquid absorption function
- Microsurface roughness
- Spectrophotometric curves

Print and Materials Analysis Lab (PMAL)

Services and Equipment

Instruments

Image Pro Plus Image Analyzer

- Image quality analysis
- Sheet dimensional stability (fan-in, fan-out)
- Sheet formation
- Print mottle
- Print roughness
- Print dot analysis
- Modulation transfer function
- Liquid absorption function
- Contact angle
- Debris analysis
- Surface roughness
- Micro surface roughness

KDY Image Analyzer

- Dot placement
- EP print analysis
- Inkjet print analysis
- Image analysis

Verity IA Image Analyzer

- Mottle
- Topography
- Formation
- Size and shape
- Calendar blacking

Datacolor SF600 Plus Colorimeter

- CIE whiteness
- CIE color responses
- Spectrophometric curves
- Absorption curves
- ISO/TAPPI brightness
- % OBA contents
- Ink color, strength and shade

BYK Gardner microgloss (60,75)

Technidyne S-4 Brightness Tester

Technidyne Technibrite Micro TB – 1C

- Brightness
- L*a*b*
- L*C*h*
- ISO opacity
- Hunter whiteness
- ASTM Yel
- ASTM/CIE/Wh/Tint
- Scat/absorp

Betaflex 334 Flexo System Analyzer

IGT F1 Flexography Printability Tester

IGT AIC2-5 & High Speed Inking Unit

- Press simulation
- Backtrap mottle
- Wet pick, dry pick
- Ink trapping

qea IAS Lab

- Dots
- Lines
- Text
- Density
- Color
- Graininess
- Mottle
- Banding
- Satellites
- Background
- Inter-color bleed

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Instruments Continued

Elmendorf Tearing Tester
MIT Folding Endurance Tester
32-07 TMI Slip and Friction Tester
Scott Internal Bond Tester
Cobb Test
Taber V-5 Stiffness Tester
Sutherland Rub Tester
Taber Abrasion Tester
Sheffield Smoothness / Porosity Tester
Gurley Bending Resistance Tester
Parker Print Surf Roughness / Porosity Tester
TMI Micrometer
Larray Falling Rod Viscometer
Brookfield Low Shear Viscometer
Paprican Dynamic Sorption Tester
Harper Phantom Proofer
Thwing Albert Inkometer
Duke water pickup Tester
Mettler AG204 analytical scale
ThermoLyne Muffle Furnace
Moisture analyzer, gravimetric method
Fisher Auto Tensiomat
Apparent Surface Tension Meter
Motorized Little Joe Proof Press
Keithley Electrometer
Keithley 8009 Resistivity Test Fixture
Color Measurement
X-Rite 938 and 939
X-Rite 528 and 530
X-Rite DTP70
X-Rite Spectroscan/Spectrolino
X-Rite eye-one iSis
X-Rite eye-one iO
X-Rite SpectroEye
X-Rite iCColor