



Thwing-Albert Instrument Company

More Than a Century of Testing Solutions

Spec*Scan Image Analyzer Software

Spec*Scan 2000/2001 is a grayscale image analyzer for pulp, paper and paperboard. Images are obtained using a desktop scanner and analyzed for specks, dirt, residual ink, pulp shives, printed patterns and other objects that optically contrast with the paper substrate by their size and reflectivity. The software also measures their size, location, grayscales and shape and generates reports. The measurements, of both size and reflectivity, are in accordance with TAPPI T-437 which states the estimated equivalent black area of a gray or colored speck is smaller than its actual area in inverse proportion to the intensity of its color contrast with its background.

Spec*Scan uses a simple statistical method to quantify differences in formation quality by analyzing the frequency distribution of the gray scale value of each pixel in the specimen sample image.

Operation Modes

Scan-to-Screen Mode: View the sample and study it in detail on your computer screen. This mode provides an image zoom, dynamic grayscale adjustment and a detailed display of results, speck area histograms, grayscale statistics, speck locations and sizes, sheet summaries and category listings. All set-up parameters are displayed on a single screen.

Scan-to-Printer Mode: High-speed mode oriented to scanning the samples and printing the results. By eliminating much of the operators interaction, this mode allows production analysis at the highest possible speed. It prints the same data as in other modes.

System requirements include a standard PC and a high resolution document scanner. A continuous sheet feeder is available to rapidly test a sample roll.

Ink Jet print quality can be evaluated by attaching a low end ink jet printer. Spec*Scan then evaluates sheets by printing a specific multi-colored pattern and measuring wicking and bleed properties as a function of the ink migration.

Specifications subject to change without notice.

Size (eq. mm.)	Number of Occurrences	Count	Percentage	Count	Percentage
>= 5.000	0	0	0.00	0	0.00
3.00-5.00	0	0	0.00	0	0.00
2.50-3.00	0	0	0.00	0	0.00
2.00-2.50	0	0	0.00	0	0.00
1.50-2.00	2	3	3.33	36	60
1.00-1.50	3	3	3.33	54	68
0.80-1.00	2	170	36	21	87.5
0.60-0.80	4	290	73	51	11.56
0.40-0.60	22	1949	389	190	22.05
0.30-0.40	31	1938	93	109	22.44
0.25-0.30	27	272	490	131	39.68
0.20-0.25	62	1381	1125	251	53.47
0.15-0.20	120	1748	1524	368	23.50
0.10-0.15	200	3351	5983	608	109.82
0.09-0.10	66	817	1961	148	116.89
0.08-0.09	121	1022	2197	165	121.29
0.07-0.08	151	1135	2741	205	138.55
0.06-0.07	249	1622	4502	294	154.77
0.05-0.06	397	2217	5988	321	172.87
0.04-0.05	629	4203	7770	345	151.56
Totals	400	1822	19156	3490	3477

▲ Speck count, total area & PPM; and reflectivity for specks and background of each sheet in group.

SHEET#	Sample Sheet(s)	Count	PPM	Min	Modal	Max	Avg	Min	Modal	Max	Avg		
Sheet Sheet1	401	401	10160	85	127	131	115.91	141	181	177	152.9		
Sheet Sheet2	448	448	11355	122	85	127	131	116.2	145	174	116.93		
Sheet Sheet3	263	263	4436	122	129	129	116.64	147	144	178	161.4		
Sheet Sheet4	404	404	46270	122	83	129	131	117.3	145	164	178	161.4	
Totals	1622	1622	181566	3490	347	84	127	131	117.0	145	162	177	160.8

▲ Specks sorted by average grayscale value (reflectance) & size for EBA Calculation.

Scanner Settings: DIRT Count, 600 dpi, 6" sq, 90% Auto

Defaults: Vendor: 216, Read / Load Number: 14785

Resolution: 600 Dots/Inch

Scanner Mode: 256 Grayscale

Area Setting: 6" Round

Scan Image: Normal Sample

DIRT Histogram: Upper Limit: >= 5,000; Lower Limit: 0.04 TAPPI

Printer Settings: DIRT Histogram, Categories, Gray Summary, DIRT Summary, Sheet Summary, Gray Histogram, Gray Statistics, Zone Statistics, XY Location, XY Location, Develop Sheet

Measurement: Absolute sq. mm., TAPPI Method, K128 Method

Manual Threshold Setting: Percent of Background, plus offset; Function of StdDev of Background

▲ One set-up screen with all image analysis & measurement parameters displayed.

Thwing-Albert Instrument Company
14 W. Collings Avenue, West Berlin, NJ 08091, USA
tel 856-767-1000 ■ fax 856-767-2615 ■ info@thwingalbert.com

